



Independent Pricing and Regulatory Tribunal

Review of prices for Sydney Water Corporation's water, sewerage, drainage and other services

From 1 July 2012 to 30 June 2016

Water — Draft Report
March 2012



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Invitation for submissions

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

Submissions are due by 13 April 2012.

We would prefer to receive them by email <ipart@ipart.nsw.gov.au>.

You can also send comments by fax to (02) 9290 2061, or by mail to:

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

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1 Executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is currently reviewing the prices Sydney Water Corporation (Sydney Water) can charge for water supply, sewerage and stormwater drainage services to residential and non-residential customers. We are also reviewing the prices of some recycled water services and a range of miscellaneous services, including trade waste. The purpose of the review is to determine the maximum prices for these services over the 4 years from 1 July 2012 to 30 June 2016 (the 2012 determination period).

This draft report explains our draft determination on these prices, including the rationale and analysis that underpin our draft decisions. We are seeking submissions from stakeholders on the draft report and determination, which we will consider before making our final determination in June 2012. Details on how to make a submission are provided on page iii at the front of this report. The closing date for submissions is 13 April 2012.

1.1 Overview of price outcomes

Under the draft determination, prices for Sydney Water's water services go down in real terms. Most customers will experience slight falls in real terms in their annual water and sewerage bills over the determination period (or slight increases once inflation is incorporated into prices). The water and sewerage bill of a typical residential house will fall by \$57 in real terms between 2012 and 2016. Most of this fall is due to:

- ▼ Our draft decision to set a real post-tax Weighted Average Cost of Capital (WACC) of 5.5%, which means Sydney Water will receive a lower rate of return on its assets over the next 4 years than it did from 2008 to 2012. This is consistent with, and similar to, the recent decision for Sydney Desalination Plant.¹
- ▼ A change in the way we estimate Sydney Water's tax liabilities.
- ▼ Our decision to cut Sydney Water's proposed capital expenditure over the next 4 years by around 16%.

¹ The real pre-tax WACC for Sydney Desalination Plant is 6.7%. The real pre-tax WACC for Sydney Water would be approximately 6.5% using the same input parameters. For more information about these parameters see Appendix C.

- ▼ Our prices being set on the basis that the Sydney Desalination Plant is in water security shutdown mode for the full 4 years of the new determination period. When the plant operates, a typical residential customer will pay about \$38 more a year.

However, some customers experience price increases, due to our decisions to restructure prices to remove cross-subsidies and improve the cost-reflectivity of prices. This price restructuring does not increase the total revenue received by Sydney Water for services. Rather it removes some inequities and improves the balance between fixed service charges and variable usage charges so that customers in all groups pay bills that better represent the costs they impose on Sydney Water. The price restructuring also ensures that prices send efficient price signals.

To mitigate the impacts on Sydney Water and its customers we have adopted a glide path approach to the price changes. That is, we have calculated the prices required in the final year and set prices in the interim years to transition to those prices. This smoothes price fluctuations.

1.2 What are the reasons for these price changes?

There are 2 main drivers of the price changes under the draft determination. The first is our draft finding that Sydney Water's revenue requirement over the determination period is lower than it proposed.² As a result, we have not accepted the average increase of 15% (plus inflation) in typical bills as Sydney Water proposed. The second is our draft decision to restructure Sydney Water's prices – in particular, to adjust the proportion of the total service and usage charges that each customer group pays. This decision leads to some prices decreasing and others increasing over the determination period.

1.2.1 Decision on Sydney Water's revenue requirement

Sydney Water proposed that its revenue requirement will increase by an average of 4.2% per year over the determination period, and as a result average bills should increase by around 15% (in real terms). However, our draft finding is that its revenue requirement will remain fairly stable during the period, increasing by an average of only 0.1% per year (real terms).

² Sydney Water proposed an increase of \$401 million (around 17%) over its 2011/12 revenue for 2015/16.

There are 4 main reasons why our finding on the revenue requirement is lower than Sydney Water proposed. Two of these are due to differences in the methodology we used to calculate the revenue requirement:

- ▼ We used a post-tax Weighted Average Cost of Capital (WACC) in calculating the allowances for returns on and of assets, in line with our 2011 decision to include tax as a separate cost building block in determining revenue requirements for water utilities.³ In its submission Sydney Water used a pre-tax WACC, in line with our previous approach.
- ▼ We have set prices on the basis that the Sydney Desalination Plant (SDP) will be in long-term shutdown mode for the 4 years of this determination, and included a methodology so that any costs associated with periods of plant operation will be passed through to customers in the next year. Sydney Water proposed prices on the basis that SDP would be in full operation mode, and any savings associated with periods of shutdown passed through in the next year.⁴
- ▼ In addition, we found that the appropriate level of post-tax WACC was 5.5%. This is consistent with, and similar to, the recent decision for Sydney Desalination Plant. Like our decision about Sydney Desalination Plant's prices, we have taken account of current market uncertainties by considering long term averages and selecting a WACC at the top end of our range. The calculations yield very similar results.
- ▼ We also allowed for lower capital and operating expenditure than Sydney Water proposed, in line with our view that there are opportunities for it to make efficiency savings in some areas of its proposed expenditure.

Table 1.1 illustrates the impact of our draft decisions, including those on Sydney Water's revenue requirement, on a typical residential bill over the determination period, compared to the impact proposed by Sydney Water.

³ IPART, *The incorporation of company tax in price determinations*, June 2011.

⁴ Our determination allows for any additional bulk water costs incurred by Sydney Water due to SDP operating and supplying water (in accordance with the Metropolitan Water Plan) to be passed through to customers' bills in the following year. This will increase typical residential bills by \$38 in 2015/16.

Table 1.1 Change to typical residential water and sewerage bill under Sydney Water's draft proposal and IPART's draft determination, 2011/12 to 2015/16

	\$2011/12
Change in bill under Sydney Water's proposal	+ 166
Impact of IPART decisions:	
Use post-tax WACC	- 54
Post-tax WACC of 5.5%	- 89
Prices set on the basis that SDP is in water security shutdown mode	- 38
Other SDP cost differences ^a	- 12
Apply efficiency savings to proposed operating expenditure	- 9
Apply efficiency savings to proposed capital expenditure	- 19
Other (including changes to price structures)	- 3
Total impact of IPART decisions on bill under Sydney Water's proposal	- 223
Total change in current bill under IPART's draft determination	- 57

^a Sydney Water's proposed prices include the prices SDP proposed in our review of SDP's prices. We have since issued our determination of SDP's prices. This difference is due to SDP's lower prices than Sydney Water anticipated when preparing its submission to us.

Note: Totals may not sum due to rounding.

1.2.2 Decision to restructure prices

IPART recently completed a broad review of the price structures of Sydney Water and the other metropolitan water utilities we regulate. This review identified that under the current price structure, the fixed charges that some Sydney Water customers pay do not reflect the cost of making the services available to them. As a result, other customer groups are paying more than the cost of providing their service. To remove these cross-subsidies and improve the equity and cost-reflectivity of Sydney Water's prices for all customers, we have made draft decisions to:

- ▼ **Introduce a standard water service charge of \$77.44 per year for all residential customers, regardless of their property type.** Currently, all customers with a single-dwelling property pay a standard water service charge of \$144.79 per year. However, there is no standard charge for those with a unit in a multi-dwelling property. On average, these customers pay around \$70 per year. However, some pay as little as \$5 to \$10 a year.⁵ We consider all residential customers receive equal benefits from the availability of a water supply service in their home, and so should all pay the same price for this availability. We note that differences in water usage levels between individual properties are reflected in the usage charge. Therefore, we have decided to introduce a standard water service charge for all these customers. As a result of this decision, many households in units (with a common meter) will pay a higher service charge than current levels, while all those in houses and individually metered units will pay a lower service charge.

⁵ This is because Sydney Water charges these customers on the basis of a share of a meter based charge.

- ▼ **Remove the standard sewerage service charge for non-residential customers with a strata unit in a property with a shared meter, and replace it with a meter-based charge.** These customers currently pay a service charge equal to the sewerage service charge for customers with an individual 20mm meter. In contrast, those in single-owner properties, who share the meter, pay a pro-rata share of the applicable sewerage service charge for the property's meter size.⁶ This means that non-residential customers in properties with the same size meter can pay very different charges for the same service, depending on the property's title. It also means that collectively, those in strata units contribute more than their share of Sydney Water's fixed sewerage costs, and thus cross-subsidise those in non-strata properties. To remove this cross-subsidisation, we have decided to restructure sewerage service charges so that all non-residential customers in a property with a shared meter pay a pro-rata share of charge applicable to the property's meter size. This results in increases in the total building charges for properties with a meter size of 25mm or larger. However, once that is shared between the customers in the building, the charge applicable to many non-residential customers within those properties will decrease as they will no longer be subject to the standard charge.
- ▼ **Reduce the sewerage usage charge for non-residential customers so it moves towards a level that reflects the short run marginal cost (SRMC) of treating sewage.** Currently, the level of Sydney Water's sewerage usage charge is above the estimated unit cost of collection, treatment and disposal of sewage. We are concerned that the current sewerage usage charge provides a poor pricing signal and could provide perverse incentives for some large customers to adopt on-site recycling where this is not efficient. If this were to occur, while inefficient, Sydney Water may lose the revenue stream and need to recover costs through higher charges to its remaining customers. As the estimated unit cost of collection, treatment and disposal of sewage is significantly less than the current usage charge, we have decided to transition the charge towards this cost over the determination period. As a result, the sewerage usage charge decreases by 33% over the period.

⁶ Sydney Water invoices the property owner a single charge based on the meter size.

- ▼ **Set area-based stormwater drainage charges.** As noted above, Sydney Water supplies stormwater drainage services to a small proportion of its customers. These customers currently pay a fixed charge, based on whether they are residential or non-residential. Area based charges reflect that land area is a key determinant of the costs to a drainage system, and can be used as a simple proxy for a property's contribution to runoff. Therefore, we have decided to introduce area-based charges over the determination period to make the charges more cost reflective. Residential customers will pay fixed charges (\$/year) based on their property type (single or multi-dwelling) as a proxy for property size. Non-residential customers with properties of up to 10,000m² will pay fixed charges depending on which of 3 property-size bands they fall into, while those with properties of more than 10,000m² will pay variable charges (\$/100m²). As a result of this decision, some customers, with larger areas, will pay higher charges while others will pay lower charges for stormwater drainage services.⁷

1.3 How do prices change?

Under the draft determination, the prices of some services for most customers decrease over the determination period, while those for others increase or stay the same (in real terms)⁸:

- ▼ For water supply services (Table 1.2):
 - The fixed service charges (\$ per year) decrease in each year of the period. For residential customers, the standard charge falls to almost half its 2012 level by 2016. For non-residential customers, it falls to around two-thirds of its 2012 level.
 - The variable usage charge (\$ per kilolitre) for drinking water does not change over the determination period, while the charge for unfiltered water increases by only 1% compared to its 2012 level.

⁷ We have also identified a second charge structure for stormwater drainage and seek feedback on the 2 options.

⁸ That is, the price before adjusting for inflation.

Table 1.2 Draft prices for water supply services (\$2011/12)

	Current (2011/12)	2012/13	2013/14	2014/15	2015/16	Total change
Service charges (\$/year)						
Residential - individual meter	144.79	122.46	107.12	92.17	77.44	-46.5%
Residential - common meter	N/A ^a	77.44	77.44	77.44	77.44	N/A
Non residential						
20mm individual meter	144.79	122.46	107.12	92.17	77.44	-46.5%
20mm meter	144.79	133.98	121.78	109.73	98.05	-32.3%
25mm meter	226.24	209.35	190.28	171.46	153.21	-32.3%
32mm meter	370.66	343.00	311.75	280.92	251.02	-32.3%
40mm meter	579.17	535.94	487.12	438.94	392.22	-32.3%
50mm meter	904.95	837.40	761.12	685.84	612.84	-32.3%
80mm meter	2,317	2,144	1,948	1,756	1,569	-32.3%
100mm meter	3,620	3,350	3,044	2,743	2,451	-32.3%
150mm meter	8,145	7,537	6,850	6,173	5,516	-32.3%
200mm meter	14,479	13,398	12,178	10,973	9,805	-32.3%
300mm meter	32,579	30,146	27,400	24,690	22,062	-32.3%
Usage charges (\$/kilolitre)						
Usage - drinking water	2.10	2.10	2.10	2.10	2.10	0%
Usage - unfiltered water	1.78	1.80	1.80	1.80	1.80	1%

^a Customers with a shared meter such as apartments currently pay a share of the service charge which is based on the size of the meter. This share depends on the number of units being served by the meter and the size of the meter. Under our draft determination, all apartments will now pay a set annual service charge.

▼ For sewerage services (Table 1.3):

- The fixed service charge (\$ per year) for residential customers and for almost half of non-residential customers does not change much over the period. For other non-residential customers, on individual meters of 25mm diameter or greater, this charge increases by around 73%.
- The variable usage charge (\$ per kilolitre) for non-residential customers decreases by around one-third over the period.

Table 1.3 Draft prices for sewerage services (\$2011/12)

	Current (2011/12)	2012/13	2013/14	2014/15	2015/16	Total change
Availability charges (\$/year)						
Residential	539.53	543.73	546.52	548.36	550.22	2.0%
Non residential						
20mm meter (individual)	539.53	543.73	546.52	548.36	550.22	2.0%
20mm meter (shared)	539.53	619	711	815	935	73.2%
25mm meter	843.02	968	1,110	1,273	1,460	73.2%
32mm meter	1,381	1,585	1,819	2,086	2,393	73.2%
40mm meter	2,158	2,477	2,842	3,260	3,738	73.2%
50mm meter	3,372	3,870	4,441	5,093	5,841	73.2%
80mm meter	8,633	9,908	11,368	13,039	14,953	73.2%
100mm meter	13,488	15,482	17,763	20,374	23,364	73.2%
150mm meter	30,349	34,834	39,967	45,841	52,570	73.2%
200mm meter	53,954	61,928	71,053	81,495	93,458	73.2%
300mm meter	121,396	139,337	159,869	183,364	210,280	73.2%
Usage charge (\$/kilolitre)						
Non-residential	1.49	1.37	1.24	1.11	1.00	-33.0%

- ▼ For the stormwater drainage services that Sydney Water supplies to a small proportion of its customers⁹ (Table 1.4):
 - The charge for residential customers is based on property type. For those in multi-dwelling properties (such as units) it decreases by around 70%, and for those in single-dwelling properties (such as houses) it increases by 75% (in real terms) to reflect the different stormwater drainage impacts of these property types.
 - The charge for non-residential customers is based on property size. For those with properties of 1,000m² or less, it decreases. However, for those with properties of more than 1,000m², it increases significantly.
- ▼ For miscellaneous services we have adopted Sydney Water's proposal to simplify the charging schedule and reduce most prices in the first year. For the following 3 years prices increase by the change in the CPI.¹⁰

⁹ There are just over 500,000 customers, mostly located in the inner west and inner south west of Sydney who receive stormwater drainage services from Sydney Water. For the remaining customers, stormwater drainage services are supplied by their local council.

¹⁰ Which we have assumed to be 2.5% pa over the determination period.

- ▼ We have not made draft decisions on the charges for trade waste services. Sydney Water has proposed significant changes in these charges with large bill impacts for some customers. It has prepared supplementary submission in response to issues raised at a workshop we held as part of our review process. We expect to receive and will publish this submission at the same time as this report. We invite trade waste stakeholders to comment on this submission in their responses to this draft report. We will be holding a further public workshop on trade charges to discuss options for trade waste charges. We will issue our final decision on trade waste charges in the final report due out in June.

Table 1.4 Draft prices for stormwater drainage services (\$2011/12)

	Current (2011/12)	2012/13	2013/14	2014/15	2015/16	Total change
Stormwater drainage						
Availability charges						
Residential						
Apartments	49.08	50.00	43.00	28.00	16.00	-67.4%
Houses	49.08	60.00	73.00	80.00	86.00	75.2%
Non-residential						
Non-residential 0-200m ²	127.74	50.00	43.00	28.00	16.00	-87.5%
Non-residential 201-1,000m ²	127.74	60.00	73.00	80.00	86.00	-32.7%
Non-residential 1,001-10,000m ²	127.74	200.00	350.00	500.00	580.00	354.0%
Non-res. > 10,000m ² (\$/100m ²) ^a	127.74	3.00	8.00	13.00	17.00	Large, depends on property size
Rouse Hill River Management Charge						
Residential	128.58	128.58	128.58	128.58	128.58	0.0%
Non-residential	128.58	128.58	128.58	128.58	128.58	0.0%

^a Stormwater drainage charges for the largest non-residential customers (> 10,000m²) are now based on the land area of that customer.

1.4 Impact on residential customer bills

Most residential customers' total water and sewerage bills will decrease in real terms over the determination period. For example, the bills of households in single dwelling properties who consume 200 kL of water per year¹¹ decrease by a total of \$57 (or 5.2%) over the determination period, or by an average of 1.3% per year. When inflation is included, their bills increase by a modest \$51.50 (or 4.7%) over the period, or an average of 1.1% per year.¹² This means that bills are increasing at a slower rate than other household items, and typically income.

¹¹ This is the average water usage for residential customers in houses.

¹² Assuming forecast change in the CPI of 2.5%, in line with the midpoint of the Reserve Bank of Australia's inflation target.

However, households with units in multi-dwelling properties and those with a shared water meter will experience different changes to their bill, due to our draft decision to set a standard water service charge of \$77.44 (\$2011/12) for these customers in each year of the determination period (see section 1.2.2 above). The impact of this decision will depend on the customer's current water service charge, which varies from property to property. The bills of customers currently paying the average water service charge for units of \$70 per year and consuming 135kL of water per year¹³ will increase by a total of \$18.08 (or 2.0%) over the determination period, or an average of 0.5% per year (in real terms). However, this increase will be offset by the reduction in the stormwater drainage charge for those customers who receive this service.

Table 1.5 shows the indicative impact of the draft determination on residential water and sewerage bills for customers with individual meters and various levels of water usage (in real terms).

Table 1.5 Impact of draft determination on annual water and sewerage bills for residential customers with individual meters (\$2011/12)

Water usage pa	Current (2011/12)	2012/13	2013/14	2014/15	2015/16	Total change SDP off
100 kL	895	876	864	851	838	-57
change		-2.1%	-1.4%	-1.5%	-1.5%	-6.4%
200 kL	1,105	1,086	1,074	1,061	1,048	-57
change		-1.7%	-1.2%	-1.2%	-1.2%	-5.2%
300 kL	1,315	1,296	1,284	1,271	1,258	-58
change		-1.4%	-1.0%	-1.0%	-1.0%	-4.4%

Note: Totals may not add due to rounding.

It is important to note that the draft prices and bills discussed in this report do not reflect the costs Sydney Water will incur if it is required to purchase drinking water from the Sydney Desalination Plant (SDP) during the determination period. If Sydney Water does need to purchase drinking water from the SDP in any year of the period, the draft determination provides for Sydney Water to pass through the associated costs to customers by adjusting prices in the following year. If SDP were to operate at full capacity for the 4 years of the new determination period, typical residential bills will be as shown in Table 1.6 below.

¹³ Based on our household survey 135 kL is the median consumption for residential customers in flats and units.

Table 1.6 Impact of draft determination on annual water and sewerage bills for residential customers with individual meters (\$2011/12) – SDP operating at full capacity

Water usage pa	Current (2011/12)	2012/13	2013/14	2014/15	2015/16	Total change SDP on
100 kL	895	876	896	886	875	-19
change		-2.1%	2.3%	-1.1%	-1.2%	-2.2%
200 kL	1,105	1,086	1,106	1,096	1,085	-20
change		-1.7%	1.8%	-0.9%	-1.0%	-1.8%
300 kL	1,315	1,296	1,316	1,306	1,295	-20
change		-1.4%	1.5%	-0.8%	-0.8%	-1.5%

Note: Totals may not add due to rounding.

Note: The 2012/13 bills are the same for whether SDP is operating or not because the cost pass-through is implemented in the year following the year of operation. If SDP is operating in 2015/16 this will be accounted for in the first year of the next determination.

This means that should SDP operate at full capacity, residential bills will be \$38 higher in 2015/16 than if SDP was in water security shutdown mode.

Homeowners who are pensioners will be largely unaffected by our draft pricing decisions, regardless of their property type. Their water and sewerage bills stay fairly constant, increasing by \$1 in real terms over the determination period.

The households that receive stormwater drainage services from Sydney Water will experience other changes to their bills for these services, due to our draft decision to transition to area-based charges (see section 1.2.2). Households in units will pay increasingly lower stormwater drainage charges over the determination period, with prices moving from \$49 in 2012 to \$16 in 2016. For units who have their stormwater drainage services delivered by Sydney Water, this decrease of \$33 by 2015/16 more than offsets the forecast average increase in water and sewerage charges for units of \$18. This means the average household in a unit with water, sewerage and stormwater drainage services should receive a slight decrease in its bill in real terms.

Those in houses will pay increasingly more, with prices rising from \$49 to \$86. This reflects the stormwater impacts of those properties. We have decided to transition to the new charges over this determination period to mitigate the impact on customers with houses.

The size of these costs and their impact on customers will depend on SDP's operating schedule. However, as an indication, if SDP operates at 100% capacity in any year it will cost Sydney Water an additional \$50 million to \$70 million (\$2011/12) each year.¹⁴ For residential customers and most non-residential customers (those with a 20mm individual meter), this will add an additional \$33 to \$38 (\$2011/12) to their total bill each year. For other non-residential customers, the amount it will add to

¹⁴ The actual amount can vary between \$50 million to \$70 million (\$2011/12) each year because of varying maintenance costs.

their total bill will depend on their meter size and whether that meter is shared. However, those with an individual 25mm meter will pay an additional \$58 to \$75 (\$2011/12) each year and those with larger meters will pay proportionately higher amounts.¹⁵

1.5 Impact on non-residential customers

Non-residential customers with individual, 20mm meters – who make up nearly half of Sydney Water’s non-residential sewerage customers – will experience a reduction in their total water and sewerage bills.¹⁶ This is largely due to reductions in their water service charge and sewerage usage charge. However, those with individual, 25mm or larger meters will face higher bills. This is due to our draft decision to restructure sewerage service charges, which resulted in increases in these charges per property (see section 1.2.2). The customers most affected are those with relatively low sewage discharge volumes.¹⁷ For those with large sewage volumes, the impact of higher sewerage service charges is offset by lower usage charges, so their bill increases are lower in percentage terms.

Table 1.7 shows the indicative impact of the draft determination on non-residential water and sewerage bills for customers with individual meters, various levels of water usage and average sewerage volumes (in real terms).

Table 1.7 Impact of draft determination on annual water and sewerage bills for non-residential customers with individual meters (\$2011/12)

	Meter size	Current size (2011/12)	2012/13	2013/14	2014/15	20/1516	Total change
Water usage pa							
260 kL	20mm	1,231	1,212	1,200	1,187	1,174	-57
%increase			-1.5%	-1.0%	-1.1%	-1.1%	-4.7%
350 kL	25mm	1,628	1,709	1,802	1,912	2,042	414
%increase			4.9%	5.5%	6.1%	6.8%	25.4%
1,000 kL	40mm	4,820	5,057	5,315	5,604	5,934	1,114
%increase			4.9%	5.1%	5.4%	5.9%	23.1%
10,000 kL	100mm	46,354	46,756	47,358	48,252	49,483	3,129
%increase			0.9%	1.3%	1.9%	2.6%	6.8%

Note: Average sewage discharge factors used.

¹⁵ If SDP has to restart and/or shut down over the period, Sydney Water will incur large one-off charges of up to \$5.5 million. If this occurs, this will also add to customer bills.

¹⁶ We have assumed water usage of 260 kL per year, which is the average water consumption by this customer group as reported by Sydney Water.

¹⁷ Customers may elect to move from a larger meter size to a 20mm meter if an assessment of their requirements confirms that a 20mm meter is adequate. Customers requesting to move from a larger meter to a 20mm meter will pay a charge to move to a smaller meter.

Non-residential customers who share a meter will experience varied impacts on their bills, depending on whether or not they are in a strata property, the number of customers that share the property's meter, and their sewage volumes. Those who are in strata properties may see decreases in their bills, due to our decision to remove the minimum sewerage service charge currently applicable to them (see section 1.2.2). Those who are likely to experience the largest increases in percentage terms are those who share a meter with a small number of other customers, but have low sewage volumes.

Non-residential customers that receive stormwater drainage services from Sydney Water with property sizes of 1,000m² or less will pay lower stormwater drainage charges over the determination period. In 2016, they will pay up to \$111 less per year than in 2012. However, those with property sizes of 1,001m² or more (who number around 500) will pay increasingly higher charges over the period. Those with properties sized between 1,001m² and 10,000m² will see their charges increase by 354% over the period, from \$128 in 2012 to \$580 in 2016. We recognise that these price increases are large, and may have a significant impact on some customers and considered other price structures set out in Chapter 9. We seek submissions from stakeholders on our draft decisions and the alternatives.

1.6 Impact on Sydney Water

Under our draft determination, Sydney Water is expected to generate approximately \$1,322 million (\$2011/12) (or 13%) less revenue than it submitted is necessary to recover its efficient costs and earn a reasonable rate of return on its assets over the 4-year determination period. Sydney Water submitted that its revenue requirement will increase over the period, due to its forecasts of increased costs to maintain and renew assets, service urban growth, offset the revenue impact of reduced water demand on its ability to pay its fixed costs, implement the Priority Sewerage Program, and other factors including the carbon price. However, based on our views of efficiency, prudence and market cost of capital, we found its revenue requirement should decrease slightly (by around 4%) from its expected revenue in 2011/12 to 2012/13, then remain fairly stable (within 1%) over the last 3 years of the period. Table 1.8 compares Sydney Water's proposed notional revenue requirement to our draft finding.

Table 1.8 Notional revenue requirement (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16
Sydney Water's proposal				
Return on assets	955.5	995.5	1,034.9	1,069.4
Return of assets (depreciation)	211.1	226.4	241.4	255.1
Operating expenditure ^a	1,361.7	1,372.1	1,374.3	1,374.3
Total notional revenue requirement	2,528.3	2,594.0	2,650.7	2,698.8
IPART's draft decision				
Return on assets ^b	721.9	751.5	781.6	804.0
Return of assets (depreciation)	207.1	219.8	232.0	242.6
Operating expenditure	1,268.5	1,265.8	1,259.6	1,252.5
Total notional revenue requirement	2,197.5	2,237.1	2,273.2	2,299.0

^a Includes costs of bulk water and desalinated water, and an allowance for a return on working capital.

^b Includes an allowance for a return on working capital and an allowance for tax obligations.

Note: Totals may not add due to rounding.

Note: Figures differ slightly from those presented in Sydney Water's submission because IPART includes income from some activities that Sydney Water has excluded from its calculation of notional revenue requirement.

Source: Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services, 16 September 2011, p109.

We consider that our draft determination will allow Sydney Water to deliver its services to the required standard and earn a real post-tax rate of return of at least 5.5%. Our preliminary modelling shows that the draft determination will allow Sydney Water to maintain its financial viability, and achieve an investment grade credit rating in each year of the determination period.

1.6.1 Service standards

Our draft finding on Sydney Water's revenue requirement assumes that it will maintain its current services levels and will not reduce these levels to achieve cost reductions and efficiency savings. We consider that our draft prices will continue to allow Sydney Water to meet the service standards required by its operating licence while reducing the potential for price increases to fund over-performance.

1.6.2 Rate of return

As section 1.2.1 discussed, we used a real post-tax WACC in calculating the allowances for a return on assets and depreciation, and calculated a separate allowance for tax liability. Our recent research¹⁸ indicates that this approach leads to a more accurate estimate of a water utility's tax liability compared to using a real pre-tax WACC (as we have in previous determinations). The move to a post-tax WACC

¹⁸ IPART, *The incorporation of company tax in price determinations*, June 2011.

has reduced Sydney Water's notional revenue requirement by around \$100 million per annum (or 3.7%).

We estimated that the feasible range for Sydney Water's post-tax WACC is 4.0% to 5.5%, with a midpoint of 4.6%. We decided to use a WACC of 5.5% - the top of this range - largely due to current market uncertainties and the longer term averages for market parameters.

We consider that our pricing decisions will allow Sydney Water to achieve at least the total notional revenue requirement in each year of the determination period, and thus earn a real post-tax rate of return of 5.5% on its Regulatory Asset Base (RAB) in each year.

1.6.3 Efficiency savings

In reaching our finding on Sydney Water's notional revenue requirement, we allowed for lower levels of operating and capital expenditure than it proposed, in line with our view that there are opportunities for it to improve the efficiency of its forecast expenditure programs. This view reflects the findings and recommendations of our consultants, WS Atkins International Ltd and Cardno (Atkins Cardno), who conducted a rigorous review of Sydney Water's forecast expenditures.¹⁹

We reduced Sydney Water's forecast operating expenditure (excluding bulk water costs) by \$32.8 million (or around 0.9%) to reflect efficiency savings that can be made through innovation and technological development, and the catch up efficiency required of Sydney Water to achieve the performance of a Frontier Company over time.

We reduced the forecast capital expenditure by around \$484 million (or around 16%) over the determination period. This reflects a re-phasing of capital programs to beyond the end of this determination period, a slight change in the growth assumptions and the introduction of stretch efficiency targets for Sydney Water, in line with Atkins Cardno's recommendations.

We also reduced the level of past capital expenditure Sydney Water proposed be incorporated into its RAB by \$65 million. This reflects our findings that Sydney Water did not consider all the potential options for Priority Sewerage Program projects, some expenditure on IT and meter replacement was imprudent and property related expenditure was higher than necessary. We also adjusted Sydney Water's proposal to reflect the timing of payments made through Developer Commercial Agreements.

¹⁹ WS Atkins International and Cardno, *Detailed review of Sydney Water's operating and capital expenditure, Final Report* November 2011,.

We note that Atkins Cardno found little evidence of either a long term investment plan or a long term business plan for Sydney Water. We are concerned by these observations and their implications for asset management and efficient expenditure.

Since the release of Atkins Cardno's final report, Sydney Water has written to us contesting a number of findings in this report. Sydney Water proposes that at least \$285 million of the identified expenditure savings be reinstated and expresses concerns about future service quality. Atkins Cardno provided a response, which can be found on our website. In summary it argues that:

- ▼ Sydney Water's proposal to increase spending on renewing existing water mains is overly ambitious and would more realistically increase steadily each year, rather than stepped up as Sydney Water proposed. Atkins Cardno reiterates that its recommended expenditure on these programs is still significantly higher than Sydney Water's actual expenditure since 2008.
- ▼ Sydney Water's proposed expenditure for system reliability works and wet weather overflow abatement were not fully developed.
- ▼ Some of the proposed expenditure on providing infrastructure for growth could be deferred due to the uncertainty of future growth rates.
- ▼ \$143 million in capital efficiency gains was achievable.
- ▼ Some spending on IT and water meters was not adequately justified.

Having considered the arguments advanced by Sydney Water and Atkins Cardno we have decided to adopt the forward capital expenditure program proposed by Atkins Cardno, subject to 2 arithmetical corrections confirmed by Atkins Cardno.

1.6.4 Financial viability

We assessed the impact of our draft determination on Sydney Water's financial viability using the methodology outlined in our 2011 financeability policy²⁰. Our methodology incorporates inputs provided by NSW Treasury which are no longer available. As an interim measure, we have undertaken our financeability assessments using our previous approach. We will obtain further information and update our analysis of Sydney Water's financeability before the Final Determination.

In our financial modelling we applied a 70% dividend payout ratio rather than the fixed dividend assumptions contained in Sydney Water's submission. We consider that this approach reflects NSW Treasury's standard reference point of a dividend payout ratio of 70% of post-tax profit for Government businesses.²¹

²⁰ IPART, *Financeability tests and their role in price regulation*, January 2011.

²¹ NSW TC 09/11, Treasury Circular – Distribution Policy.

Our decisions on the inputs to the revenue calculations, such as the rate of return on assets, are based on market conditions and are independent of the revenue requirements generated by dividend agreements. Our decisions assume that Sydney Water is operating as a commercial entity in a competitive market.

Under a 70% dividend payout ratio, our financial modelling indicates that Sydney Water will have an investment grade credit rating in each year of the determination period.

1.7 Structure of this report

This report explains decisions for the draft determination in detail, including analysis that guided each decision. The report is structured as follows:

- ▼ Chapter 2 outlines the scope and context for the review, including our review process, Sydney Water's operating and regulatory environment, and Sydney Water's submission and proposed prices
- ▼ Chapter 3 outlines our price setting approach and draft decisions related to the regulatory framework
- ▼ Chapter 4 explains the 'building block' approach we used to establish Sydney Water's notional revenue requirement, and provides an overview of our draft decisions on this revenue requirement and its individual components
- ▼ Chapters 5 and 6 discuss our draft decisions on these individual components in more detail:
 - Chapter 5 explains the draft decisions on Sydney Water's efficient operating expenditure
 - Chapter 6 explains the draft decisions on the allowances for a return on assets and regulatory depreciation
- ▼ Chapter 7 discusses our draft decisions on Sydney Water's forecast water sales
- ▼ Chapters 8 and 9 explain the draft decisions on Sydney Water's price structure and set out the draft price levels
- ▼ Chapter 10 assesses the implications of our draft pricing decisions on customers
- ▼ Chapter 11 assesses the implications of our draft pricing decisions on Sydney Water, general inflation and the environment.

2 Context for this review

The purpose of this review is to determine the maximum prices Sydney Water can charge for the water, sewerage and stormwater drainage services it provides to residential and non-residential customers in the Sydney, Illawarra and Blue Mountains areas. It is also to determine maximum prices for some recycled water services, trade waste services and the range of miscellaneous services Sydney Water provides.

The review is being conducted in an environment that is significantly different from the one in which we undertook the previous 2 determinations for Sydney Water. Those determinations were made in a time of severe drought in the Sydney area which saw dam levels falling and water restrictions introduced. With the passing of the drought and the commissioning of SDP, dam levels are currently at, or close to 100%, and water restrictions have been replaced with less stringent Water Wise Rules. The changed environment has some important implications for Sydney Water's costs, sales, pricing, and financial position. These implications are discussed in the relevant chapters throughout this draft report.

The sections below outline some other contextual issues that have influenced our review, including other recent reviews that have affected our decisions and inputs, our review process, the matters we are required to consider in making our determination, and Sydney Water's pricing submission to the review. Appendix A provides some background information on Sydney Water's operating and regulatory environment.

2.1 Other reviews that have affected our decisions and inputs

We have recently completed or are concurrently conducting 3 reviews that affect the inputs of our calculations of Sydney Water's costs and prices. These are:

- ▼ the review of prices to be charged by the Sydney Catchment Authority²² (SCA) for its bulk water services
- ▼ the review of prices to be charged by the Sydney Desalination Plant Pty Limited²³ for its bulk water services

²² This review is being conducted concurrently with our Sydney Water review, see IPART, Review of Sydney Catchment Authority's Operating Licence and Prices from 1 July 2012.

²³ This review was completed in November 2011, see IPART, Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012, November 2011.

- ▼ the review of price structures for metropolitan water utilities²⁴

Sydney Water purchases most of the bulk water it needs to supply its customers from SCA. For this draft determination, we have calculated Sydney Water's bulk water costs on the basis of our draft determination of SCA's prices.²⁵

The Sydney Desalination Plant (SDP) was built to increase the security of Sydney's water supply in times of low rainfall, rather than to operate continuously. Under contractual arrangements, it is obliged to operate when Sydney's dam storage levels fall below 70% of their capacity and continue to operate until they return to 80%. Sydney Water is obliged to purchase the water produced by SDP during such times.

The prices in our draft determination are set on the basis of SDP being in water security shutdown mode throughout the determination period. If it operates in a different mode and produces water, we have provided that Sydney Water can pass through to customers in the following year the additional costs it incurs. These costs will be calculated on the basis of our 2011 determination on SDP's prices.

In addition to these reviews, we recently completed a review of price structures for the metropolitan water utilities we regulate. The conclusions of this review have had a significant influence on Sydney Water's prices, and our draft decisions to restructure these prices to remove cross-subsidies and improve cost reflectivity for all customer groups. These findings are discussed briefly in Chapter 8. However, for detailed information, please see the paper on this review on our website.²⁶

2.2 IPART's review process

Up to this stage of our review, we have undertaken an extensive investigation and public consultation process. We have:

- ▼ released an Issues Paper in June 2011 to assist in identifying and understanding the key issues for review
- ▼ invited Sydney Water to make a submission to the review detailing its pricing proposal, and requiring it to provide extensive financial and performance data on the future capital and operating expenditure necessary to maintain service levels and respond to regulatory demands²⁷
- ▼ invited other interested parties to make submissions on the Issues Paper and Sydney Water's submission²⁸
- ▼ held a public hearing on 22 November 2011 to discuss a wide range of issues raised by Sydney Water and other stakeholders

²⁴ This review is being conducted concurrently with our Sydney Water review, see IPART, Review of price structures for metropolitan water utilities, March 2012.

²⁵ IPART, *Review of prices for Sydney Catchment Authority - Draft Report*, March 2012.

²⁶ IPART, *Review of price structures for Metropolitan Water Utilities*, March 2012.

²⁷ Sydney Water's submission was received on 16 September, 2011.

²⁸ A total of 25 written submissions were received from other interested parties.

- ▼ engaged an independent consultant, W.S. Atkins International Ltd in association with Cardno (Atkins Cardno), to review Sydney Water's capital expenditure, asset planning and operating expenditure proposals²⁹
- ▼ engaged an independent consultant, Deloitte Touche Tohmatsu Ltd (Deloitte), to review Sydney Water's proposals for Trade Waste charges³⁰
- ▼ conducted public workshops to consider the method for forecasting water sales and Trade Waste charges
- ▼ released this draft report and draft determination.

We now invite stakeholders to make submissions to this draft determination and report.³¹ Details on how to make a submission can be found on page iii at the front of this report.

During the next stage of the review, we will consider all matters raised in submissions in response to the draft report and determination, and then make our final determination in June 2012. The new charges are expected to apply from 1 July 2012.

IPART's Issues Paper, stakeholder submissions, the transcript from the public hearing, information on the public workshops and Atkins Cardno's report and Deloitte's report are available on IPART's website (www.ipart.nsw.gov.au).

2.3 Matters we are required to consider

Our power to determine prices is derived from our governing Act, the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act). This review is being conducted under Section 11 of the IPART Act. Section 11 provides IPART with a standing reference to conduct investigations and make reports to the Minister on the determination of the pricing for a government monopoly service supplied by a government agency.³²

Section 15 of this Act requires IPART to consider a broad range of matters when making determinations.³³ These matters include:

- ▼ **consumer protection** – the protection of consumers from abuses of monopoly power; the quality, reliability and safety standards of the services concerned; and the social impact of pricing decisions and their effect on inflation

²⁹ Atkins Cardno's final report was received in November 2011.

³⁰ Deloitte's final report was received on 16 December 2011.

³¹ Submissions to this draft determination and report should be received by 13 April 2012.

³² The government agency must be specified in Schedule 1 of the IPART Act. Sydney Water is listed as a government agency for the purposes of Schedule 1 of the IPART Act.

³³ The Section 15 requirements are listed in full in Appendix A.

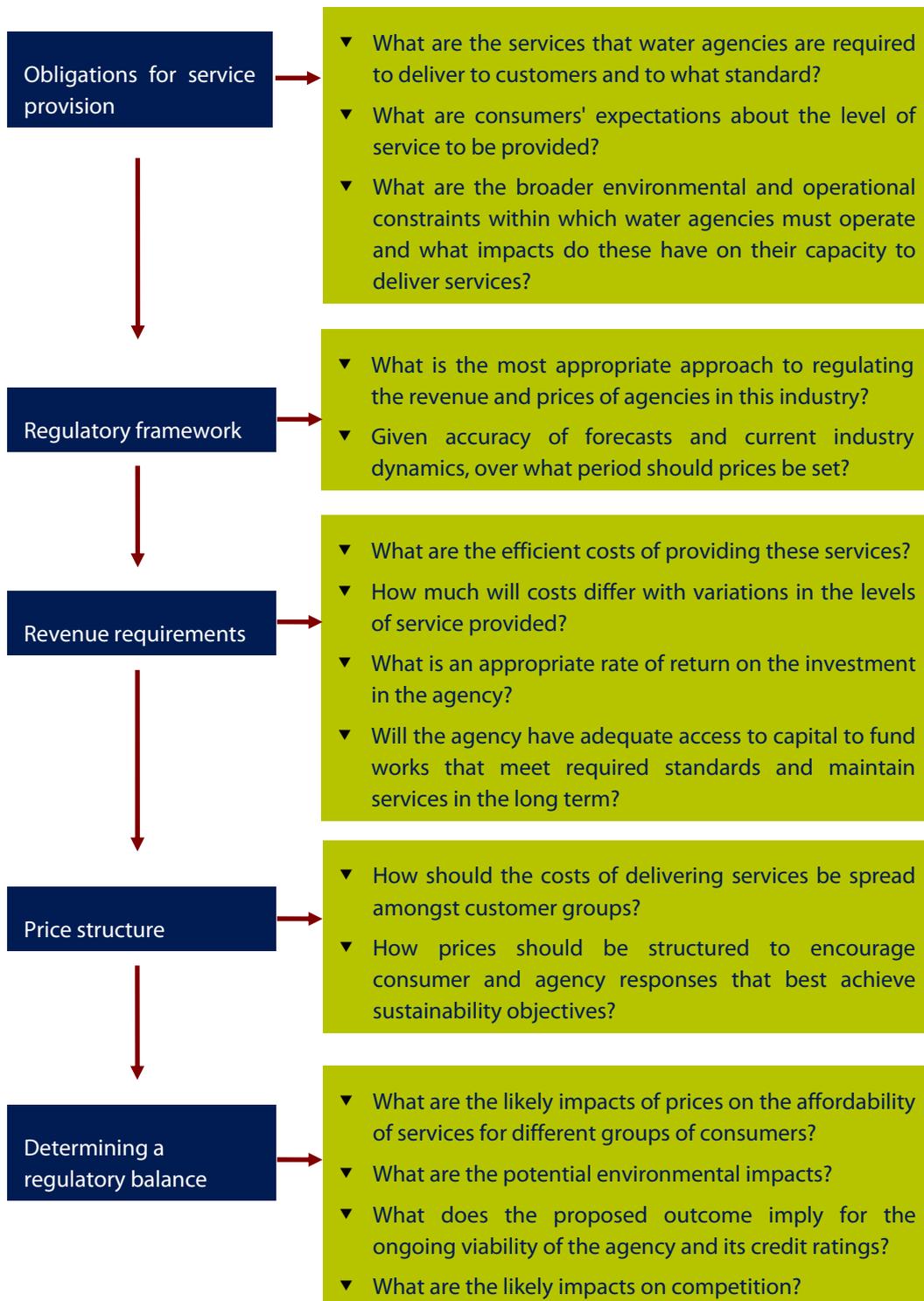
- ▼ **economic efficiency** – the need for greater efficiency in the use and supply of services; the need to promote competition; and the need to consider demand management and least-cost planning
- ▼ **financial viability** – the cost of providing the services concerned, the appropriate rate of return on public sector assets; and the impact of pricing decisions on the agency’s borrowing, capital and dividend requirements
- ▼ **environmental protection** – the need to promote ecologically sustainable development through appropriate pricing policies.

In considering these matters, we aim to balance the diverse needs and interests of stakeholders, while also ensuring that Sydney Water is adequately recompensed for the services it provides. We also take into account the principles issued by the Council of Australian Governments (COAG) and contained in the National Water Initiative.³⁴

With these requirements in mind, we have developed a general approach to determining monopoly prices for water agencies. That approach is set out in Figure 2.1 below. We have followed that approach to this stage of our review and will continue to do so as we consider submissions to the draft report and determination and before making our final decisions.

³⁴ The National Water Initiative has built on the principles established in the 1994 COAG Water Reform Framework.

Figure 2.1 IPART’s determination process



2.4 Overview of Sydney Water's submission

We received Sydney Water's pricing submission to this review on 16 September 2011. Its submission proposes a real increase in prices of around 15% over the period from 1 July 2012 to 30 June 2016. For a typical residential household consuming 200 kL of water a year, this represents a \$166 increase (\$2011/12) in their water and sewerage bill over the period (Table 2.1).

Table 2.1 Annual water and sewerage bill for a residential customer consuming 200 kL per year under Sydney Water's proposal (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total
Annual Bill (\$)	1,105	1,208	1,231	1,252	1,271	
Annual Increase (\$)	-	103	23	21	19	166
Annual Increase (%)	-	9.3	1.9	1.7	1.5	15.0

Note: Excludes stormwater charges.

Source: Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 125.

Sydney Water's submission identifies a range of cost pressures contributing to the proposed increase including:

- ▼ increased capital expenditure on renewing existing assets
- ▼ capital expenditure on servicing growth areas which is currently not recovered from developer charges³⁵
- ▼ reduced water demand³⁶
- ▼ the impact of growth on the Regulatory Asset Base (RAB) over recent determinations.

Sydney Water considers that the consequence of IPART not granting the proposed increase will be a significant reduction in Sydney Water's financial viability:

Failure to achieve full cost recovery will put Sydney Water under financial stress and make its financial position unsustainable.³⁷

2.4.1 Sydney Water's proposed annual revenue requirement

Sydney Water's submission sets out its proposed annual revenue requirements over the 4 years to 2015/16 (Table 2.2).

³⁵ Revenue from developer charges was used to fund the capital cost of providing services to new developments in Sydney Water's operating area. On 17 December 2008 the NSW Government decided to set developer charges in the Sydney Water area at zero.

³⁶ The level of prices is influenced by the forecast demand for water ie, the higher the demand the lower the prices needed to recover the costs (particularly the fixed costs) and vice-versa.

³⁷ Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 25.

Table 2.2 Sydney Water's proposed annual revenue requirement (\$million, 2011/12)

	2011/12 ^a	2012/13	2013/14	2014/15	2015/16
Return on assets ^b		955.5	995.5	1,034.9	1,069.4
Return of assets (depreciation)		211.1	226.4	241.4	255.1
Operating costs ^c		1,361.7	1,372.1	1,374.3	1,374.3
Adjustments		-36.0	-36.5	-37.9	-37.0
Total Annual Revenue Requirement	2,451	2,492.3	2,557.5	2,612.7	2,661.9

^a This is an estimate for the period 1 July 2011 to 30 June 2012.

^b Includes return on working capital.

^c Includes bulk water purchase costs.

Note: Totals may not sum due to rounding.

Source: Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 109.

Sydney Water argues its revenue requirements for price setting purposes need to increase in each of these years, partly because in the period since 2005/06, its actual revenue has failed to achieve the levels forecast in IPART's determinations. In nominal terms, it estimates that its total revenue over this period will be \$920 million short of that forecast. Table 2.3 compares the revenue forecast in IPART's past determinations to Sydney Water's actual revenue since 2005/06.

Table 2.3 Sydney Water forecast revenue versus actual revenue (\$million, nominal)

Revenue	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	Total
Forecast in IPART's determinations	1,548	1,630	1,704	1,903	2,204	2,332	2,451	13,773
Actual	1,417	1,503	1,528	1,831	2,080	2,202	2,292	12,852
Difference	-131	-127	-176	-73	-124	-131	-160	-920

Note: Totals may not sum due to rounding.

Source: Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 27.

In addition to receiving revenue levels less than forecast, Sydney Water argues that it has forgone a further \$238 million in contributions toward capital expenditure because of the decision of the previous NSW government to set some developer charges to zero in December 2008.

2.4.2 Sydney Water's estimates for water demand

Sydney Water explains that another reason for it not achieving forecast levels of revenue in the past was the lower than forecast sales of water. Over the current determination period, water consumption was below that forecast in the 2008 determination as a result of water restrictions continuing for longer than expected and forecast changes in customer consumption patterns not eventuating. In total, in the 4 years to June 2012, Sydney Water forecasts that the cumulative volumetric difference in water sales between the 2008 determination estimates and the actual demand will be 182 gigalitres (GL).

2.4.3 Other proposals

Other proposals put forward in Sydney Water's submission include:

- ▼ **Using a pass-through mechanism to take account of the uncertainty about whether and for how long the Sydney Desalination Plant will operate over the 2012 determination period.** In its forecasts for the volume of bulk water it will need to purchase, Sydney Water has set its proposed prices on the basis that the desalination plant will operate at 100% capacity at all times during the determination period, and that Sydney Water will take all of the output. This adds around \$64 million a year to its forecast operating costs (or \$33 a year per customer) in comparison to assuming that the plant will be in shutdown mode. Sydney Water also proposes that if the plant does shutdown at any time during the determination period, any cost savings will be passed through to consumers at the end of each financial year. Sydney Water suggests that this pass-through would be calculated and applied to prices at the beginning of each financial year from 1 July, 2013. This issue is discussed in section 5.5.
- ▼ **Restructuring some liquid trade waste charges.** This proposal is discussed in section 9.7.
- ▼ **Reducing the number of miscellaneous charges it levies, and reducing the charge for a number of those services.** Sydney Water has completed a comprehensive review of its miscellaneous charges, which has resulted in a reduction in the number of charges, number of transactions, and revenue generated from miscellaneous service charges. These proposals are discussed in sections 9.6 and 9.7.
- ▼ **Allocating the costs associated with the Rouse Hill River Management function to all sewerage customers.** This proposal is discussed in section 9.5.

- ▼ **Addressing issues from the last pricing review.** Following the 2008 determination, we identified a number of issues requiring further analysis. In the lead-up to this review, IPART and Sydney Water have conducted a program of quarterly meetings to discuss the results of this analysis, particularly analysis on price structures. Sydney Water's submission includes a range of proposals for addressing the issues and responding to the analysis,³⁸ including:
 - Levying the standard residential water service charge on each unit in multi-residential dwellings. Most of these units currently pay a proportion of the building's water service charge.
 - Levying the standard residential water service charge on each unit in non-residential strata properties.
- ▼ **Regulating recycled water prices for Rouse Hill development area** and including \$21.6 million in avoided costs arising from the Rouse Hill recycled water scheme.

³⁸ IPART completed a review of this issue in March 2012, see IPART, Review of price structures for Metropolitan Water Utilities, March 2012. Sydney Water implemented many of the results of the review in its pricing submission.

3 IPART's approach to setting prices

The approach a regulator uses to set prices can be defined as the rules and methodologies it uses to determine, monitor and change prices for regulated services over a determination period. For this review, we used the same broad approach we have used in past determinations to set prices for Sydney Water's water, sewerage and stormwater drainage services. We have made a range of draft decisions related to applying this approach. The sections below provide an overview of our price setting approach and discuss these draft decisions in more detail, including our decisions on:

- ▼ the length of the 2012 determination period
- ▼ our approach for determining the notional revenue requirement
- ▼ our approach for converting the notional revenue requirement into prices
- ▼ how to address the risk of significant variation between Sydney Water's forecast water sales and actual water sales over the 2012 determination period
- ▼ how to address the uncertainty associated with the operation of Sydney Desalination Plant during the 2012 determination period and the impact on Sydney Water's operating costs
- ▼ what obligations to impose on Sydney Water to report on its progress against output measures.

Note that we used different approaches to set trade waste, miscellaneous and recycled water charges. These are explained in Chapter 9 which discusses our draft decisions on these charges.

3.1 Overview of price setting approach

The first step of our price setting approach was to decide on the appropriate length of the 2012 determination period. Our draft decision is for a 4-year determination, ending 30 June 2016.

We then calculated Sydney Water's **notional revenue requirement** in each year of this period. The notional revenue requirement represents IPART's view of Sydney Water's full, efficient costs in providing the regulated services during each year (or the amount it needs to generate through prices to recover those costs). To calculate

the notional revenue requirement, we used the building block approach (see section 3.3) as we have done in previous determinations.

Once we had calculated Sydney Water's notional revenue requirement, we decided on the approach we would use to convert this amount into prices. This involved deciding on the **target revenue** for each year – that is, the actual revenue we will expect Sydney Water to generate from prices and charges for that year. We considered a range of factors, including the implications of the notional revenue requirement on the level of prices and the rate and way in which they would change, and the impact of this on Sydney Water and customers.

We made a draft decision to smooth out the year-to-year variations in revenue requirement, so that Sydney Water's prices and revenue will move steadily from their current levels to those required to recover the projected efficient costs in the last year of the determination period, given assumed sales volumes. This 'glide path' approach balances the impacts on customers and Sydney Water, and ensures that there is a smooth transition from the 2011/12 price levels.

Next, we made draft decisions on Sydney Water's forecast customer numbers and water sales over the determination period, and the structure of its individual prices. We then applied these decisions to calculate the individual price levels required to yield the target revenue requirement for each year.

Finally, we made a draft decision to continue to monitor Sydney Water's performance in delivering on its proposed capital programs over the determination period, and to require it to report on a range of activities, output measures and its major capital projects. In addition, as licence regulator, we will continue to conduct annual audits of Sydney Water's compliance with its operating licence obligations, which include service performance obligations.

A full list of our draft decisions is shown at Appendix G.

3.2 Length of the determination period

Draft decision

- 1 IPART's draft decision is to adopt a 4-year determination period from 1 July 2012 to 30 June 2016.

For each water pricing review, we make a decision on the length of the determination period taking into account the circumstances at that time. The main issue we consider is whether to adopt a long-term or a short-term price path. The advantages of a longer determination period include stronger incentives for Sydney Water to increase efficiency; greater stability and predictability (which may lower Sydney Water's business risk and assist investment decision making); and reduced regulatory costs. However, there are also disadvantages which include increased risk associated with potential inaccuracies in the data used to make the

determination; possible delays in customers benefitting from efficiency gains (because prices are not set to account for these gains until the next determination); and the risk that changes in the industry will affect the appropriateness of the determination.

In resolving this question for this review, we particularly considered the following factors:

- ▼ the confidence we could place in Sydney Water's forecasts
- ▼ the advantages of aligning the determination period for Sydney Water's prices with the determination periods for Sydney Water's bulk water suppliers (ie, Sydney Catchment Authority (SCA) and Sydney Desalination Plant (SDP))
- ▼ the advantages of aligning the determination period for Sydney Water prices with the length of the review period for Sydney Water's Operating Licence.

We also took into account the proposals made by Sydney Water and comments from stakeholders.

3.2.1 Sydney Water's proposal

Sydney Water's submission proposes that a 4-year determination period is appropriate. It comments that a 3-year timeframe would offer consistency with its Operating Licence, but would not provide long-term financial certainty for planning purposes. Regarding whether a 5-year term is appropriate, Sydney Water considers that the current regulatory system does not provide sufficient flexibility to cater for the changing operating environment for that length of time – in particular, to deal with any major issues that arise unexpectedly.

3.2.2 Stakeholder views

No stakeholder raised objections to Sydney Water's proposal for a 4-year determination period. When the issue was raised at the public hearing, most stakeholders agreed that 4 years seemed reasonable. At the same time, no stakeholder displayed any strong preference for any particular determination period.

3.2.3 IPART's analysis

To decide on the appropriate length for the determination period, we considered 3 main issues. The first is how much confidence we can place in Sydney Water's forecasts. We note there is considerable uncertainty about the forecasts for water demand/consumption in the coming years, due to the changes in the environment since the 2009 determination (see Chapter 2). It may be appropriate to address this uncertainty by setting a shorter period, introducing an adjustment mechanism, or both.

The second issue we considered was the benefits of aligning Sydney Water's determination period with those of its bulk water suppliers, SCA and SDP. These benefits may be considerable, given the significance of bulk water charges for Sydney Water's operating costs. This is likely to be achievable, as we are conducting a price review for SCA concurrently with this review of Sydney Water. We made our first determination on SDP's prices in 2011, and the terms of reference for this determination provided by the NSW Government required a 5-year determination period, from 30 July 2012 to 30 June 2017. Thus aligning Sydney Water's determination period with SDP's would also result in a 5-year period for Sydney Water.

Finally, we analysed the merits of aligning Sydney Water's determination period with the Operating Licences of Sydney Water or SCA. We could set the determination period to end at the same time as Sydney Water's current licence, 30 June 2015. This would result in a 3-year period for Sydney Water. Alternatively, we set the period to end at the same time as SCA's next licence, 30 June 2017.³⁹ This would result in a 5-year determination period for Sydney Water.

After considering these issues, we decided that on balance, a 4-year determination period is appropriate for Sydney Water at this time. The main benefit is that this will align Sydney Water's determination period with SCA's, and thus increase certainty about around half of Sydney Water's bulk water costs. In addition, we consider:

- ▼ the uncertainty in water demand forecasts can be addressed by adopting an adjustment mechanism for the next review
- ▼ it is not appropriate to align the determination period with SDP's, as we agree with Sydney Water's view that a 5-year period does not provide sufficient flexibility to cater for the changing operating environment
- ▼ it is not appropriate to align the determination period with either Sydney Water's or SCA's operating licences terms because:
 - a 3-year determination period would incur additional resource costs for both Sydney Water and IPART and reduce incentives for Sydney Water to pursue efficiencies
 - a 5-year period does not provide sufficient flexibility to cater for the changing operating environment.

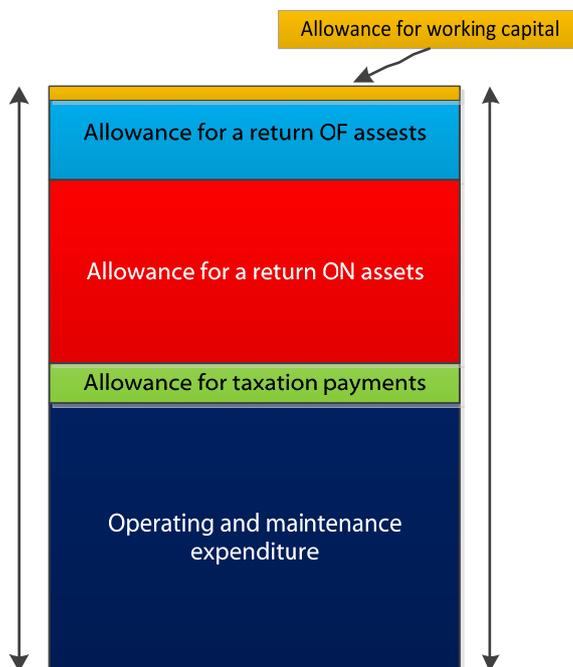
³⁹ SCA's current licence finishes on 30 June 2012 and is currently being reviewed. It is likely that this review will decide on a 5-year term for the next licence, ending on 30 June 2017.

3.3 Approach for determining the notional revenue requirement

As noted previously, the notional revenue requirement represents IPART's view of Sydney Water's full, efficient costs in providing the regulated services for each year of the determination period. As in previous reviews, we used a building block approach to calculate Sydney Water's notional revenue requirement over the determination period. To apply this approach, we estimated the amount of revenue it will require in each year of the period, including:

- ▼ **The revenue required for operating expenditure** over the period. This amount represents our estimate of Sydney Water's forecast efficient operating, maintenance and administration costs.
- ▼ **An allowance for a return on the assets** used to provide the regulated services. This amount represents our assessment of the opportunity cost of the capital invested in Sydney Water by its owner, and ensures that it can continue to make efficient investments in capital in the future.
- ▼ **An allowance for a return of assets (regulatory depreciation)**. This allowance recognises that through the provision of services to customers, a water utility's capital infrastructure will wear out over time and therefore revenue is required to recover the cost of maintaining the regulatory asset base.
- ▼ **An allowance for meeting tax obligations**.
- ▼ **An allowance for working capital**. This allowance represents the holding cost of net current assets.

The sum of these amounts represents IPART's view of Sydney Water's total efficient costs over the determination period, or its notional revenue requirement (Figure 3.1).

Figure 3.1 Building block approach

IPART considers the building block approach has advantages over alternative approaches. In particular, it ensures that the full, efficient costs of providing the regulated services are measured and monitored in a rigorous and transparent way. It enables us to create incentives for the regulated business to improve its economic efficiency over the determination period and is consistent with the approach we use in regulating other water businesses and industries in NSW.

In the past, we have used a real pre-tax WACC in calculating Sydney Water's returns on and of the RAB. For this review, we used a real post-tax WACC and calculated its tax liability as a separate cost block. This approach reflects our decision, made as part of a recent review of our approach for incorporating taxation into our WACC estimate,⁴⁰ to use a real pre-tax WACC and to estimate the tax liability on broadly the same basis as the Australian Taxation Office. We consider this method most accurately estimates the tax liability that would be achievable by a similar well-managed, privately owned business.

Our draft findings on the notional revenue requirement are presented in Chapter 4, and discussed in detail in Chapters 5 and 6.

⁴⁰ IPART, *The incorporation of company tax in pricing determinations*, December 2011.

3.4 Approach for converting the notional revenue requirement into prices

Having calculated Sydney Water's notional revenue requirement for the determination period, we then converted that requirement into prices. To do this, we needed to make a number of draft decisions, including:

- ▼ the target revenue for each year
- ▼ the revenue expected from trade waste, miscellaneous services and other sources
- ▼ the forecasts of Sydney Water's customer numbers and water sales over the determination period
- ▼ the structure for Sydney Water's prices, and the ratio of the revenue to be generated from each type of charge
- ▼ the level of prices.

3.4.1 Target revenue

Draft decision

- 2 IPART's draft decision is to determine the target revenue using an adjusted glide path approach.

Before we convert the notional revenue requirement into prices, we need to consider what it means for the level of prices, and the rate and way in which they will change over the determination period. This impact has implications for both customers and Sydney Water. For example, when the annual revenue requirement goes up and down from year to year, it can lead to price and revenue volatility. This can affect both customers and the utility in an undesirable way, and we generally try to avoid such outcomes.

Our analysis of Sydney Water's notional annual revenue requirement shows that in the first year of the determination period, revenue requirement falls significantly compared to the target revenue for the previous year. It then rises steadily in the each year of the determination period. Setting prices to target these annual revenue requirements would result in volatile prices, which could create price shocks for some customers and harm Sydney Water's short-term financial position.

Therefore, we decided to adopt a 'glide path' approach that will ensure that prices change smoothly over the determination period in real terms, and that the targeted revenue in the final year of the determination period equals the notional revenue requirement for that year.

This decision and the resulting target revenue are discussed in more detail in Chapter 4.

3.4.2 Revenue from trade waste, miscellaneous services and other sources

Since the notional revenue requirement will be used as the basis for setting the prices of water, sewerage and stormwater drainage services only, we need to estimate and subtract the amount of revenue Sydney Water will generate from other prices and sources over the determination period. This ensures that water, sewerage and stormwater prices reflect only the costs of the services to which they relate.

Our draft findings on revenue from other sources are discussed in Chapter 4.

3.4.3 Forecast customer numbers and water sales

Our next step was to determine prices to recover revenues in line with the glide path. Pricing calculations are particularly dependent on the assumptions made about forecast customer numbers and water demand. Forecasts of customer numbers are important in determining fixed service charges, as the revenue these charges generate depends on how many customers pay the charges. Forecasts of water sales are important in determining the variable water usage charge, as the revenue this charge generates depends on how much water customers use.

As part of its submission, Sydney Water forecast its customer numbers and metered water sales over the determination period. We reviewed these forecasts to check whether they are reasonable, and made decisions on the forecasts we would use. This review and our decisions are discussed in detail in Chapter 7. We also considered whether to introduce a mechanism to take account of variations between the forecast water sales used in setting prices and actual water sales. This is discussed in section 3.6 below.

3.4.4 Price structure and ratio of revenue to be generated from each type of charge

As Chapter 2 discussed, we recently completed a review of price structures for the metropolitan water utilities we regulate (with assistance from these utilities). This review analysed the basis for individual charges, and investigated why some customers receiving a similar service are charged different amounts. We found that in some cases, the structure of Sydney Water's current prices does not reflect the costs to service some customer groups, and results in cross-subsidies between groups.

In this price review, we have maintained the key features of Sydney Water's current pricing structure, including:

- ▼ uniform or 'postage stamp' pricing for water and sewerage services across Sydney Water's area of operations
- ▼ recovery of most costs associated with sewerage and stormwater services through fixed charges

- ▼ water usage charges designed to encourage efficient water consumption and set with reference to the Long Run Marginal Cost (LRMC) of water supply, and
- ▼ calculation of fixed charges for water services as the residual of the revenue requirement not recovered through usage charges.

However, we considered the results of the price structure review, as well as Sydney Water's proposals to respond to those results, by adjusting the structure of some prices for some customer groups. We adopted many of these proposals in deciding on the price structure.

This price restructuring aims to remove cross-subsidies, improve cost reflectivity and make prices more equitable. It does not increase the total revenue generated by the prices, or change the relative percentage of total revenue collected from residential and non-residential customers. Rather, it alters the proportion of revenue that will be generated through particular charges and from particular customer groups within the residential and non-residential categories. Our decisions on price structure are discussed in detail in Chapter 8.

3.4.5 Price levels

In deciding on pricing levels, IPART takes into account the matters set out in section 15 of the IPART Act, including Sydney Water's financial viability and the impact of its prices on customers. Balancing these competing interests may mean that the target revenue derived by prices is different to the determined notional revenue requirement.

To consider the impact on Sydney Water's financial viability, we examined Sydney Water's forecast credit rating, taking into account its existing cash and debt levels and its ability to pay dividends. We considered Sydney Water's 'benchmark financial structure' and had regard to the WACC parameter assumptions it made in determining the return on assets and return of asset cost blocks.

In considering economic efficiency, we took account of the extent to which the prices send appropriate signals to customers and reflect the costs of the services provided, and the consistency of the variable usage charge with the LRMC of water. As much as possible, the usage charge each customer class or group pays should reflect the marginal cost that their consumption imposes. We applied similar principles to sewerage prices, and considered the appropriate price signals customers receive regarding the costs of the sewerage service and the transport, treatment and disposal of wastes. The total cost to the community of the services provided is reflected in the aggregate of the fixed and usage charges. These services are capital intensive and the costs of the capital employed include the return that these resources could otherwise earn. Therefore, it is important that prices are sufficient to allow Sydney Water to earn a return on capital comparable to that earned by other water businesses. Signalling the true costs of water and sewerage services encourages customers to use these services wisely.

These principles are consistent with the National Water Initiative Pricing Principles and with the Intergovernmental Agreement on a National Water Initiative.

We consider that our approach for converting the notional revenue requirement into prices will provide prices for Sydney Water's customers that are appropriate and equitable.

3.5 Approach for addressing the risk of significant variation between actual and forecast water sales

Draft decision

- 3 IPART's draft decision is to introduce a demand volatility adjustment to mitigate possible revenue over/under recovery due to 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, and to:
 - define material variation as more than 10% (+ or -) over the whole determination period
 - indicate that only the impact of variation outside of this 10% variation level will be adjusted for
 - decide how best to make the revenue adjustment in our next price review, if a material variation eventuates.

Sydney Water's total water demand over the current determination period was around 175 GL (8.1%) below what we forecast at the 2008 determination. This variance was mostly caused by customers using less water in response to ongoing drought conditions and Sydney Water's Water Wise Rules. Sydney Water has forecast that current consumption levels, of around 490 GL per year, will continue over the next 4 years⁴¹ leading to approximately the current level of total water demand. In the past when drought restrictions were lifted, water demand has bounced back relatively quickly. Since restrictions were lifted in 2009 and Water Wise Rules applied, total water demand has not significantly increased. There is some uncertainty regarding the level of demand in the future and whether a more delayed bounce back will occur and if so, to what extent or whether total demand will continue at its current level or even decline further.

Given the uncertainty around demand forecasts, we have decided to consider applying a demand volatility adjustment that allows us to make an adjustment in the 2016 Determination to account for net revenue over/under recovery of more than 10% for the full 4 years of the 2012 regulatory period if that occurs. This demand volatility adjustment could be implemented by comparing the forecast and actual water demand over the 2012 Determination and adjusting either the revenue requirement or the Regulatory Asset Base (RAB) for the 2016 Determination if the net

⁴¹ Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011.

level of actual demand over the 2012 Determination diverges by more than 10% from forecast demand. Only the level of over/under recovery that exceeds the 10% dead-band level would be considered for adjustment. This decision allows discretion in the 2016 Determination as to whether and how the adjustment should be made.

This mechanism is similar in design to that used in the 2005 Determination⁴² for Sydney Water, Hunter Water and the SCA. In the 2005 Determination, we stated that if actual water demand was outside a 10% dead-band, we were able to consider adjusting the revenue requirement for the subsequent determination to account for the effect of the difference.⁴³ We were also able to determine the manner in which the adjustment was made during the subsequent determination period.

The use of such a mechanism has limitations in that it may not provide complete certainty to customers or Sydney Water as it is not binding on future Tribunal decisions, the amount by which prices may change is not known in advance and the manner in which the adjustment is made is not pre-determined. These limitations arise because it is not until the time of the 2016 price review that the next Tribunal can determine whether and how any adjustment to prices is made. We cannot incorporate the mechanism into the 2012 legal Determination as the adjustment relates to 2016 prices, which is beyond the powers of the 2012 Tribunal. Therefore it has been included in our report but a degree of discretion surrounding its future use remains.

We consider that this mechanism has a number of advantages in that it does not create yearly price volatility, it only adjusts where there are material differences between actual and forecast demand (the net level of actual demand diverges from forecast demand by more than 10%), and there are a number of ways in which an adjustment can be made.

On balance, we considered that this mechanism was the most appropriate means of adjusting for revenue over/under recovery as it:

- ▼ allows flexibility in how the adjustment to prices would be implemented in the following Determination
- ▼ does not result in price volatility in the current determination that would result from the use of a mechanism that adjusts prices in the following year, based on sales in the current year.

⁴² IPART, *Sydney Water Corporation Prices of Water Supply, Wastewater and Stormwater Services*, September 2011.

⁴³ IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority, Prices of Water Supply, Wastewater and Stormwater Services - Final Determination and Report*, September 2005.

3.6 Approach to addressing uncertainty about SDP's operating schedule and its impact on Sydney Water's costs

Draft decision

- 4 IPART's draft decision is to set prices on the basis that SDP is in water security shutdown mode for the whole 2012 determination period, and pass through the annual actual extra costs Sydney Water incurs due to it being in a different operational mode in the subsequent year, using the mechanism described in Box 3.1.

3.6.1 Sydney Water's proposal

In its pricing proposal, Sydney Water has calculated prices on the basis that SDP will be in full operation mode, producing 90GL of desalinated drinking water per year, in each year of the determination period. It also proposes that if SDP is in a different mode of operation for some or all of that year, the resulting savings will be passed through to customers in the following year via a refund.

3.6.2 Stakeholder submissions

The Total Environment Centre recommended that the price of drinking water should increase when the desalination plant is operating. It also recommended that the plant should only commence operations when storage levels fall below 30% and should cease when levels recover to more than 40%.

Ross Flynn of Wollongong suggested that only Sydney Water customers that consume desalinated water should pay for the plant, and its operations.

3.6.3 IPART's analysis

Given the current dam levels and the operating rules set out in the Metropolitan Water Plan, we do not consider it best to set prices on the basis that SDP will operate at full operation mode for the length of the determination period.⁴⁴ We consider it reasonable to set our prices on the basis that SDP is in water security shutdown mode for this period and to allow the costs of SDP being in a different operational mode to be passed through to customers in the next year of the Determination period.⁴⁵ This means that Sydney Water's customers will only pay for all the actual costs Sydney Water pays to SDP.

⁴⁴ On 9 December 2011 the available dam levels reached 80% and SDP's production was reduced.

⁴⁵ If Sydney Water had set its prices on the basis of SDP being in water security shutdown mode and used the prices we determined for SDP (rather than SDP's submission to us), the difference would be \$363 million less over 4 years.

The pass through mechanism for this purpose is shown in Box 3.1 below. This mechanism calculates the additional amount of expense Sydney Water has incurred per water customer. This amount will be added to customers' water service charges in the following year.

We note that the stakeholder recommendations and suggestions noted above are not feasible, due to the operating rules for SDP set out in the Metropolitan Water Plan. These rules require SDP to operate when the storage in Sydney's reservoirs falls to 70% of capacity. Further, the desalinated water substitutes for water that would otherwise have come from SCA's dams and as such, all customers derive the same benefit. We also note that decisions on the operating rules for SDP are a matter for the NSW Government, and outside the scope of this price review.

Box 3.1 SDP cost pass through mechanism

$$\text{SDP cost pass through}_{t+1} = \frac{\text{All SDP costs charged to Sydney Water}_t - \text{SDP water security mode charges}_t}{\text{Number of residential equivalent water customers}_{t+1}}$$

where,

t indicates the year

3.7 Obligations on Sydney Water to report on its progress against output measures

Draft decision

- 5 IPART's draft decision is to require Sydney Water to report annually on progress against the output measures described in Appendix B.

We set output measures for the water agencies we regulate as a means of determining whether they are delivering on the capital expenditure plans they outline in their pricing submissions. This is important because we set prices to enable them to recover the forecast costs of those plans.

While meeting output measure targets is important, conclusions about an agency's performance should not be drawn wholly on the basis of whether or not it has met or even exceeded these targets. There may be reasonable explanations why it does not meet targets. In fact, as circumstances evolve over a determination period, changing a target may result in a better outcome for stakeholders. However, ongoing inability to meet output measure targets may also indicate that the required levels of service, to which we have linked our prices, are not being met and there is a deficiency in the planning and delivery of capital projects.

Sydney Water has reported on the output measures that were set in the 2008 Determination to track the delivery of its capital program over the period from 2008 to 2012. Sydney Water reports that it has met (or will meet) 47% of the target measures, has exceeded 11%, and has not met 42%.⁴⁶ This information was used by Atkins Cardno in its assessment of Sydney Water's progress. A full report of delivery against output measures over the period 2008 to 2012 can be found at Appendix B.

IPART supports maintaining the use of output measures as a starting point for the assessment of prudent capital expenditure and the basis for reporting on any deviation from targets established. Sydney Water has provided a list of the capital projects it plans to undertake over the 2012 determination period. We have revised the output measures for the 2008 period to reflect this proposed capital program. The list of these capital projects and their output measures with targets is presented in Appendix B.

We expect Sydney Water to monitor its expenditure on these projects and provide annual progress reports. In addition, Sydney Water should provide a reconciliation of its expenditure and outcomes against the IPART capital and operating expenditure allowances.

⁴⁶ Atkins Cardno, *Final Report - Detailed Review of Sydney Water's Operating and Capital Expenditure*, November 2011, p 65.

4 Overview of IPART's findings and decisions on Sydney Water's revenue requirements

As Chapter 3 discussed, we used a building block approach to calculate Sydney Water's notional revenue requirement in each year of the determination period. This represents our view of Sydney Water's total efficient costs over the determination period. It includes:

- ▼ the revenue required for operating expenditure
- ▼ an allowance for a return on the assets
- ▼ an allowance for a return of assets (regulatory depreciation)
- ▼ an allowance for meeting tax obligations
- ▼ an allowance for working capital.

Next, we determined the target revenue for each year – that is, the amount of revenue that the price levels we will set are intended to generate. This revenue is not necessarily the same as the notional revenue requirement. We sometimes target more or less than this revenue to achieve an acceptable balance between the interests of customers, the utility and economic efficiency.

Finally, we estimated the amount of revenue we expect Sydney Water to generate from trade waste services and a range of other fees and charges. We subtracted this amount from the target revenue, as the target revenue is the basis for setting the prices for water, sewerage and stormwater drainage services only.

The section below summarises our draft findings and decisions on Sydney Water's revenue requirements. The subsequent sections summarise:

- ▼ Sydney Water's proposed notional revenue requirement
- ▼ our draft findings and decisions on the notional and target revenue requirements
- ▼ the revenue from other sources.

Chapter 3 explains the approach we used to calculate the revenue requirements in more detail. Chapters 5 and 6 discuss our draft findings on the individual components of the notional revenue requirement in detail.

4.1 Summary of draft findings and decisions on revenue requirements

6 IPART's draft findings and draft decision on Sydney Water's notional revenue requirement and target revenue are shown in Table 4.1.

Table 4.1 IPART's findings and decisions on Sydney Water's notional revenue requirement and target revenue (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16
Operating expenditure	1,268.5	1,265.8	1,259.6	1,252.5
Allowance for return on assets ^a	721.9	751.5	781.6	804.0
Allowance for regulatory depreciation	207.1	219.8	232.0	242.6
Total notional revenue requirement	2,197.5	2,237.1	2,273.2	2,299.0
Target revenue	2,277.7	2,283.6	2,289.1	2,299.2
Trade waste, miscellaneous, unfiltered water and rental income	38.7	39.8	40.7	41.7
Rate of return (real post-tax)	6.1%	5.8%	5.6%	5.5%

^d Includes an allowance for a return on working capital and an allowance for tax obligations.

Note: Totals may not sum due to rounding.

4.2 Sydney Water's proposed notional revenue requirement

Sydney Water's proposed notional revenue requirement is shown in Table 4.2 below. Compared to its target revenue of \$2,293 million in 2011/12, this proposal represents an increase of \$403 million or 17.6% over the period. In developing this proposal, Sydney Water set its prices on the basis that SDP would operate at 100% capacity for the entire period, and that any savings arising from variations in this operating schedule be refunded to customers in the following year. This accounts for between \$54 million and \$63 million of the difference in the proposed revenue requirement per year, or a total of around \$238 million over the whole period.⁴⁷

⁴⁷ Sydney Water estimated these costs based on SDP's proposed prices, as we had not issued our Determination. Since it made its proposal, we have determined prices for SDP.

Table 4.2 Sydney Water's proposed notional revenue requirement (\$million, 2011/12) – including costs of SDP operating at 100%

	2012/13	2013/14	2014/15	2015/16
Operating expenditure ^b	1,361.7	1,372.1	1,374.3	1,374.3
Allowance for return on assets ^a	955.5	995.5	1,034.9	1,069.4
Allowance for regulatory depreciation	211.1	226.4	241.4	255.1
Total notional revenue requirement (NRR)	2,528.3	2,594.0	2,650.7	2,698.8
Estimate of NRR excluding SDP production costs	2473.9	2534.8	2588.4	2636.3

^a Includes an allowance for tax.

^b Includes costs of bulk water and desalinated water, and an allowance for a return on working capital.

Note: Totals may not add due to rounding.

Note: Figures differ slightly from those presented in Sydney Water's submission because IPART includes income from some activities that Sydney Water has excluded from its calculation of notional revenue requirement.

Source: Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p109.

Sydney Water calculates that to meet its proposed revenue requirement, a typical⁴⁸ household's water and sewerage bill needs to increase from \$1,105 in 2011/12 to \$1,271 in 2015/16 (in 2011/12 dollars). This represents an increase of \$166 or 15% increase over 4 years (in addition to inflation).

4.3 IPART's draft finding on the notional revenue requirement

Draft finding

7 IPART's draft finding is that Sydney Water's notional revenue requirement is as shown in Table 4.3.

Table 4.3 IPART's draft finding on the notional revenue requirement (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16
Operating expenditure	1,268.5	1,265.8	1,259.6	1,252.5
Allowance for return on assets ^a	721.9	751.5	781.6	804.0
Allowance for regulatory depreciation	207.1	219.8	232.0	242.6
Total notional revenue requirement (excluding any SDP production costs)	2,197.5	2,237.1	2,273.2	2,299.0

^a Includes an allowance for a return on working capital and an allowance for tax obligations.

Note: Totals may not add due to rounding.

⁴⁸ Based on a residential property consuming 200 kL of water per year.

Our draft finding on the notional revenue requirement is \$1.46 billion lower than Sydney Water's proposal over 4 years. On average, it is around \$41 million per year lower than the target revenue requirement of 2011/12. The main reasons for this difference are our draft decisions to:

- ▼ Use a post-tax real WACC of 5.5% which is lower than Sydney Water's proposed WACC. We estimate that Sydney Water's proposed pre-tax real WACC of 7.5% would be around 6.5% in post-tax real terms.
- ▼ Include approximately \$515 million less capital expenditure in our calculations for the allowances for a return on assets and regulatory depreciation, and \$16 million less operating expenditure than Sydney Water proposed to reflect the efficiency savings the utility can make over the determination period.
- ▼ Include operating costs for SDP in water security shutdown mode for the entire determination period (and that any costs arising from variations in this operating schedule will be passed through to customers in the following year). As noted above, Sydney Water assumed the plant will be running at full capacity. If Sydney Water had set its prices on the basis of SDP being in water security shutdown mode and used the prices we determined for SDP (rather than SDP's submission to us), the difference would be \$363 million less, over 4 years.

4.4 IPART's draft decision on target revenue

Draft decision

8 IPART's draft decision is that Sydney Water's target revenue is as shown in Table 4.4.

Table 4.4 IPART's draft decision on Sydney Water's target revenue (\$million, 2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total
Target revenue	2,293	2,278	2,284	2,289	2,299	9,150
Notional revenue requirement		2,197	2,237	2,273	2,299	9,007
<i>Difference</i>	-	80	47	16	0	143
<i>Difference (%)</i>	-	3.7%	2.1%	0.7%	-	1.6%

Note: Totals may not add due to rounding.

To avoid a situation where prices (and revenue) drop significantly at the start of 2012/13, and then rise again each year to 2015/16, we decided to target revenue that is higher than the notional revenue requirement in the first 3 years of the determination period, and equal to the notional revenue requirement in the final year. As Chapter 3 discussed, this approach ensures there is a smooth transition from the price levels under the current determination, and allows Sydney Water time to adjust to lower revenue levels.

Sydney Water is expected to generate about \$103 million (\$97 million in NPV terms) more from charges than the notional revenue requirement. This over-recovery assists Sydney Water's transition to lower charges.

4.5 IPART's draft finding on revenue from trade waste services and other fees and charges

Draft finding

- 9 IPART's draft finding on the revenue to be deducted from Sydney Water's revenue requirement to reflect the revenue it will raise through 'other fees and charges' is as shown in Table 4.5.

Table 4.5 IPART's draft finding on revenue from 'other fees and charges' (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Total to be deducted from revenue requirement	38.7	39.8	40.7	41.7	160.9

Sydney Water's overall revenue requirement includes revenue for all regulated services including water, sewerage, stormwater and revenue for 'other fees and charges'. 'Other fees and charges' include charges such as trade waste charges, unfiltered water charges and ancillary and miscellaneous customer service charges. To calculate the revenue to be recovered from water, sewerage and stormwater charges only, we subtract revenue required from 'other fees and charges' from the overall notional revenue requirement.

We derive the revenue for other fees and charges from information supplied by Sydney Water. For example, the revenue for miscellaneous charges services was derived from data in Sydney Water's Annual Information Return (AIR). The sections following discuss our calculation of the revenue required for other fees and charges.

4.5.1 Trade waste charges

The trade waste revenue to be deducted from the notional revenue requirement is shown in Table 4.6 below.

Table 4.6 Trade waste revenue (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Trade waste revenue	25.3	26.3	27.0	27.8	106.3

Note: Totals may not add due to rounding.

Source: Sydney Water Annual Information Return, 2011.

We have not yet made a determination of trade waste prices post 1 July 2012. However, for the draft determination, we have assumed trade waste revenue remains at the same level as the final year of the current determination and increased this amount by the CPI. Once decisions have been reached on trade waste charges we will review the level of trade waste revenue to be deducted from the notional revenue requirement.

4.5.2 Miscellaneous services

Sydney Water's submission includes expected revenue of \$6.8 million per annum from miscellaneous services. This is a reduction on recent years of about \$2 million per annum. This reduction is due to Sydney Water rationalising the miscellaneous services it provides and transferring some functions to the NSW Office of Fair Trading. Sydney Water's estimate of revenue from miscellaneous charges is shown in Table 4.7.

Table 4.7 Miscellaneous service revenue (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Miscellaneous services	6.8	6.8	6.8	6.8	27.2

Source: Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, 16 September 2011, p 386.

We have accepted Sydney Water's proposals for miscellaneous charges which will increase by the change in CPI over the determination period (see section 9.8). We have also accepted Sydney Water's revenue estimates for miscellaneous services.

4.5.3 Rental income

Sydney Water generates around \$12 million per year in rental income. In our 2008 determination, we decided to deduct 50% of this rental income from the notional revenue requirement⁴⁹. This means the benefit of this revenue was shared equally between Sydney Water and its customers. It also means that Sydney Water may earn more than our projected rate of return on some of its assets, as we have counted only 50% of income generated through rental of assets. However, it also gives Sydney Water a financial incentive to pursue more rental income where appropriate - while ensuring that 50% of the benefits of which will eventually flow on to customers through lower prices.

We have decided to maintain this principle and have deducted 50% of Sydney Water's expected rental income from the notional revenue requirement as shown in Table 4.8.

⁴⁹ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services*, June 2008 p 37.

Table 4.8 Rental revenue (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Total rental income	11.2	11.4	11.6	12.0	46.2
50% (deducted from notional revenue requirement)	5.6	5.7	5.8	6.0	23.1

4.5.4 Unfiltered water charges

Sydney Water sells unfiltered water to a small number of industrial customers. Historically, this has generated between \$5 million and \$6 million a year in extra revenue. Sydney Water has forecast that there will be a large reduction in the volume of unfiltered water sold and thus in the revenue it generates. This is largely a result of reduced production by industrial customers.

We have reviewed Sydney Water's forecast sales revenue from unfiltered water and accept the forecast. The forecast revenue from unfiltered water is shown in Table 4.9.

Table 4.9 Unfiltered water revenue (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Unfiltered water revenue	0.9	0.9	0.9	0.9	3.6

5 Operating expenditure

In building up Sydney Water's total costs, we assessed Sydney Water's forecast of the operating expenditure it will incur in providing regulated services over the determination period, and the information it provided in its submission on its past and forecast expenditures. As part of this assessment, we engaged Atkins Cardno, an independent engineering consultant, to review the efficiency of these expenditures and recommend the scope for Sydney Water to achieve operating efficiencies over the period. We also invited submissions from stakeholders and conducted our own analysis.

The section below summarises our draft finding on the allowance for operating expenditure. The following sections discuss our considerations in reaching this finding, including Sydney Water's submission, Atkins Cardno's review and recommendations, stakeholders' comments and our own analysis and conclusions.

5.1 Summary of IPART's draft finding

Draft finding

10 IPART's draft finding is that the efficient level of Sydney Water's operating expenditure is as shown in Table 5.1.

Table 5.1 Draft finding on revenue required for operating expenditure (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Water services(excluding bulk water purchases)	377	376	374	371	1,498
Bulk water purchases ^a	381	378	377	373	1,509
Sewerage services	496	495	493	491	1,975
Stormwater drainage services	14	17	17	17	65
Total	1,269	1,266	1,260	1,253	5,048

^a Including desalinated water.

Note: Totals may vary due to rounding.

5.2 Sydney Water's submission

Sydney Water submits that in real terms, its operating costs (excluding bulk water purchases) for the current 2008 determination period are slightly above the levels we allowed for in setting prices for this period. It forecasts that over the 2012 determination period, these costs will be about 2% above the level we allowed for in 2011/12 (the last year of the current period).⁵⁰

Sydney Water's submission notes that about 70% of its operating costs are non-controllable,⁵¹ and in its view its ability to reduce the remaining 30% of costs is limited if its current operating performance is to be maintained. Nevertheless, it submits that it plans to deliver significant operating efficiencies over the 2012 period, which will achieve real decreases in its operating costs per property.

The following sections summarise Sydney Water's submission on its past operating expenditure over the 2008 determination period and its forecast operating expenditure over the 2012 period.

5.2.1 Past operating expenditure

Sydney Water's submission compares its operating expenditure over the 2008 period with the expenditure IPART allowed for in making the 2008 determination. It notes that its non-bulk-water-related costs⁵² are in line with allowed expenditure:

...because upward pressures on some cost categories have been offset by savings and business efficiencies made in other areas⁵³.

Its bulk water costs are lower than allowed for because of:

...lower than forecast bulk water purchases from SCA due to subdued water demand and delays in commissioning the Sydney desalination plant⁵⁴.

Non-bulk-water-related operating costs

Sydney Water's non-bulk-water-related operating expenditure over the 2008 determination period is shown below in Table 5.2.

⁵⁰ The construction of the Sydney Desalination Plant has had a significant impact on the cost of bulk water for Sydney Water. Therefore, bulk water costs are treated separately in Sydney Water's submission and in IPART's analysis of Sydney Water's operating costs (see section 5.5).

⁵¹ That is, Sydney Water has little or no ability to reduce them.

⁵² Non-bulk-water-related operating expenditure represents Sydney Water's core operating, maintenance and administration costs. Bulk water related operating expenditure is addressed separately.

⁵³ Sydney Water submission to IPART, 16 September 2011.

⁵⁴ *Ibid.*

Table 5.2 Sydney Water's past operating expenditure excluding bulk water (\$million, nominal)

	2008/09	2009/10	2010/11	2011/12	Total
Allowed for in 2008 determination	811.0	832.9	846.9	863.3	3,354.0
Actual ^a	810.7	834.4	845.5	887.0	3,377.5
Variation (\$m)	-0.3	1.4	-1.4	23.7	23.5
Variation (%)	0.0%	0.2%	-0.2%	2.7%	0.7%

^a For comparison purposes, these figures exclude Sydney Water costs not included in the current determination, namely: Blue Mountains Tunnel finance lease costs (\$11.2m in 2011/12); and Climate Change Fund reimbursement offset (\$2.5m in 2011/12).

Note: Totals may vary due to rounding.

Source: Sydney Water submission to IPART's Pricing Review, Table 4.1, p 40.

Sydney Water submits that the main categories in which its operating costs exceeded the forecast levels over the 2008 period are:

- ▼ service contractors (+\$73 million)
- ▼ energy (+\$33 million)
- ▼ materials, plant and equipment (+\$25 million)
- ▼ chemicals (+\$12 million).

The categories in which it has made savings, to offset these increases, are data management, insurance, demand management activities and property taxes.

Sydney Water also submits that there has been significant growth in the number of properties it services over the 2008 period. Therefore, although its **total** non-bulk-water-related operating expenditure is slightly higher than the total allowed for in IPART's 2008 determination, these costs have declined on a per-property basis – falling from \$391 per property in 2008/09 to a forecast \$368 per property in 2011/12 or 5.9%.

Bulk water operating expenditure

Sydney Water purchases bulk water from Sydney Catchment Authority (SCA) and Sydney Desalination Plant (SDP). Sydney Water forecasts that bulk water costs over the 2008 determination period will be \$80.7 million (\$nominal) below those allowed for in the 2008 determination. This is due to:

- ▼ the lower than expected water demand from its customers, which reduced the cost of bulk water purchases from SCA by \$33.9 million
- ▼ the later than expected handover of SDP plant, which reduced costs by a further \$46.8 million.

5.2.2 Forecast operating expenditure

Table 5.3 shows Sydney Water's forecast operating expenditure over the 2012 determination period and compares it to the last year of the current period (2011/12). It shows that Sydney Water's forecast annual:

- ▼ non-bulk-water-related operating costs are lower than in 2011/12
- ▼ bulk water costs are higher than for 2011/12.

Table 5.3 Sydney Water's forecast operating expenditure (\$million, 2011/12)

	Current (2011/12)	2012/13	2013/14	2014/15	2015/16	Total (excluding 2011/12)
Non-bulk- water						
Water	326	306	307	305	303	1,221
Sewerage	368	379	380	379	378	1,515
Stormwater	13	11	13	13	13	50
Recycled water (s. 16A)	23	24	24	26	26	99
Less revenue Rosehill scheme ^a	-8	-8	-8	-8	-9	-33
Corporate	179	177	180	180	184	720
Total non-bulk water	901	888	894	894	896	3,571
Bulk Water						
SCA	199	203	205	206	207	820
SDP ^d	270	271	273	275	272	1,091
Total bulk water	469	474	478	481	479	1,911
Subtotal	1,370	1,362	1,372	1,374	1,374	5,482
Total non- regulated^b	15	14	14	14	15	58
Total^c	1,385	1,376	1,386	1,389	1,389	5,540

^a Sydney Water funds the difference between the charges paid to the owner of the Rosehill scheme and revenue received from the sale of recycled water to customers.

^b Non regulated includes all non regulated (not s. 16A) recycled water schemes.

^c Includes Blue Mountains Tunnel and Macarthur WFP lease payments.

^d The SDP related costs in Sydney Water's submission were based on the proposed charges contained in SDP's submission to IPART in July 2011. Sydney Water has also set its prices based on the desalination plant operating at full capacity for the full 4 years of the new determination period.

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Table 4.5, p 49.

Forecast non-bulk water related expenditure

Sydney Water plans to deliver significant operating efficiencies over the 2012 determination period. It predicts that, with a forecast increase in property numbers of approximately 73,000 between 2012 and 2016, its operating cost per property⁵⁵ will fall by 4% in real terms over the period.

It forecasts increases in a number of operating categories, but expects these will be offset by expected decreases in other categories. The forecast increases include:

- ▼ \$136 million in service contractor costs for IT, maintenance and trunk main repairs (trunk main repairs were previously capitalised but are now recorded as operating expenditure)
- ▼ \$98 million in energy costs (excluding the Commonwealth's proposed carbon price)⁵⁶ due additional assets and network tariff increases
- ▼ a further \$62 million in energy costs for the proposed carbon price
- ▼ a cumulative \$16 million more in chemicals due to price increases
- ▼ \$47 million in tariff payments to the owner of the Blue Mountains sewage transfer tunnel.

The forecast decreases include a total of \$140 million (\$2011/12) due to savings and efficiency gains over the 4 years to 2015/16 relative to the 2011/12 baseline. These include reduced direct labour costs, savings in the operational and maintenance areas (in addition to labour savings) and various other operating cost reductions, including lower Wastesafe costs and plumbing inspection costs.

Forecast bulk water expenditure

The proportion of bulk water that Sydney Water will purchase from SDP compared to SCA depends on the 2010 Metropolitan Water Plan Operating Rules. In turn, the operation of these rules depends on weather conditions.⁵⁷ For the purpose of projecting its operating costs and setting its proposed prices, Sydney Water has:

- ▼ forecast that the desalination plant will operate at full capacity for the duration of the price path and SCA will provide the balance of bulk water required by Sydney Water

⁵⁵ This measure excludes the costs of bulk water, BOO water filtration, the carbon price, s 16A recycled water schemes, and the Climate Change Fund.

⁵⁶ Sydney Water's submission contains its estimates of the impact of the Commonwealth Government's carbon price mechanism on its operating cost projections, an average impact of \$15.4 million per year. It indicated that it has specifically excluded the carbon price impact on its capital cost projections as it is willing to defer recovery in increase in costs until the next determination.

⁵⁷ Under the Operating Rules, the desalination plant will commence operating at full capacity when the total dam storage level falls below 70% and will continue operating until the level reaches 80%.

- ▼ used the cost to Sydney Water for SDP's desalinated water as calculated in line with the prices proposed by SDP's pricing submission to our review of SDP's prices.⁵⁸

Sydney Water submits that its costs won't be as high as it forecasts if the desalination plant does not operate for the full period of the determination. To take account of this, it proposes that IPART introduce a pricing mechanism that will pass on the impact of reduced costs to its customers. Sydney Water proposes that the adjustment be incorporated as part of the annual indexation of Sydney Water's prices for inflation.⁵⁹

5.3 Stakeholder comments

Most stakeholders did not comment on Sydney Water's proposed operating expenditure in their submissions. Rather, submissions tended to focus on the size of the proposed price increases or the combined impact of price increases (eg, increases in electricity and water bills).

However, the Total Environment Centre (TEC) commented on the issue of operating expenditure as it related to the operation of the desalination plant. TEC submitted that the costs of maintaining the plant during non-operational periods should be recovered from the general cost of water. It argued that the greater cost of water supplied by desalination could be reflected by an increase in water prices during the operation of the plant. It also argued that no allowance should be made for recovering the operating costs of the plant when supply levels exceed 40%, as it contended that the desalination plant should be switched off when water storage levels reach 40%.⁶⁰

5.4 Atkins Cardno's review

Atkins Cardno assessed Sydney Water's operating expenditure over the 2008 determination period and its forecast operating expenditure over the 2012 period. It also recommended an efficient level of operating expenditure for the 2012 period.

In assessing the efficiency of the forecast expenditure, Atkins Cardno formed views on the level of increased efficiency Sydney Water could achieve over the 2012 period. Its views on future efficiencies are based on the hypothesis of a 'frontier company',⁶¹

⁵⁸ SDP submission to IPART's pricing determination, July 2011, but note that IPART determined prices for SDP in the period after receiving Sydney Water's submission, see IPART, Review of water prices for SDP, November 2011.

⁵⁹ IPART often determines prices in real terms and then allows agencies to adjust the prices annually in line with movements in inflation.

⁶⁰ Decisions on the operating rules surrounding SDP are a matter for the NSW Government and are outside the scope of this price review.

⁶¹ A frontier company, in this context, is a similar water business which delivers water supply and sewerage services in the most efficient manner.

the continuing efficiencies that it makes through innovation and technological development, and the catch-up efficiency Sydney Water needs to achieve the performance of the frontier company over time.

After the release of Atkins Cardno's report, Sydney Water provided comments on its recommendations to IPART (which we published on our website). Atkins Cardno's response to these comments is included below and in Chapter 6.

5.4.1 Past operating expenditure⁶²

Atkins Cardno noted that the 2008 determination set Sydney Water operating efficiency targets of 0.7% per annum, and that its performance over the 2008 period was generally consistent with the determination. Sydney Water also achieved good performance against its service standards, and complied with its Operating Licence.

Atkins Cardno found that Sydney Water's operating expenditure over the 2008 period was prudent with one exception. It noted that some sewerage expenditure was not flagged in the 2008 determination, and considered that this indicates that there were some shortfalls in the decision processes and implementation associated with that expenditure. It estimated this imprudent expenditure at \$7.2 million, and took this expenditure into account when formulating its recommendations on the efficient level of forecast operating expenditure. Atkins Cardno also noted that in reaching this view, it is not questioning the need for the work or the associated expenditure.

Atkins Cardno compared Sydney Water's current operating expenditure to that forecast in IPART's 2008 determination. During the determination period, Sydney Water changed its costing methodology from an activity based cost (ABC) approach to a Regulatory Cost Model (RCM) method. The change of methodology for recording costs made it difficult to compare costs forecast in the 2008 determination against actual costs, particularly at a detailed level. Nonetheless, Atkins Cardno found that there was an overall increase in expenditure of \$34.3 million above the determination, or \$122.6 million above when desalination and bulk water costs are excluded. At the service level it found expenditure on:

- ▼ Expenditure on water services was \$27.3 million (or -4.2%) lower than we forecast at the 2008 determination. Higher spending in 2008/09 and 2009/10 was more than offset by significantly lower spending in 2010/11 and 2011/12. Sydney Water spent higher than forecast on energy, the Water Savings Fund, materials and lease payments for the MacArthur Water filtration Plant. It spent lower than forecast on BOO plant costs, contracting costs, labour costs and corporate expenses.

⁶² Note that the main purpose of a review of past operating expenditure is to help ascertain likely future performance.

- ▼ Expenditure on sewerage services was \$147.9 million (8.6%) above what we forecast at the 2008 determination, largely due to increases in energy and chemicals costs, the Blue Mountains lease costs, contractors' costs and labour costs.
- ▼ Expenditure on stormwater drainage services was \$9.4 million higher than we forecast at the 2008 determination, due mainly to an increase in contractor costs.
- ▼ Regulated recycled water services was \$7.5 million lower than we forecast at the 2008 determination, mainly due to delays in the commissioning of projects.
- ▼ Expenditure on bulk water purchase costs was lower than forecast due to lower than expected water demand, and the deferral of costs associated with a later than expected handover of the desalination plant.

5.4.2 Forecast operating expenditure

Atkins Cardno analysed Sydney Water's forecast operating expenditure for the 2012 determination period. It concluded that Sydney Water could achieve efficiencies in excess of those proposed in its submission, particularly in the latter part of the period. Table 5.4 shows its recommended efficient level of forecast operating expenditure and compares it Sydney Water's proposed expenditure.

Table 5.4 Atkins Cardno's recommended and Sydney Water's proposed operating expenditure (\$2011/12, \$million)

	2012/13	2013/14	2014/15	2015/16
Sydney Water proposed	1,369.9	1,380.4	1,382.7	1,382.8
Atkins Cardno annual efficiency adjustment	0.0	-6.1	-10.6	-16.1
Atkins Cardno recommended	1,369.9	1,374.3	1,372.1	1,366.7

Source: Atkins Cardno, *Detailed Review of Sydney Water's Operating and Capital Expenditure*, Table 6.9, p 93.

Atkins Cardno stated that, while the overall change in Sydney Water's proposed operating expenditure (compared to the last year of the current determination) is marginal, the underlying increases and reductions are important to understand. Therefore, it performed variance analysis on Sydney Water's proposed operating expenditure compared to the base year by:

- ▼ analysing Sydney Water's proposed variances (compared to the base year of 2011/12) based on whether they relate to factors that Sydney Water either can or cannot control
- ▼ analysing these variances based on the function they relate to.

It then used findings of these analyses to form its recommendations on the efficiency targets IPART should apply to Sydney Water's proposed operating expenditure over the determination period.

Variances by uncontrollable and controllable factors

Atkins Cardno found that many of the material variances between Sydney Water's proposed operating expenditure for the 2012 determination period and allowed expenditure in the base year of 2011/12 are due to factors that are outside of Sydney Water's control. These include:

- ▼ higher electricity costs as a result of tariff increases, increased consumption and the introduction of the carbon price, which are partly offset by lower costs due to the cessation of payments to the Climate Change Fund
- ▼ lower Wastesafe costs because of a shift to using contractors to perform the work
- ▼ lower plumbing inspection costs due to the transfer of this role to the Office of Fair Trading
- ▼ higher costs due to some expenses for trunk mains being reclassified as operating rather than capital costs
- ▼ other higher costs, such as increases in payments to the Blue Mountains Tunnel owners.

However, some of the material variances are due to factors that Sydney Water can control. These include:

- ▼ lower labour costs equivalent to a 8.3% reduction over the determination period
- ▼ higher service contract and data management costs of \$8.2 million and \$4.8 million respectively over the period
- ▼ lower road restoration costs due to carrying out the work in-house, and
- ▼ lower vehicle lease and materials costs.

Variances by function

For the purposes of its analysis, Atkins Cardno categorised the variances into 3 functional groups: operations, maintenance and corporate. The operations function includes Sydney Water's Operations, Customer and Community Relations and Sustainability Divisions. Variances related to these divisions include:

- ▼ higher Operations Division costs due to increases in electricity costs, partly offset by decreases in labour costs
- ▼ lower Customer and Community Relations Division costs due to reductions in water demand management activities, and decreases in plumbing inspection, Wastesafe and labour costs
- ▼ lower Sustainability Division costs due to the cessation of payments to the Climate Change Fund and decreases in labour costs.

The Maintenance function includes the Maintenance, Asset Management and Asset Creation Divisions. Total costs related to this function decrease by 4.2% over the period, mostly due to a 2.4% reduction in Maintenance Division costs. Nearly all this reduction relates to water services because of factors such as a lower level of forecast burst repairs from pressure reductions now in place. In addition, labour costs are forecast to decrease by \$9.7 million.

The Corporate function includes the Human Resources and Finance and Regulation Divisions, and covers Corporate Adjustments for the Carbon Tax. The variance related to this function (excluding Corporate Adjustments for the Carbon Tax) is an increase of \$11 million over the period. This is mainly due to increases in Corporate Services IT costs.

[Atkins Cardno's recommendations on scope for efficiency gains and recommendations on efficient levels of operating expenditure](#)

Atkins Cardno identified several areas where it considers there is scope for making efficiencies across Sydney Water's business. In particular, it noted that:

- ▼ The current structure of the business of 10 divisions is unwieldy, which leads to duplication of some activities.
- ▼ There is a lack of effective strategic planning, evident from the apparent lack of robust long- and medium-term business plans.
- ▼ There is room for reductions in the level of Corporate costs.
- ▼ There is scope for further efficiencies from Sydney Water's new risk-based approach to maintenance.
- ▼ There is an opportunity to improve the way that the business is planning its Information Systems. In particular, there should be a clear, rational and comprehensive strategy for the whole business. The justification for significant additional operating expenditure on Information Systems and its timing is not well founded.

Based on these findings, and its professional experience and judgement, Atkins Cardno assessed the scope for continuing and catch-up efficiencies Sydney Water can achieve. Continuing efficiency reflects the efficiency that can be gained through innovation and new technologies. Catch-up efficiency reflects the catch-up needed to move from the company's current position to that of a 'frontier' or benchmark utility. This assessment involved comparing Sydney Water's operational control processes to the current best practice in Australia and England.

It then took account of the efficiency gains Sydney Water has planned in its submission to determine the net scope for efficiency gains. Finally, it recommended what efficiency targets IPART should apply to Sydney Water's proposed operating expenditure to ensure only efficiency expenditure is recovered through prices.

Overall, Atkins Cardno concluded that although Sydney Water proposes to make significant efficiencies over the 2012 determination period, it can achieve further efficiencies mainly in the latter part of this period. It acknowledges that achieving these additional efficiencies will be challenging, but considers that Sydney Water is in a position to meet this challenge because it has highly experienced professionals who are motivated to deliver.

Atkins Cardno's findings on the scope for operating efficiency gains and its recommended efficiency adjustments are summarised in Table 5.5 below. Its recommended efficient levels of non-bulk water related operating expenditure are shown in Table 5.6.⁶³

Table 5.5 Atkins Cardno's findings on scope for operating efficiency gains (%)

	2012/13	2013/14	2014/15	2015/16
Continuing efficiency (annual)	0.25	0.25	0.25	0.25
Continuing efficiency (cumulative)	0.25	0.50	0.75	1.00
Catch-up efficiency (annual)	1.50	2.00	2.00	2.00
Total continuing and catch-up (cumulative)	1.75	4.00	6.25	8.50
Sydney Water planned labour efficiency (annual)	1.46	0.47	0.62	0.47
Sydney Water planned other efficiency (annual)	0.31	-0.03	0.31	0.15
Total Sydney Water planned efficiency	1.76	2.21	3.14	3.76
Net scope for efficiency gains	-0.01	1.79	3.11	4.74
Sydney Water controllable costs as % of total operating costs (net of bulk water)	38	38	38	38
Recommended efficiency adjustment	0.00	0.7	1.2	1.8

Note: Totals may vary due to rounding.

Source: Atkins Cardno, *Detailed Review of Sydney Water's Operating and Capital Expenditure*, Table 6.7, p 90.

⁶³ Note that bulk water and desalination water costs are excluded from the efficiency process and that revenue from the Rosehill Recycled Water Scheme is deducted from the final operating expenditure level in line with the section 16A direction by the NSW Government. The direction is that Sydney Water is to fund the difference between the charges paid to the owner of the Rosehill scheme and revenue received from the sale of recycled water to customers.

Table 5.6 Atkins Cardno's recommended efficient levels of non-bulk water related operating expenditure (\$2011/12, \$million)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total 2012/13- 2015/16
Sydney Water proposed expenditure	1,378.1	1,369.9	1,380.4	1,382.7	1,382.8	5,515.8
Adjustments to remove inconsistencies						
Less Rosehill scheme revenue	-8.1	-8.2	-8.3	-8.4	-8.5	-33.4
Less bulk water costs	-198.8	-203.3	-204.6	-205.6	-206.5	-820.1
Less desalinated water costs	-270.4	-270.8	-273.4	-274.9	-272.0	-1,091.1
Net Sydney Water proposed expenditure	900.7	887.5	894.1	893.8	895.7	3,571.2
Atkins Cardno annual efficiency target		0.0	-6.1	-10.6	-16.1	-32.8
Atkins Cardno recommended expenditure	900.7	887.5	887.9	883.2	879.5	3,538.4
Atkins Cardno recommended expenditure by service						
Water	326.0	306.2	304.4	301.4	297.9	1,209.9
sewerage	368.1	378.8	376.9	374.2	371.3	1,501.2
Stormwater	13.1	10.7	12.9	12.7	12.7	49.0
Recycled water	23.0	23.5	23.6	25.2	25.7	98.0
Corporate	178.6	176.5	178.4	178.2	180.4	713.5
Less Rosehill Scheme revenue	-8.1	-8.2	-8.3	-8.4	-8.5	-33.4
Atkins Cardno recommended expenditure	900.7	887.5	887.9	883.2	879.5	3,538.1

Note: Totals may vary due to rounding.

Source: Atkins Cardno, *Detailed review of Sydney Water's Operating and Capital Expenditure*, Table 6.9, p 93.

5.5 IPART's analysis

In relation to Sydney Water's non-bulk water related operating costs, we have accepted Atkins Cardno's findings and recommendations, and annual expenditures shown in Table 5.6 above. We considered the concerns Sydney Water raised in response to these recommendations, particularly that cumulative efficiency target:

...\$33 million higher than Sydney Water's own ambitious savings target of \$140 million which is built into the pricing submission.

This increased target will be difficult to achieve, but we will critically review operating expenditure to maximise savings. However, Sydney Water will not cut costs to a point where service standards are compromised or where the operating savings do not make

sense in total life cycle costs. In essence, we are keen not to reduce costs in the short term where costs to the customer in the longer term will be higher.⁶⁴

We also considered Atkins Cardno's response to these concerns:

We agree that the opex efficiency targets are challenging. Our assessment is based on a continuing efficiency of 0.25% per annum, the same as applied by Ofwat in the 2009 Determination. Ofwat had applied catch-up efficiency in a range 0 to 2.9% per annum over and above efficiencies proposed by companies. For comparison, we applied an average 0.75% per annum above efficiencies proposed by Sydney Water. Thus the efficiencies we have applied are within the range of efficiencies applied to England and Wales water agencies. We have taken into account the level of efficiency savings that the Company has proposed so that our efficiency challenge is applied mainly to the latter two years of the price path.⁶⁵

We recognise that Sydney Water has included significant efficiency gains in its pricing proposal, and that Atkins Cardno's further efficiency target of \$16 million per annum by 2015/16 is challenging. We also note that Sydney Water has already announced structural changes to increase customer satisfaction whilst containing costs. However, we have adopted Atkins Cardno's recommended operating expenditure efficiency targets as it better represents the industry benchmark in continuous improvement.

Our draft finding on Sydney Water's non-bulk water related operating expenditure over the 2012 determination period is shown in Table 5.7 below.

Table 5.7 Draft finding on non-bulk water related operating expenditure (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Water (excluding bulk water purchases)	377	376	374	371	1,498
Sewerage	496	495	493	491	1,975
Stormwater drainage	14	17	17	17	65
Total	888	888	883	880	3,538

Note: Totals may vary due to rounding.

In relation to bulk water purchase costs, Sydney Water will source most of its bulk water from SCA. We are determining SCA's prices it will charge Sydney Water concurrently with this review. We have decided to allow Sydney Water the bulk water costs of sourcing its forecast amount of water usage from SCA. We have allowed Sydney Water to recover the cost of all SCA water charges in accordance with SCA's draft determination.

⁶⁴ Sydney Water letter to IPART 11 January, 2012.

⁶⁵ Atkins Cardno letter to IPART, 14 February, 2012.

Sydney Water may also be required to source some desalinated water from SDP. However, given current dam levels and the operating rules set out in the Metropolitan Water Plan, we have set our draft prices on the basis that SDP is in a water security shutdown mode for the duration of the determination. If the SDP does operate in a different mode, this will increase the costs to Sydney Water above the level included in Sydney Water's draft prices. Therefore, we have decided to allow the net incremental costs associated with SDP being in a different mode of operation to be passed through to customers in prices in the following year of the determination period.

Our draft finding on Sydney Water's bulk water purchase costs is shown in Table 5.8 below.

Table 5.8 Draft finding on Sydney Water's bulk water purchase costs (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
SCA	193	193	193	194	773
SDP	188	185	183	180	736
Total	381	378	377	373	

Note: Totals may vary due to rounding.

6 Capital expenditure

Together, the allowances for a return on assets and regulatory depreciation make up around 43% of Sydney Water's total notional revenue requirement over the 2012 determination period, and so have a significant impact on prices. To calculate these allowances we took the following steps:

- ▼ assessing Sydney Water's past capital expenditure over the 2008 determination period to decide whether it was prudent and should therefore be incorporated into the opening value of Sydney Water's Regulatory Asset Base (RAB)
- ▼ assessing Sydney Water's forecast capital expenditure to determine whether it is efficient and should therefore be included when rolling forward the RAB
- ▼ calculating the annual value for the RAB over the determination period, taking into account our decisions on past and forecast capital expenditure and making other adjustments as necessary
- ▼ calculating the allowance for a return on assets by deciding on an appropriate rate of return for Sydney Water, and multiplying the annual value of the RAB by this rate
- ▼ calculating the allowance for depreciation by deciding on an appropriate depreciation method and asset lives for Sydney Water's existing and new assets.

To assist us in assessing Sydney Water's capital expenditure, we engaged a consultant, Atkins Cardno, to conduct a detailed review of Sydney Water's past and future capital programs. References to Atkins Cardno's findings and recommendations in this chapter are drawn from its final report, *Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure, November 2011*, and have been updated to reflect the arithmetical corrections it provided after this report was released.⁶⁶

The sections below provide an overview of our decisions on the allowances for a return on assets and depreciation, and then discuss each of the above steps in detail.

⁶⁶ Atkins Cardno Response to IPART Tribunal request for comments on the Sydney Water Corporation letter dated 11th January 2012, 14 February, 2012.

6.1 Summary of IPART's draft decisions

Draft decisions

- 11 IPART's draft decisions on the allowances for a return on assets and depreciation, and the key inputs that gave rise to these findings are as shown in Table 6.1 and Table 6.2.

Table 6.1 Draft decision on Sydney Water's past efficient and prudent capital expenditure (\$million, 2011/12)

	2008/09	2009/10	2010/11	2011/12	Total
Past capital expenditure	907	857	612	664	3,040

Table 6.2 Draft decisions on Sydney Water's forecast capital expenditure, RAB, WACC, allowance for a return on capital and depreciation (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16
Forecast capital expenditure	686.9	697.6	614.9	537.8
Value of RAB at 30 June	13,406	13,862	14,232	14,521
Rate of return (WACC)	5.5%	5.5%	5.5%	5.5%
Allowance for return on assets	711.6	736.1	758.6	776.5
Allowance for regulatory depreciation	207.1	219.8	232.0	242.6

These allowances reflect our decisions to:

- ▼ allow for \$40.5 million (or 1.4%) less in past capital expenditure than Sydney Water proposed, to reflect our view that this expenditure was not efficient and prudent
- ▼ allow for \$484.2 million (or 16.1%) less in forecast capital expenditure than Sydney Water proposed, to reflect our view of the scope for efficiency improvements and the rephasing of some expenditure
- ▼ calculate the allowance for a return on assets using a rate of return of 5.5%, to reflect our view of the real post-tax weighted average cost of capital (WACC) for Sydney Water
- ▼ calculate the allowance for regulatory depreciation using straight line depreciation and the asset lives Sydney Water proposed.

In reaching the findings, we had regard to the NSW Government's submission to this review, which urged us to carefully consider the necessity and prudence of Sydney Water's capital expenditure. We also had regard to the overall finding of Atkins Cardno's review of Sydney Water's operating and capital expenditure, which was that there is little evidence of Sydney Water having a comprehensive long-term investment plan or a long-term business plan.

We consider that our findings on the allowances for a return on assets and regulatory depreciation will ensure that Sydney Water only earns a return on capital expenditure that was efficient and prudent (ie, in the circumstances existing at the time, the decision to invest in an asset is one that Sydney Water, acting prudently, would be expected to make).

6.2 Assessing Sydney Water's past capital expenditure

To assess the prudence and efficiency of Sydney Water's past capital expenditure over the 2008 determination period, we considered Sydney Water's submission and Atkins Cardno's findings and recommendations on this capital expenditure, and conducted our own analysis.

6.2.1 Sydney Water's submission on past capital expenditure

Table 6.3 shows Sydney Water's actual capital expenditure over the 2008 period, and compares it to the amounts we allowed for in making the 2008 determination. It indicates that in some areas, Sydney Water's expenditure was the same or similar to the amounts allowed, in others there was a significant difference. In particular, there was significantly more expenditure on property and IT than we included in our 2008 determination and significantly less expenditure on drainage and sewerage assets.

Table 6.3 Sydney Water's cumulative capital expenditure 2008/09 to 2011/12 (\$million, nominal)

	Allowed	Actual	Difference	% Diff.
Water	865	853	-12	-1.4%
Sewerage	1,528	1,401	-127	-8.3%
Drainage	52	14	-38	-73.1%
Recycled Water	185	176	-8	-4.3%
Property	79	224	144	182.3%
IT	142	260	118	83.1%
Other	50	50	0	0%
Total	2,901	2,978	77	2.7%

Note: Totals may not add due to rounding. Excludes capital expenditure on Sydney desalination plant.

In its submission, Sydney Water argues that:

- ▼ Its lower than allowed for capital expenditure in water and sewerage was due to lower than expected growth, which meant that investments were not needed in the time previously forecast.
- ▼ Its higher capital expenditure than allowed for in property was the result of delayed delivery of projects from the previous determination period and \$118 million on the purchase of land and easements acquired in the course of Sydney Water's ordinary business.

- ▼ The higher IT expenditure was the result of the need to replace several core systems after a period of significant under investment, and because the need for several IT investments emerged during the period. These were not planned for in Sydney Water's submission to the 2008 review.

Sydney Water also sought to include \$21.6 million of avoided costs arising from the Rouse Hill recycled water scheme be included in the water and sewerage regulatory asset bases. Our decisions on avoided costs are set out in Chapter 9.

6.2.2 Atkins Cardno's review of the prudence of Sydney Water's past capital expenditure

In assessing the prudence and efficiency of Sydney Water's past capital expenditure, Atkins Cardno recommended \$40.5m of this expenditure be excluded from the RAB. This included:

- ▼ \$18 million of IT expenditure which Atkins Cardno found not prudent. This finding was based on Atkins Cardno's review of Sydney Water's Maximo and CMS systems. It found that:

...there was a lack of good planning to scope out the work, the impact on systems and quantify the risks. This has impacted significantly on the cost and timing of the projects⁶⁷.
- ▼ \$14.1 million of expenditure on the Priority Sewerage Program (PSP) projects, including spending on stage 2 of the Freemans Reach, Glossodia and Wilberforce sewerage scheme. Atkins Cardno considered that Sydney Water had prematurely excluded options for consideration. Atkins Cardno found that Sydney Water may have given undue weight to the concerns of customers and stakeholders at the expense of the wider customer base who are liable for paying for the assets.
- ▼ \$2.1 million expenditure on the meter replacement program, based on its concerns about the efficiency of a procurement contract which placed all the risk for non-standard installations onto Sydney Water.
- ▼ \$6 million in property expenditure which Atkins Cardno found did not fully meet the prudence definition because of the lack of an up to date property strategy which clearly sets out the company's plans and objectives.

⁶⁷ WS Atkins and Cardno, *Final Report Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure*, November 2011, p 137.

6.2.3 IPART's analysis of Sydney Water's past capital expenditure

After considering Sydney Water's submission and Atkins Cardno's report, we decided to accept Atkins Cardno's recommendations to exclude \$40.5 million of Sydney Water's past expenditure. We are concerned at the significant expenditure on IT and property over the 2008 determination period. Our 2008 determination forecast efficient IT expenditure at \$142 million to 2012. Sydney Water's submission shows that the actual capital expenditure was \$260 million over the same period. For property-related capital expenditure, the difference between our 2008 forecast and the actual expenditure was even greater, \$79 million and \$224 million respectively.

While we recognise that capital programs need to be flexible, we share Atkins Cardno's concerns regarding whether the planning and strategy for both IT and property capital expenditure was robust enough to ensure prudent and efficient expenditure.

In addition to Atkins Cardno's recommendations, we decided to exclude a further \$23.5m to take into account the actual capital expenditure paid by Sydney Water under Developer Commercial Agreements (DCA).

In 2008/09, Sydney Water put in place the DCA framework which allows developers to develop land without having to wait for Sydney Water to build the necessary water-related assets. Sydney Water purchases the relevant assets from developers in line with take-up of lots by customers.

When a DCA is entered into between Sydney Water and a developer, all assets are transferred to Sydney Water's books. However, Sydney Water's payment to the developers may not occur for some time. Based on current experience, Sydney Water has spread the payments of each DCA over 5 years to approximate when actual payment may occur.

The past and future capital expenditure in Sydney Water's submission and Annual Information Return (AIR) is based on the assets transferred to Sydney Water's books. For pricing purposes, we have adjusted both the past and forecast capital expenditure to reflect the actual annual amounts paid by Sydney Water under the DCAs. We consider that this is a more accurate reflection of Sydney Water's expenditure on those capital items. In our 2008 determination, Sydney Water had not implemented its DCA process and so we did not take these adjustments into account in setting prices for the 2008 period.

Sydney Water proposed its capital expenditure associated with the Rouse Hill recycled water scheme should be considered avoided costs for water and sewerage. Avoided costs are recovered by water and sewerage customers. Our draft decision is to not award any avoided costs. We are not convinced that the Rouse Hill recycled water scheme has been adequately ring-fenced for the duration of its operation. For us to be satisfied that the costs of providing recycled water services have been adequately ring-fenced, Sydney Water would need to demonstrate that the system assets have been quarantined from inclusion in Sydney Water's RAB. This will

satisfy us that Sydney Water's broader water and sewerage customer base has not been funding some of Rouse Hill recycled water infrastructure.

Draft decision

12 IPART's draft decision is that past capital expenditure shown in Table 6.4 was prudent and efficient and should be incorporated in the opening value of Sydney Water's RAB.

Table 6.4 Draft decision on Sydney Water's past efficient and prudent capital expenditure (\$million, 2011/12)

	2008/09	2009/10	2010/11	2011/12	Total
Sydney Water actual	941	858	627	679	3,105
Atkins Cardno's recommended adjustments					
IT expenditure	-4.5	-3.5	-6.5	-3.5	-18.0
Meters expenditure	0.0	0.0	-1.2	-1.2	-2.4
PSP projects	-2.7	-5.1	-3.3	-3.0	-14.1
Property	-2.4	-1.5	-0.9	-1.2	-6.0
Total adjustments	-9.6	-10.1	-11.9	-8.9	-40.5
Atkins' recommended total	931	848	615	670	3,064
IPART's additional adjustments					
Developer Commercial Agreement adjustment	-24.8	9.9	-2.5	-6.1	-23.5
IPART's decision	907	857	612	664	3,040

6.3 Assessing Sydney Water's forecast capital expenditure

To assess the efficiency of Sydney Water's forecast capital expenditure for the 2012 determination period, we considered Sydney Water's submission, and stakeholder comments on this submission, as well as the findings and recommendations on Atkins Cardno's review of Sydney Water's asset management and its forecast expenditure. We also conducted our own analysis.

6.3.1 Sydney Water's submission on forecast capital expenditure

Sydney Water proposes a capital expenditure program of \$3,007 million over the 2012 determination period. This amount is lower than the capital expenditure it proposed the 2008 determination period. However, the 2008 expenditure included some large projects such as the Sydney Desalination Plant and 2 recycled water projects arising from drought conditions and the Metropolitan Water Plan. When the expenditure for those large projects is excluded, Sydney Water's proposed capital expenditure for the 2012 period is roughly equivalent to that for the 2008 period.

Table 6.5 shows Sydney Water's proposed expenditure by service. Sydney Water proposes to undertake increased capital expenditure on sewerage and water assets compared to the expenditure in the 2008 determination period.

Table 6.5 Proposed capital expenditure by service (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Water	264	271	258	274	1,068
Sewerage	411	435	402	319	1,567
Drainage	10	11	6	5	32
Corporate	88	86	85	82	340
Total	773	802	751	680	3,006

Note: Totals may not add due to rounding.

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Table 4.5, p 49.

Table 6.6 shows Sydney Water's proposed expenditure by corporate driver. This table indicates that Sydney Water plans to devote over 50% of its capital expenditure to the renewal of existing assets, and another 25% to servicing growth.

Table 6.6 Proposed capital expenditure by driver (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Business efficiency	35	33	29	29	126
Existing standards	415	420	440	382	1,657
Growth	176	194	204	200	774
New standards	74	84	30	45	233
Govt programs	73	71	48	24	217
Total	773	802	751	680	3,006

Note: Totals may not add due to rounding.

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Table 4.5, p 49.

In its submission, Sydney Water indicates that its proposed capital program includes:

- ▼ \$740 million on renewing and maintaining existing water supply infrastructure
- ▼ \$328 million on water infrastructure to service growth
- ▼ \$390 million on renewing and maintaining sewerage network assets including pipes and pumping stations
- ▼ \$420 million on sewerage infrastructure to service growth
- ▼ \$263 million on sewerage overflow abatement to comply with its Environmental Protection Licences
- ▼ \$231 million upgrading and renewing its sewerage treatment plants
- ▼ \$215 million on the Priority Sewerage Program

- ▼ \$32 million on stormwater drainage infrastructure renewals and to service growth
- ▼ \$204 million on IT renewals and new projects.

Sydney Water also proposes its capital expenditure from expanding the Rouse Hill recycled water scheme should be considered avoided costs for water and sewerage. Avoided costs are recovered by water and sewerage customers. Our draft decision is to not award any avoided costs. On the basis of evidence provided, we are not adequately convinced that the Rouse Hill recycled water scheme has been robustly ring-fenced. This decision is discussed in more detail in section 9.6.

6.3.2 Stakeholder comments

In its submission, the NSW Government stated that it may be possible for Sydney Water to defer some of its proposed capital expenditure related to discretionary standards, where this wouldn't impact negatively on the protection of public health or the environment. It also stated:

It is also important to ensure that all the proposed growth-related capital expenditure is in fact needed over the coming price path. Any reasonable deferral of growth-related capital expenditure into future price periods will lead to a reduction in revenue requirements and this in turn will lead to a reduction in revenue requirements and this in turn will mitigate impacts on prices.⁶⁸

We did not receive other submissions about Sydney Water's proposed capital expenditure program.

6.3.3 Atkins Cardno review of Sydney Water's asset management

Atkins Cardno undertook a detailed review of Sydney Water's performance against the asset management obligations in its operating licence. Atkins Cardno found that Sydney Water's management practices, systems and documentation are well developed, and have been refined over many years. The organisation has shown a comprehensive understanding of asset management, and commitment to continuous improvement.⁶⁹

Atkins Cardno also found that there has been a significant improvement in Sydney Water's planning systems and processes over the past 6 years. However, it highlighted a number of issues including:

- ▼ limited evidence of a structured business plan approach
- ▼ a long-term investment strategy that is not comprehensive

⁶⁸ NSW Government submission to IPART's Review of Sydney Water's Water, Wastewater and Stormwater Prices, October 2011.

⁶⁹ IPART, *Sydney Water Corporation Operational Audit 2010/11 - Report to the Minister*, November 2011, Appendix B, p 5.

- ▼ potentially higher costs than necessary from over-servicing and a conservative approach to risk assessment, and
- ▼ an inadequate IT and property investment strategy.

Atkins Cardno stated:

We consider effective long term investment plans and a more rigorous business plan process would deliver efficiencies both in capital and operating expenditure in the medium and long term.⁷⁰

These planning and investment process issues were a contributing factor in Atkins Cardno recommending that a portion of Sydney Water's past capital expenditure be excluded from the RAB (discussed in section 6.2 above), and that the forecast capital expenditure allowed for in the 2012 determination period be less than Sydney Water proposed (discussed below).

6.3.4 Atkins Cardno's review of Sydney Water's forecast capital expenditure

Atkins Cardno recommended that we allow for significantly lower capital expenditure over the 2012 determination than Sydney Water proposed. In total, Atkins Cardno recommended that Sydney Water's proposed capital expenditure be reduced by \$468 million (or 15.6%) as follows:

- ▼ **Timing of outputs:** Atkins Cardno recommended that \$179 million of Sydney Water's proposed capital expenditure be deferred (or 'rephased') to beyond 2016. All of this rephased expenditure comes from Sydney Water's programs for renewing existing water and sewerage infrastructure. The consultant's recommended reduction is not a reduction in existing capital expenditure. Instead, it defers some of Sydney Water's proposed expenditure into the next price path. Sydney Water has proposed a large expenditure increase from the first year of the new determination in a number of these renewal programs. Rather than adopting a step approach in the first year, Atkins Cardno recommend that a more realistic and achievable timeframe would be a steady increase across the next 4 years and into the next determination period.
- ▼ **Growth reprofiling:** Atkins Cardno recommends reducing the total expenditure driven by growth by \$97 million. This is based on uncertainty regarding the levels of growth and the potential for deferring some of the annual expenditure into the following year.

⁷⁰ WS Atkins and Cardno, *Final Report Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure*, November 2011, p 14.

- ▼ **Corporate expenditure:** Atkins Cardno recommended reducing expenditure for IT by \$30 million and expenditure for the meter replacement program by \$8 million. It was not satisfied that Sydney Water's proposed expenditure on these items could be justified. It found that Sydney Water did not demonstrate clearly a link between the expenditure's effect on overall efficiency and customer service targets. Atkins Cardno recommended disallowing the proposed expenditure on the remote meter reading project. It also recommended reducing the number of meter replacements by 25,500 over the new determination period.
- ▼ **Capital efficiency:** Atkins Cardno concluded that Sydney Water can be more efficient with the way it plans and delivers its capital works program. Over the 4 years of the new determination period, Atkins Cardno estimates that Sydney Water could save \$143 million through efficiency improvements.

Following Atkins Cardno issuing its Final Report, Sydney Water wrote to IPART requesting that around \$285 million of capital expenditure reductions recommended by Atkins Cardno be reinstated.⁷¹ Sydney Water argued that:

- ▼ Atkins Cardno's recommended capital expenditure deferral on programs for renewing or improving Sydney Water's existing assets would lead to lower service standards including more main breaks and a greater number of sewage overflows. Sydney Water requested that \$146 million of Atkins Cardno's recommended \$184 million reduction on Sydney Water's proposed expenditure be restored.
- ▼ Atkins Cardno's recommended \$97 million deferral of growth related capital expenditure was unreasonable as growth was outside of Sydney Water's control. Sydney Water requested all proposed capital expenditure on growth be restored.
- ▼ Atkins Cardno's recommended efficiency saving of \$26 million on the Priority Sewerage Program (PSP) should be reinstated. Sydney Water argues that the forecast capital expenditure per lot on the future PSP is significantly lower than Stage 2 of the program and this represents an efficiency gain.

We asked Atkins Cardno to assess Sydney Water's arguments regarding its requests for the above forecast capital expenditure to be reinstated. Atkins Cardno found that:

- ▼ The recommended deferral of \$179 million capital expenditure on renewing and improving Sydney Water's assets would not impact on Sydney Water's system performance over the 4 years of the 2012 Determination period. Its recommended capital expenditure on these programs is still a real increase above what Sydney Water spent over the 2008 Determination.

⁷¹ Sydney Water Letter to IPART, 11 January 2012.

- ▼ The recommended deferral of some of Sydney Water's proposed expenditure for growth was based on the inherent uncertainty surrounding growth projections. It also points out that Sydney Water spent considerably less on growth in the 2008 Determination than what was forecast at that time, and redirected that expenditure to other areas.
- ▼ The recommended \$26 million reduction for the PSP be maintained. It assessed that there were a number of further improvements in the planning and construction process of this program that would potentially reduce the costs of PSP.

6.3.5 IPART's analysis of Sydney Water's forecast capital expenditure

After considering Sydney Water's submission, the NSW Government's comments and Atkins Cardno's findings and recommendations, our draft decision is that Sydney Water's forecast efficient capital expenditure over the 2012 determination period is \$2,522 million. This is \$484.2 million (16.1%) less than Sydney Water proposes.

In reaching this decision, we accepted Atkins Cardno's recommendations on the efficiency of Sydney Water's proposed capital expenditure over the 2012 determination period. Atkins Cardno's review process involved detailed analysis and scrutiny of Sydney Water's asset management and forecast expenditure. We are satisfied that the conclusions and findings from that process are sound and that there is sufficient evidence to use Atkins Cardno's recommended reductions in expenditure as the basis for determining Sydney Water's levels of forecast capital expenditure.

In line with Atkins Cardno's recommendations, we expect Sydney Water to be able to make significant savings by:

- ▼ deferring some of its expenditure on renewing existing assets (\$179 million) and providing new assets to growth areas (\$97 million)
- ▼ spending less on IT and customer meters (\$38 million)
- ▼ being more efficient in planning and executing its overall capital works program (\$143 million).

In addition, using Atkins Cardno's recommendations as a basis, we have decided to:

- ▼ increase the level of forecast capital expenditure by \$10.3 million to take account of the DCA process (discussed in section 6.2.3)
- ▼ reduce the level of forecast stormwater drainage expenditure below Atkins Cardno's recommended level because we are not satisfied with Sydney Water's justification for increasing that expenditure above historic levels of actual expenditure.

In the 2008 determination, we forecast Sydney Water's drainage capital expenditure over the 4 years to 2012 would be \$35 million (excluding land purchases associated with the Rouse Hill Development Area). Sydney Water's submission to the 2012 review shows that the actual expenditure over this period was \$14 million (a difference of -60%). Sydney Water explains this \$21 million variance in its submission:

Detailed condition assessments have shown that the [drainage] assets are in better condition than previously assumed. This has meant that significant expenditure could be deferred.⁷²

We consider that Sydney Water has not made a solid case for an increase in drainage capital expenditure above the actual expenditure over the 2008 determination period - particularly given its statement that \$21 million less expenditure than we allowed for at the 2008 determination was prudent given the current asset condition. Therefore we have allowed for \$15 million in stormwater drainage capital expenditure, based on Sydney Water's actual capital expenditure on this service over the 2008 determination period. After applying the DCA adjustment of -\$5 million, our total forecast expenditure is \$9 million for drainage over the period 2012/13 to 2015/16. This is lower than Atkins Cardno's proposed expenditure of \$31m.

Draft decision

- 13 IPART's draft decision is that the forecast capital expenditure shown in Table 6.7 is efficient and should be included when rolling forward the RAB in this determination period.

⁷² Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 68.

Table 6.7 Draft decision on level of Sydney Water’s efficient and prudent forecast capital expenditure (\$million, 2011/12)

Sydney Water forecast					
	2012/13	2013/14	2014/15	2015/16	Total
Water	264	271	258	274	1,068
Sewerage	411	435	402	319	1,567
Drainage	10	11	6	5	32
Corporate	88	87	85	82	340
Total	773	803	751	680	3,007
Atkins’ recommended					
Water	217	228	204	206	854
Sewerage	383	391	332	260	1,365
Drainage	10	11	6	4	31
Corporate	78	72	66	66	288
Total	688	701	613	536	2,538
IPART’s decision					
Water	220.5	232.8	207.6	209.8	870.7
Sewerage	377.8	389.3	330.8	258.2	1,356.1
Drainage	4.0	3.4	1.3	0.6	9.4
Corporate	84.6	72.0	75.2	69.2	300.9
Total	686.9	697.6	614.9	537.8	2,537.1

Note: Totals may not add due to rounding.

Source: IPART analysis.

We note that Sydney Water is willing to defer recovery of any “second round” cost increase in capital expenditure as a result of the impact of the carbon price mechanism on the general economy. In the next determination, we will examine actual expenditure including actual carbon related increases allow any efficient costs to be included in the RAB roll forward from 1 July 2012.

6.4 Calculating the annual value of the RAB over the determination period

To determine both the allowance for a return on assets and the allowance for regulatory depreciation, we must calculate the value of Sydney Water’s RAB in each year of the determination period⁷³. We established the methodologies for calculating the value of the RAB at the start of the determination period (the opening value of the RAB), and for rolling forward the RAB to the end of the determination period. We then made some further adjustments. The sections below outline these methodologies and adjustments, and the resulting RAB values.

⁷³ These methodologies are explained more fully in Chapter 4.

6.4.1 Methodologies for establishing opening value of the RAB and rolling forward the RAB

To establish the opening value of Sydney Water's RAB (ie, as at 1 July 2012), we:

- ▼ rolled forward the 1 July 2008 RAB to 30 June 2012 by including the actual capital expenditure over this period we found to be prudent⁷⁴ (as discussed in section 6.1 above)
- ▼ made other necessary adjustments, including
 - deducting any actual capital contributions from the RAB
 - deducting regulatory depreciation as allowed for in the 2008 determination⁷⁵
 - deducting actual asset disposals for 2008/09 to 2010/11 and estimated disposals for 2011/12
- ▼ indexed the annual closing RAB for actual/forecast inflation. In making this calculation, we assumed that half the capital expenditure and disposals occurred at the beginning of the year (and therefore receive a full year of indexation), while the other half occurred at the end of the period (and therefore is not indexed).

To roll forward the RAB to the end of the 2012 determination period (ie, 30 June 2016), we:

- ▼ added the forecast capital expenditure we found to be efficient (as discussed in section 6.1 above) to the closing value of the RAB for the previous year
- ▼ made other necessary adjustments to the value of the RAB for each year, including
 - deducting regulatory depreciation
 - deducting forecast disposals of assets.

Both methodologies are the same as those we used in making the 2008 determination.

6.4.2 Further adjustments to the RAB

After applying the above methodologies, we made some further adjustments to the value of the RAB, including adjustments to account for past and forecast capital contributions, past and forecast disposal of assets and regulatory depreciation.

⁷⁴ Given that actual expenditure for 2011/12 is not fully known at the time of the Determination, IPART has used the estimated expenditure for this year. This estimate has been assessed by IPART as part of the review and adjusted where appropriate. At the next review, the RAB will be adjusted to reflect the difference between this estimate and actual expenditure for 2011/12.

⁷⁵ Regulatory depreciation refers to the depreciation amounts allowed for in the 2008 Determination. We use regulatory depreciation, rather than actual depreciation, because the impact of any over/under-expenditure of capital expenditure during the determination period is limited to the return it earns on its expenditure. This provides agencies with an incentive not to overestimate their forecast expenditure at price reviews.

Adjustments for capital contributions

For water utilities, 'capital contributions' generally refer to revenue received from developer charges or government grants. Sydney Water did receive some revenue from developer charges over the period 2007/08 to 2009/10. Therefore, we made adjustments to the RAB account for these capital contributions.

Adjustments for disposal of assets

We made a \$51.3 million adjustment to the RAB to account for asset disposals over the period 2012/13 to 2015/16. This is the same amount as submitted by Sydney Water and part of our normal practice.

Adjustments for regulatory depreciation

The RAB is adjusted each year to account for regulatory depreciation. To determine the opening value of Sydney Water's RAB at 1 July 2012, we deducted the allowance for regulatory depreciation it included in making the 2008 determination. To calculate future regulatory depreciation to be deducted from the RAB (to roll forward the RAB to the end of the 2012 determination period) we have used the straight-line depreciation method. The amounts deducted are shown on Table 6.8 below.

Other adjustments

We have adjusted the sewerage RAB by \$6.26m to reflect the capital expenditure (excluding land purchases) for stormwater and drainage at Rouse Hill Development Area over the period 2012/13 to 2015/16. This reflects our assessment that the capital expenditure on drainage related civil works in the Rouse Hill Development Area improves the quality of water discharged into the Hawkesbury-Nepean river system. This water quality improvement benefits all residents of the Sydney basin and under the beneficiary pays principle, all Sydney Water's sewerage customers should share the associated costs. This decision is discussed in detail in section 9.5.

Table 6.8 Adjustments for regulatory depreciation (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16
Water depreciation	67.9	72.2	76.2	80.0
Sewerage depreciation	136.3	144.7	152.8	160.3
Stormwater drainage depreciation	2.9	2.9	3.0	2.3
Combined business depreciation	207.1	219.8	232.0	242.6

Source: IPART analysis.

6.4.3 Resulting annual values for the RAB

As a result of incorporating the forecast capital expenditure and making the adjustments discussed above, we calculated the annual value of Sydney Water's RAB as shown in Table 6.9 below.

Table 6.9 Draft decision on annual value of Sydney Water's RAB over the 2012 determination period (\$million 2011/12)

	2012/13	2013/14	2014/15	2015/16
Opening RAB	12,961	13,406	13,862	14,232
Capital expenditure	686.9	697.6	614.9	537.8
Disposals	29.5	15.3	6.5	0.0
Depreciation	212.7	225.8	238.3	249.2
Closing RAB	13,406	13,862	14,232	14,521

Source: IPART analysis.

6.5 Calculating the allowance for a return on assets

Draft decision

- 14 IPART's draft decision is that for the purposes of calculating the allowance for a return on assets, a real post-tax WACC of 5.5% is appropriate.

One of our most important steps in determining the allowance for a return on assets to be included in Sydney Water's notional revenue requirement was deciding on the appropriate rate of return on its RAB. Once we calculated the value of Sydney Water's RAB over the determination period, we decided on an appropriate rate of return for Sydney Water. We then multiplied the rate of return by the value of the RAB in each year of the determination period to calculate the allowance for a return on assets.

There are several approaches for deciding on an appropriate rate of return. As for previous reviews, we used the weighted average cost of capital (WACC) approach. Our previous approach used a pre-tax WACC with an assumed statutory tax rate. In most cases, this overstated the tax that would be paid by a comparable commercial business. In this determination, the amount allowed for tax is lower than the amount SWC expects to pay, primarily because SWC's actual gearing and interest expense is lower than the benchmarks used for the WACC.

In December 2011, following consultation, we decided to calculate a more accurate and commercially-based tax allowance as a discrete building block, and to use a post-tax WACC⁷⁶. The decision to adopt a post-tax WACC methodology was subject to a public process and was made after consultation with Sydney Water.

⁷⁶ IPART, *The incorporation of company tax in pricing determinations - Final Decision*, December 2011.

We developed a range for the water utility's post-tax real WACC, and then made a judgement on the most appropriate rate of return for Sydney Water within this range. In exercising our judgement, we considered Sydney Water's proposed rate of return and our own analysis of the implications of its chosen rate return for customers, Sydney Water's financial viability and economic efficiency. Our considerations on each of the parameters used to calculate the WACC range are set out in Appendix C.

6.5.1 Sydney Water's proposed WACC

Sydney Water proposed a real pre-tax WACC of at least 7.5%.⁷⁷ This is the same WACC as we used in making the 2008 determination. Sydney Water's key reason for proposing to maintain its rate of return on assets is the need to maintain its financial position.

Sydney Water claims that it has specific risks, such as demand and cost risk, that are asymmetric, with a greater downside risk. Sydney Water sought compensation for these specific risks in the WACC.

Sydney Water argues that it has a higher risk profile than the UK water businesses, due to our regulatory framework and differences in customer metering. On these grounds Sydney Water considers comparisons between UK water businesses and Sydney Water to be inappropriate.

Sydney Water supported its submission with independent advice from Value Advisor Associates (VAA). This advice supported the higher rate of return sought by Sydney Water, and its statement about comparisons between UK water businesses and Sydney Water. VAA's advice dealt with the specific WACC parameters in some detail, this is discussed more comprehensively in Appendix C.

Sydney Water also submitted advice from TCorp on IPART's approach to setting the risk free rate and debt margin. This advice is also discussed in Appendix C.

6.5.2 IPART's analysis on the WACC

Our draft decision is that for the allowance for a return on assets, a real post-tax WACC of 5.5% will be applied. We consider moving to a post-tax real WACC more accurately estimates the tax liability that would be achievable by a similar well-managed, privately owned business. We consider that the industry weighted average cost of capital is in range of 4.0% to 5.5%.

⁷⁷ We estimate that Sydney Water's proposed real pre-tax WACC of 7.5% would be around 6.5% in real post-tax terms. However, it is not directly comparable. If Sydney Water's submission had been based on a real post-tax WACC, it may have varied slightly from this estimate.

Due to the volatility on the market, our draft decision introduces a range for the debt margin. We are seeking feedback on draft decision, and it is discussed in more detail in Appendix D.

The parameters we used to calculate this WACC range are shown in Table 6.10 and were based on market conditions as at 9 January 2012. Before our final determination we will update the WACC parameters to reflect the market conditions at that time.

Table 6.10 Rate of return range and parameters used for the draft determination

WACC parameters	Market values
Nominal risk free rate	3.3%
Inflation	2.6%
Market risk premium	5.5% to 6.5%
Debt margin	3.5% to 4.8%
Debt to total assets	60%
Gamma	0.25
Equity beta	0.6 to 0.8
Cost of equity	6.6% to 8.5%
Cost of debt	6.8% to 8.1%
WACC range (real pre-tax)	4.7% to 6.5%
WACC midpoint ^a (real pre-tax)	5.5%
WACC range (real post-tax)	4.0% to 5.5%
WACC midpoint ^a (real post-tax)	4.6%
WACC point estimate (real post-tax)	5.5%

^a The midpoint WACC is calculated using the midpoint of each of the parameters.

A detailed discussion of our findings on WACC is presented in Appendix C.

6.6 Calculating the allowance for regulatory depreciation

Draft decision

15 IPART's draft decision is to calculate regulatory depreciation using straight-line depreciation and the asset lives Sydney Water proposed in their submission, as shown in Table 6.11.

To calculate the allowance for regulatory depreciation, we decided on a depreciation method and asset lives for Sydney Water's new and existing assets then calculated depreciation accordingly.

6.6.1 Depreciation method

As for previous determinations, we chose to use the straight-line depreciation method. Under this method, the assets in the RAB are depreciated by an equal value in each year of their economic life, so that their real written down value follows a straight line over time, from the initial value of the asset to zero at the end of the asset's life. We consider that this method is superior to alternatives in terms of simplicity, consistency and transparency.

6.6.2 Asset lives

To decide on the appropriate asset lives, we considered Sydney Water's proposal, sought Atkins Cardno's advice and conducted our own analysis.

Sydney Water's proposal

In its submission, Sydney Water set asset lives consistent with the 2008 determination, with one exception. Sydney Water proposed extending the economic life of corporate electronic assets from 6 years to 10 years. Table 6.11 below shows Sydney Water's proposed economic lives for each asset category.

Table 6.11 Sydney Water's proposed asset lives

		Proposed asset lives
Corporate	Civil	65.6
	Electronic	8.0
	Mechanical	6.1
	Electrical	0.0
Water	Civil	89.9
	Electronic	11.6
	Mechanical	32.2
	Electrical	21.7
Sewerage	Civil	83.8
	Electronic	7.2
	Mechanical	18.6
	Electrical	18.3
Drainage	Civil	114.4
	Electronic	0.0
	Mechanical	3.0
	Electrical	0.0

Source: Sydney Water's submission to IPART's review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Table 8.2, p 107.

Atkins Cardno's advice

Atkins Cardno's assessment of the asset lives assumptions of Sydney Water was that they were robust and consistent with other water utilities. It expressed concern regarding the short asset lives of water meters, but notes that Sydney Water has indicated that there will likely be a lengthening of the asset lives of 20mm domestic water meters.

IPART's analysis

We accepted Sydney Water's proposal to calculate depreciation using the asset lives it put forward, given Atkins Cardno's advice that these lives were appropriate. In addition, Sydney Water's asset lives were subject to a detailed review at the 2008 determination, so we are confident Sydney Water's process is robust.

In line with this decision and the straight-line depreciation method, Sydney Water's assets will be depreciated at a rate of approximately 1.7% over the 2012 determination period. This means that, in general terms, we calculated the allowance for regulatory depreciation by multiplying the annual value of the RAB over the determination period by 1.7%. This resulted in the annual allowances shown in Table 6.12 below.

Table 6.12 Sydney Water's allowance for depreciation (\$million, 2011/12)

	2012/13	2013/14	2014/15	2015/16
Water depreciation	67.9	72.2	76.2	80.0
Sewerage depreciation	136.3	144.7	152.8	160.3
Drainage depreciation	2.9	2.9	3.0	2.3
Combined business depreciation	207.1	219.8	232.0	242.6

Source: IPART analysis.

7 Sydney Water's forecast water sales

Demand (water sales) forecasts play a pivotal role in the pricing process as they determine how much revenue will be recovered via the usage charge. The usage charge and the demand forecast determine the expected usage revenue. After the revenue from usage charges is calculated, fixed charges are set to recover the remainder of the revenue requirement. Since the fixed service charge is calculated as a residual, demand forecasts will also have a bearing on the level of the fixed charge. If forecasts are lower than actual demand this will mean that fixed charges are calculated on lower volumes and will be set at too high a level. This will result in utilities over-recovering their efficient costs. Forecasts that are higher than actual sales will lead to revenue under recovery. The selection of an appropriate methodology for forecasting demand therefore impacts Sydney Water and its customers.

Sydney Water's forecasts and the actual level of water demand for the 2005 and 2008 Determinations are shown in Table 7.1 below. In both the 2005 and 2008 price reviews we adopted Sydney Water's forecasts of demand.

Table 7.1 Past forecast and actual water use, GL (or billion litres)

	Previous Determination Period				Current Determination Period		
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Forecast	559	575	590	519	560	544	534
Actual	528	510	482	492	506	496	NA
Difference	-31	-65	-108	-27	-54	-48	NA

Source: Sydney Water submission, p 94.

Table 7.1 shows that over the past 6 years Sydney Water's sales have consistently been less than its forecasts. Over these 6 years, actual total water demand has been about 10% less than forecast.

Sydney Water claims that the forecasting error was due to several assumptions. These were:

- ▼ In the 2005 Determination it was assumed that drought restrictions would be gradually eased and be lifted by January 2007. This did not occur and the level of drought restrictions was increased to level 3 in June 2005, which then remained in force over the 2005 Determination.

- ▼ In the 2008 Determination it was assumed that drought restrictions would be gradually lifted during the first year. Drought restrictions were not actually lifted until late June 2009, when they were replaced by Water Wise Rules.
- ▼ In the 2008 Determination it was further assumed that after drought restrictions were replaced by Water Wise Rules, customers would increase their total water use by about 50 GL to 60 GL a year. However residents, businesses and institutions have not significantly increased their average level of water use since the lifting of drought restrictions.

Sydney Water states that a reduction in the volume of water demand does not greatly reduce its costs, as costs of water delivery networks and other assets are largely fixed. Consequently, a reduction in the forecast demand volumes means that, to maintain revenue levels that cover costs, prices must increase.

7.1 Draft Decisions

Draft decision:

- 16 IPART's draft decision is to use Sydney Water's proposed approach to forecast water demand for the 2012 Draft Determination. This results in the levels of forecast demand shown in Table 7.2.
- 17 IPART's draft decision is to introduce a demand volatility adjustment to mitigate possible revenue over/under recovery.

Sydney Water has developed new econometric models that it proposes to use for forecasting water demand for the 2012 Determination. These models take into account a range of factors that affect both residential and non-residential demand to develop forecasts for the 2012 determination. Sydney Water says these models will provide the most accurate forecasts of water demand available for the 2012 Determination, and that they represent a considerable improvement when compared with the approaches used to forecast demand in previous determinations.

On balance, we consider that Sydney Water's proposed approach to forecasting demand should be accepted as it represents an improvement on the previous approach. Sydney Water's approach was supported by a consultant report that was commissioned by Sydney Water to assess its overall modelling approach and outcomes.⁷⁸ We also held a demand forecasting 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 available approach to forecast water demand.

⁷⁸ Sapere Research Group, *Review of Demand Forecasting: Summary Paper*, August 2011.

However, while the approach and inputs to the model are generally sound, it may be that the response of customers' demand to the ending of restrictions and introduction of the Water Wise Rules may change. This change could lead to significant over-recovery in time. Conversely, if the risks of selling less water than forecast materialise, as Sydney Water contends is more likely, this may lead to significant under-recovery. For this reason we have decided to implement a demand volatility adjustment for the 2012 Draft Determination. Our examination of and decision on the demand volatility adjustment are discussed in section 3.5.

7.2 Sydney Water's Proposed Approach

Sydney Water has acknowledged the difficulties in accurately forecasting water demand during and immediately after severe and sustained drought. The assumptions that must be made about the timing of lifting drought restrictions and the community's subsequent response, have large impacts on forecast water demand levels. To assist this process Sydney Water has developed new econometric models. This replaces the models used to provide forecasts for the 2005 and 2008 reviews.

Since 2008 Sydney Water has undertaken new econometric demand modelling and a price elasticity study to forecast water demand for the 2012 Determination. Based on this model Sydney Water expects that forecast water demand will stay at around 2010/11 levels (below 500 GL a year) until 2015/16. Prior to the 2004 drought water sales ranged from 600 GL to 620 GL.

Sydney Water expects that increases in water use due to growth will be offset by increases in water efficiency.

Despite a growing population and the lifting of drought restrictions, Sydney Water identifies a number of factors that will maintain water use at current low levels of around 490 GL per year. These factors are:

- ▼ The Rosehill-Camellia recycling project, replacing about 4 GL per year of potable water use for industry, and the Kurnell recycling project replacing around 1.4 GL per year.
- ▼ Setting the water usage price at the long-run marginal cost (LRMC) of water will encourage continued improvements in household water efficiency.
- ▼ Sydney Water maintaining low levels of leakage from the water supply network.
- ▼ The decision by BlueScope steel to reduce its annual production from its Port Kembla steel works. Depending on actual production levels and recycled water volumes supplied, Blue Scope's unfiltered water use is expected to decline substantially.

Using its model Sydney Water says it is now possible to forecast water demand based on an extended period of observed outcomes that can reasonably be expected to continue into the future, as Water Wise Rules have been in place for over 2 years. Sydney Water's previous forecast models relied on broad assumptions about water use patterns that would occur after the lifting of drought restrictions.

Sydney Water initially ran its model using its proposed usage prices. We have since determined water usage charges that are lower than Sydney Water's initial proposed prices. Sydney Water re-ran its demand forecasting models at price levels we identified, including the draft decision. Our proposed demand forecasts are based on Sydney Water's re-run of its demand forecasting models using our draft decision on usage charges.

Sydney Water's forecasts of water demand are shown in Table 7.2 below.

Table 7.2 Sydney Water Forecast Water Demand for the 2012 Determination

	Current determination		2012 Determination		
	2011/12	2012/13	2013/14	2014/15	2015/16
Total Water Demand	489	487	489	491	495

Source: Sydney Water submission, p 95 and supplementary submission to IPART 23 November 2011.

7.2.1 Demand Forecasting Models

Sydney Water's new models are based on detailed analysis of the water use of residential and non-residential properties by user group. Sydney Water's analysis provides estimates of the impact on water demand from water usage price changes, water efficiency program participation and the implementation of Water Wise Rules. It says that its assessment of water use by user group and forward looking models provide the best basis for forecasting water demand. As discussed later a key conclusion of the model is that bounce-back increases in demand after the lifting of drought restrictions have been fully experienced in the 18 months post drought.

Sydney Water engaged the services of a consultant, Sapere Research Group, to review their demand forecasting methodology and assess Sydney Water's overall approach and outcomes of demand forecasting. The consultants found that Sydney Water's approach was justified, and that there was no reason why the new approach should not be used. This assessment was confirmed by expert stakeholders who participated in an IPART workshop, who concluded that Sydney's Water's new approach represented the best available method for forecasting demand.

7.2.2 Residential Water Demand

Sydney Water says that residents account for around 65% of Sydney's total water use and over 70% of metered water use. 70% of residential water demand is attributable to houses, while units, flats, townhouses and dual occupancies account for the remaining 30%. The average water use of houses has fallen by around 25% since the beginning of the drought. The variability in water demand across seasons has also fallen significantly.

Sydney Water attributes the reduction in residential water demand to:

- ▼ water efficiency programs
- ▼ increases in water usage prices since October 2005
- ▼ choices about water use given drought conditions, and
- ▼ restrictions on outdoor water use.

Sydney Water has developed new models to provide separate forecasts of residential and non-residential water demand. These new models measure the observed response by residents from replacing drought restrictions with Water Wise Rules in late June 2009. The residential models incorporate data from June 2004 to December 2010.⁷⁹

The new forecasting method applies an econometric model to household-level water use data. The average daily water use of a household (per quarter) was modelled against a range of factors that affect water demand, including the households previous water use (habit formation), the price of water, whether drought restrictions or Water Wise Rules were in place, participation in a water efficiency program, the season, and weather conditions.

Key outputs were the estimated impact on residential water use from:

- ▼ changes in water use prices (\$ per kL)
- ▼ replacing drought restrictions with Water Wise Rules
- ▼ changes in the season and weather conditions during the year.

The key parameters that Sydney Water used in forecasting residential water use to 30 June 2016 were that:

- ▼ residents have fully adjusted to Water Wise Rules
- ▼ water usage prices are set based on our draft determination
- ▼ new residential properties will achieve water efficiency standards required under BASIX
- ▼ drought restrictions would not be imposed over the 2012 Determination.

⁷⁹ It should be noted that over this entire period either restrictions were in force or Water Wise Rules were in force.

An important parameter is that households have adjusted fully to Water Wise Rules. This is based on only 18 months of data under Water Wise Rules.

Sydney Water expects forecast residential water demand to increase slightly from 320 GL in 2011/12 to 327 GL by 2015/16. Sydney Water has forecast total water demand (residential and non-residential) to average 491 GL per year over the 2012 Determination.

7.2.3 Non-Residential Water Demand

Sydney Water provided evidence of a steady decline in the average water demand of non-residential properties over the last 20 years. Since 1989-90, total water use by non-residential properties has fallen by around 30% from 186 GL to 125 GL in 2009-10. The long term reduction in non-residential water demand is attributed to pricing reforms since the early 1990s that placed an increased emphasis on usage-based charging, business water efficiency programs, and the gradual shift away from manufacturing towards service industries. The impacts of drought on businesses and their attempts to reduce water use during the drought have also played a role in reducing non-residential water demand.

Based on these long term trends and interviews of the major customer, Sydney Water expects the rate of decline in non-residential water use to be modest over the 2012 Determination. Sydney Water expects forecast demand for non-residential properties to decrease from around 116 GL in 2011/12 to 111 GL in 2015/16. To put non-residential demand into perspective, our total forecast water demand (non-residential and residential) for the 2012 Determination averages 491 GL per year.

Sydney Water has modelled the forecast long-term trend in observed water use for identified groups of non-residential properties. The business efficiency plans of large water users have been included in the forecasting process.

7.3 Alternatives to Sydney Water's Model

We examined the use of a moving average model to forecast demand as an alternative to Sydney Water's proposed model. The strengths of a moving average model are:

- ▼ it is simple to construct and run for each period
- ▼ it is transparent and can be easily understood and verified by stakeholders
- ▼ it reflects recent actual demand conditions.

The weaknesses of a moving average model are:

- ▼ it can include periods that do not reflect current demand conditions
- ▼ there may be permanent revenue over/under recovery if the time series is not stationary

- ▼ it may not take into account current sectoral trends in water use.

If a 10-year moving average was adopted forecast water demand would be approximately 536 GL as compared to Sydney Water's proposal of approximately 491 GL.

We decided to adopt Sydney Water's proposed demand forecasting models in combination with a demand volatility adjustment in preference to a moving average approach as Sydney Water's models were regarded as the best available approach by expert stakeholders and were supported by a peer review commissioned by Sydney Water. In combination with a demand volatility adjustment it should ensure that demand forecasts are as accurate as possible and mitigate the possibility of revenue over/under recovery.

The alternative option of using a moving average was not used as it may result in permanent revenue over/under recovery if the demand time series is not stationary and may also incorporate periods that are not reflective of current demand conditions.

7.4 Stakeholder Consultation

We held a public workshop to inform and elicit views from invited modelling experts and other water industry stakeholders. Sydney Water presented its methodology for demand forecasting at the workshop. Stakeholders were invited to comment.

It was recognised at the workshop that Sydney Water's proposed model is a significant improvement on past techniques and represents best practice. However some stakeholders did express a concern that the algorithm may mask post drought bounce-back in other variables. Some experts questioned Sydney Water's finding that all post drought bounce back had occurred and noted that a limitation of the model was the short data set post drought.

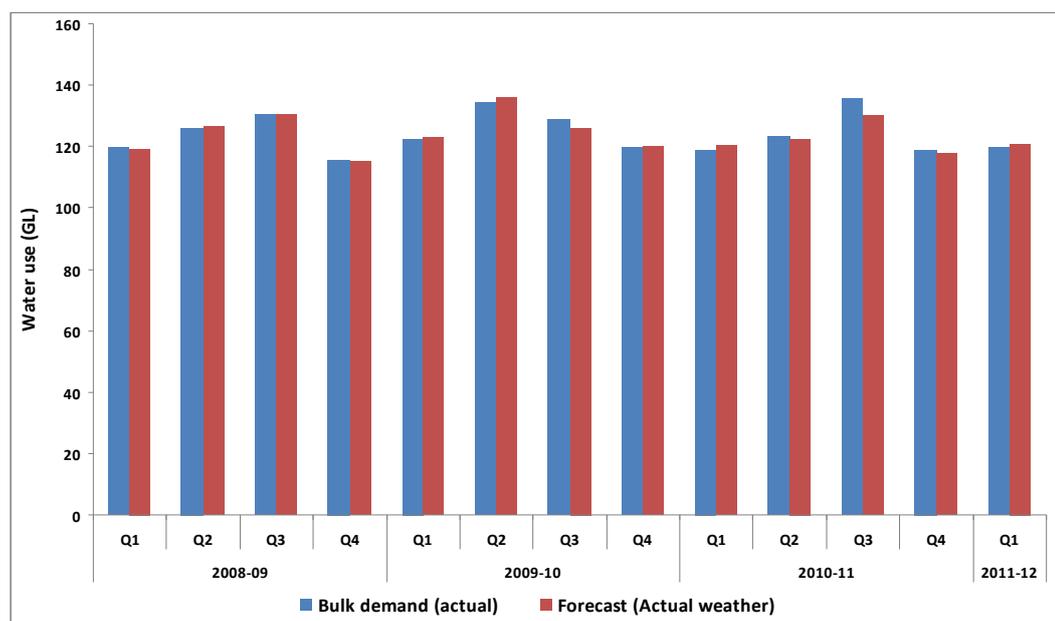
A number of actions arose as a result of suggestions from the workshop. These included Sydney Water agreeing to:

- ▼ Provide information comparing the forecasts of its model and actual water demand over as many past quarters as available. This would show the relative accuracy of its forecasts.
- ▼ Re-run their demand forecasting model holding the water usage price constant in real terms and providing new forecast information.
- ▼ Provide additional information regarding alternative demand forecasts that were used for infrastructure planning included in its price submission

The above actions assisted us in refining Sydney Water's approach to demand forecasting for the 2012 Determination.

Sydney Water provided this additional information. Accordingly, we compared its model results to actual demand figures. This information is shown in Figure 7.1 below. Figure 7.1 shows that Sydney Water forecasts have generally been accurate using its model. However in quarter 3 of 2010/2011 there was a divergence of actual demand of 5.5 GL or 4.2% from the forecast demand (this occurred during a summer period).

Figure 7.1 Forecast Demand vs. Actual Demand 2008/09 to 2011/12



Data source: Sydney Water.

7.5 IPART's Analysis

In order to gain confidence in the demand forecasts we asked Sydney Water a number of questions. When asked about the risks of its model, Sydney Water stated that only a number of downside risks to forecasting residential and non-residential water demand were present due to the:

- ▼ impact of increases in utility prices
- ▼ risk of an unexpected downturn in the Sydney economy
- ▼ impact of the high Australian dollar on the competitiveness of businesses, or
- ▼ possible reintroduction of level 3 drought restrictions.

While Sydney Water's model is detailed and represents an improvement over current practice, we consider that the calibration period on which Sydney Water has based its model, being composed largely of restrictions and Water Wise Rules, may not be reflective of future conditions as Water Wise Rules are not as restrictive as restrictions. The inclusion of the period of restrictions in the modelling may be distorting the results.

At an aggregate level, there is a possibility that Sydney Water's model may understate actual demand. There is around 18 months of data included in Sydney Water's models on customer response to Water Wise Rules. It is possible that consumer behaviour may change and that a further bounce back in demand may yet occur.

When the 2016 Determination is drafted there will be a longer period for calibration. We consider that the accuracy of the forecasts will increase for the 2016 Determination. An assessment of the performance of Sydney Water's model will be made at the 2016 Determination. If the model does not perform adequately over the 2012 Determination, then Sydney Water and IPART would explore alternative options for forecasting consumption for the 2016 Determination.

7.5.1 Evidence of Bounce-back from Previous Water Restrictions

We are concerned that Sydney Water's forecasts under estimate possible bounce-back in demand because the model includes only 18 months of data from the period after drought restrictions ended. Sydney Water has acknowledged this concern.

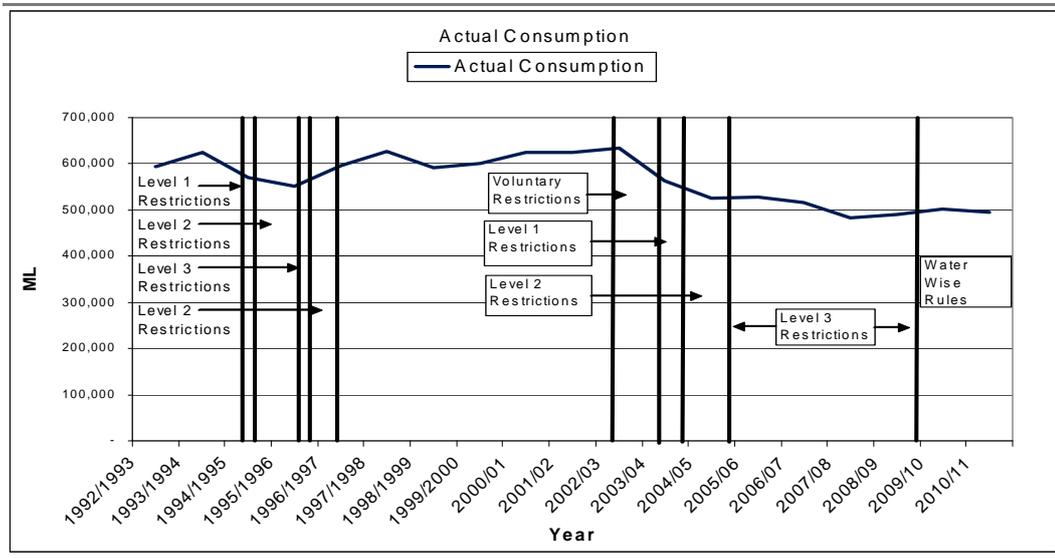
We note that the impact of imposing restrictions has an immediate effect as restrictions are enforced and their use is communicated. However, once restrictions are lifted people's behaviour may take longer to adjust to the lack of restrictions.

Large bounce-backs have been experienced in all previous Sydney droughts on record. In the 1994-1996 restrictions period, water demand took approximately 2 years to bounce back to pre-restrictions levels.⁸⁰ Similar patterns were experienced in previous droughts in other major cities at that time.

We accept that demand has not yet bounced back to the extent seen in previous restrictions. However this may reflect factors that delay bounce-back rather than negate its eventual magnitude.

Figure 7.2 shows the total water demand for Sydney Water over the period 1992/93 to 2010/11. This figure shows that restrictions were in place in 1994-1996 and 2003-2009. From the figure it can be seen when water restrictions were lifted in 1996, water demand returned to pre-restrictions levels. The figure also shows that Water Wise Rules were introduced in June 2009.

⁸⁰ It should also be noted that it was around this time that an increasing focus was placed on usage charges.

Figure 7.2 Water Demand and Restrictions in Sydney 1992/93 to 2010/11

Data source: Sydney Water.

A view was expressed by external modeller experts at the workshop that the time value in Sydney Water's models' algorithm may mask the bounce-back effect and hence underestimate future demand. Given this risk, we have examined regulatory responses. In doing so we had regard to the concepts being considered by the Essential Services Commission of Victoria who face the same issue in their current price reviews. Our decision on a regulatory response is set out earlier in the report in section 3.5. The use of a regulatory response in combination with Sydney Water's proposed approach to demand forecasting provides the best available demand forecasts and mitigates the risk of significant revenue over/under recovery.

8 Outcomes from review of price structures

In June 2011, we commenced a separate review of the price structures⁸¹ of water and sewerage charges for the 4 metropolitan water utilities. As part of this review, we have developed a range of principles on the fixed and usage charges for the water and sewerage services for residential and non-residential customers.

As part of our program of work following the 2005 and 2008 Determinations we have also reviewed the structure of stormwater drainage charges.

This chapter outlines our decisions on the price structures review and on stormwater drainage, explains how these decisions have been applied to our draft decision for Sydney Water, and identifies the key impacts on different customer groups.

8.1 Price structures review for the 4 water utilities

Over the past 18 months we have been conducting a detailed review of the price structures for Sydney Water, Hunter Water Corporation, Gosford City Council and Wyong Shire Council. We released an Issues Paper in June 2011 and held a public workshop on 29 August 2011. Following the public workshop we continued to receive submissions from stakeholders and held further meetings to clarify the issues raised. A final report was released in March 2012.

In the review we found that there was a lack of consistency and cost-reflectivity in the structure of water and sewerage charges across the 4 water utilities. This has resulted in a number of inequities in the pricing arrangements for different customers. Firstly, customers located in the 4 water utilities service areas that create similar costs within the networks pay significantly different prices. Secondly, there are inconsistencies within each water utility so that customers that create similar costs within the network can pay considerably different prices.

After we considered submissions to the price structures review and held a public workshop, we adopted the price structure principles, shown in Box 8.1, for water and sewerage services for the 4 water utilities.

⁸¹ A price structure is the relationship between fixed (service) charges and variable (usage) charges, and the proportion of the total fixed and usage charges each customer group pays.

Box 8.1 Price structure principles

The price structures principles we have adopted are as follows:

General principles

- ▼ Changes to the structure of water and sewerage prices are to be phased in over a transition period where necessary to minimise customer impacts.
- ▼ The total revenue collected from residential customers is to reflect the costs incurred in serving those customers. The total revenue collected from non-residential customers is to reflect the costs incurred in serving those customers.
- ▼ Customers imposing similar costs on the system should pay similar charges.

Residential and non-residential water usage charges

- ▼ The water usage charge is to be a standard variable charge for all customers – residential and non-residential – and be set with reference to the utility's long run marginal cost of supply.

Residential water and sewerage service charges

- ▼ The residential water service charge is to be a standard annual charge⁰ for all residential dwellings unless there is evidence that there are material differences in the costs of servicing different residential property types.
- ▼ The residential sewerage service charge is to be a standard annual charge⁰ for all residential dwellings unless there is evidence that there are material differences in the costs of servicing different residential property types.

Non-residential water service charges and sewerage usage and service charges

- ▼ The non-residential sewerage usage charge is to be a standard variable charge for all customers set with reference to, but not necessarily equal to, the utility's short run marginal cost of transporting, treating and disposing of domestic-strength effluent.
- ▼ The total sewerage revenue (usage and service charges) collected from non-residential customers is to reflect the costs incurred in servicing those customers.
- ▼ The total water revenue (usage and service charges) collected from non-residential customers is to reflect the costs incurred in servicing those customers.

a It may be billed on a quarterly or 4 monthly pro-rata basis by the utility.

Our Price Structure Report provides a detailed discussion of the price structure issues across the 4 water utilities. It also sets out how we considered stakeholder submissions and input from the public workshop in making our decisions which are set out in the report.

In reviewing stormwater drainage charges we engaged in a review of literature and international drainage charging practice and the price structures of Sydney Water, Hunter Water, Gosford City Council and Wyong Shire Council. Our research confirmed that the area of a property is a key factor in determining the amount of runoff it contributes to the stormwater drainage system. In coming to our draft decision to adopt an area based stormwater drainage charge, we sought comment via the issues paper and considered Sydney Water's submission. Like the price structures review, this reform has been implemented to improve the cost reflectivity of the drainage charges.

8.2 Price structures for Sydney Water

We have applied the principles set out in Box 8.1 and the findings of our stormwater drainage review to Sydney Water's price structures. The section below explains our draft decisions and what this means for our decision-making about Sydney Water's water, sewerage and stormwater drainage charges.

8.2.1 Water

Draft Usage charge

We have decided to maintain the current method for calculating the water usage charge applied to all the retail water suppliers that we regulate. We usually set the usage price of water for retail customers with reference to the long run marginal cost of the next increment of augmentation (LRMC), to provide a price signal of the incremental costs of consumption. To determine LRMC, we calculate the net present value (NPV) of the capital and operational costs of the augmentation project over its expected life, and divide this by the NPV of the benefits over the same period. The detailed calculation for LRMC is in Appendix E.

The usage price has no impact on Sydney Water's revenue. After the annual revenue requirement for water is determined the usage price and demand forecast will determine the expected usage revenue. The fixed service charges will be set to recover the residual.

Draft Service Charge

For residential service charges we will introduce a standard water service charge for all residential dwellings (such as houses, townhouses, flats and units). Currently the service charges paid by houses are subsidising the services received by flats and units. We consider all residential customers receive equal benefits from the availability of water supply services in their home, and so should all pay the same price for this availability. Based on advice from Sydney Water that connection costs do not vary by property type, our price structures review found that a standard

service charge is the most appropriate price structure. It is the simplest price structure to understand and has the lowest administration cost.

This is a change in the structure of the charges paid by apartments and is implemented over the 4-year determination period.

For non-residential customers, all properties that have an individual 20mm water meter connection will pay the same service charge as residential dwellings. All other non-residential customers will pay a water service charge based on the size of their water meter connection. This charge is levied in full on individually metered customers and is shared between all customers on a shared meter. This ensures that all non-residential customers that receive the same service from Sydney Water pay the same price for that service.

We considered introducing a standard water service charge for all non-residential 20mm standalone properties, strata tenancies and single owner multi-premise tenancies but we found that this introduced new inequities between non-residential customers.

In setting the water service charge, we have maintained the current proportion of the revenue collected from residential and non-residential customers.⁸² This is to prevent new inequities and cross subsidies being introduced between the different customer groups.

Together with the water utilities, we will undertake a detailed cost of service analysis to assess whether the water revenue ratios between the 2 groups should be amended in the future to better reflect the costs incurred in providing services to each of the customer groups.

8.2.2 Sewerage

Draft Service charge

For residential customers we propose to maintain the current method of setting a single fixed charge for all residential sewerage customers regardless of property type. This reflects the principle that all residential customers who receive the same service pay the same price. We have not found evidence to prove that there are different costs for providing sewerage services to different residential properties. Sydney Water proposes that these costs are not necessarily driven by meter size or number of people per dwelling.

In the absence of any evidence to the contrary a standard sewerage service charge for residential customers is appropriate given that it is the simplest price structure to understand and has the lowest administration costs.

⁸² The current ratio of water revenue from residential and non-residential customers is 87 to 13.

For non-residential customers we propose to maintain the current arrangements for all 20mm individually metered properties and to charge them the same standard service charge as residential sewerage customers. We also propose to charge all other non-residential customers a meter based charge, whether they have a stand alone meter or are serviced by a common meter. This means that non-residential customers in properties with the same size meter will now pay the same charges for the same service.

This decision for non-residential properties reflects our analysis for the water service charge. We have moved to a meter based charge to remove the cross subsidy that strata properties are currently providing to single owner multi-premise tenancies.

Draft Usage charge

Sydney Water levies sewerage usage charges on its non-residential customers. An allowance of 150 kL discharge from residential properties is included in the service charge.

Our review revealed that the current sewerage usage charge encourages customers to implement on-site recycling schemes that are not efficient. To improve cost-reflectivity, and send appropriate price signals, we consider that this charge should reflect Sydney Water's short run marginal cost (SRMC) of sewage transportation, treatment and disposal, which is estimated to be \$0.23/kL.⁸³ As this cost is significantly less than the current usage charge (of \$1.49/kL), we have decided to transition the charge towards this cost. The usage charge is to be reduced by \$0.10/kL in nominal terms in each year over the determination period. We will consider in subsequent determinations whether the sewerage usage charge should be further reduced towards SRMC and at what rate.

Sydney Water currently allows its non-residential customers to discharge 500 kL per year before it charges the usage charge. We propose to reduce the current discharge allowance of 500 kL per year for non-residential customers to align with the discharge allowance of 150 kL per year for residential customers. The non-residential discharge allowance is to be reduced by 50 kL per year over the determination period.

In setting the sewerage service charge, we have maintained the proportion of current revenue collected from residential and non-residential customers to prevent new inequities and cross subsidies being introduced between the different customer groups.⁸⁴

Together with the water utilities, we will undertake a cost of service analysis to assess whether the sewerage revenue ratios between the 2 groups should be

⁸³ Reported by Sydney Water to the Inter-Agency Working group meeting of 7 April 2010.

⁸⁴ The current ratio of sewerage revenue from residential and non-residential customers is 81.5 to 18.5.

amended in the future to better reflect the costs incurred in providing services to each of the customer groups.

8.2.3 Drainage

Sydney Water supplies stormwater drainage services to a small proportion of its customers. These customers currently pay a fixed charge, based on whether they are residential or non-residential.

Area based charges reflect that land area is a key determinant of the costs to a drainage system, and can be used as a simple proxy for a property's contribution to runoff. Therefore, we have decided to introduce area-based charges over the determination period to make the charges more cost reflective.

Draft Service charge

For residential properties our draft decision sets a single fixed charge for single dwelling customers, primarily houses, and a single fixed charge for multi-premise dwellings, primarily flats, units and townhouses. The multiple premise charge is lower than the house charge to reflect the average smaller area per dwelling in multi-premise dwellings.

For non-residential customers we have set 4 area based bands of non-residential properties, properties in the 0-200m², 201m²-1,000m² and 1,001m²-10,000m² bands will have a single fixed charge, non-residential properties larger than 10,000m² will have an individually calculated charge. We have also identified a second charge structure and seek feedback on the 2 options.

The next section of the report explains, at a high level, what the impacts on different customer groups from implementing these pricing reforms.

8.3 Impacts on Sydney Water's customers from proposed price reform

The implementation of these pricing reforms for Sydney Water will benefit certain customer groups whilst others will need to pay more. This price restructuring does not increase the total revenue received by Sydney Water for services. Rather it removes some inequities and improves that balance between fixed service charges and variable usage charges so that customers in all groups pay bills that represent the costs they impose on Sydney Water, and prices send efficient price signals.

Some customer groups, such as non-residential customers with larger individual meters, are currently being subsidised by other customer groups. Price increases for these customers are necessary to remove these cross-subsidies. Our proposals improve the equity and cost-reflectivity of Sydney Water's prices for all customers. That is, the new price structure will mean that all customers will pay their fair share of the costs imposed on Sydney Water's system.

We are committed to implementing fairer prices. However, we note that with prices decreasing, that this is the ideal time to make changes to price structure, as the inevitable customer impacts of reform will be less severe. Where there are significant impacts on certain groups of customers, we have tried to minimise these impacts by transitioning prices over a period of time. The section below describes the major impacts on Sydney Water's customers for water and sewerage services.

8.3.1 Impact of price structure changes on residential customers

Residential customers living in houses (or other individually metered properties) will gain from a much lower water service charge. For example, in 2011/12 the service charge for a house is \$144.79 per year, which will be reduced to \$77.44 per year by 2015/16.

Residential customers living in flats and units that have a common water meter will generally pay more for their water service charge. The size of the increase will depend on the number of dwellings in the property that share the common meter. In 2011/12 these customers pay on average \$70 per year which will increase to \$77.44 per year in 2012/13. However, there will be customers above and below this average so the individual impacts will vary.

Residential customers that are living in flats, units and townhouses will see a decrease in their stormwater drainage service charge. This is because the service charge is now based on the land area of a property. For example, in 2011/12 the service charge for a unit is \$49.08 per year, which will be reduced to \$16 per year by 2015/16.

Residential customers that are living in houses will see an increase in their stormwater drainage service charge. This is because the service charge is now based on the land area of a property. For example, in 2011/12 the service charge for a house is \$49.08 per year, which will be increased to \$86 per year by 2015/16.

8.3.2 Impact of price structure changes on non-residential customers

Non-residential customers that are individually metered will gain from a lower water service charge. For example, in 2011/12 the 25mm water meter charge is \$226.24 per year, which will be reduced to \$153.21 per year by 2015/16.

Non-residential customers in strata properties will gain from a lower sewerage service charge. This is because the service charge is now based on a proportion of the meter size which services the property rather than the individual strata units paying separate service charges. We estimate that about 25% of Sydney Water's non-residential customers will be affected by this price change. For example, a strata property (comprising 4 individual units) with a 25mm water meter connection would currently be paying a sewerage service charge of \$843.02 per year. Under the new

price structure, the service charge paid by each customer is a quarter of the 25mm meter connection, which will be \$365.07 per year in 2015/16.

Essentially, as a result, small shops and businesses will no longer be subsidising larger commercial customers (such as shopping centres) and industrial customers.

Non-residential customers for whom usage comprises a large proportion of their sewerage bill will benefit from significant reductions in the usage charge over 4 years.

Non-residential customers with a meter connection of 25mm or greater (that are not strata units) will see an increase in their sewerage service charge. Where these customers have low water consumption and low discharge factors, the impacts will be larger. This is because the increase in the service charge will not be offset by reductions in the usage component of their sewerage charges.

Non-residential customers with an area less than 1,000m² will see a decrease in their stormwater drainage service charge. This is because the service charge is now based on the land area of a property. For example, in 2011/12 the service charge for a 100m² business is \$127.74 per year, which will be reduced to \$16 per year by 2015/16.

Non-residential customers with an area greater than 1,000m² will see an increase in their stormwater drainage service charge. This is because the service charge is now based on the land area of a property. For example, in 2012/12 the service charge for a factory on 20,000m² of land is \$127.74 per year, which will be increased to \$3,400 per year by 2015/16.

Chapter 10 of this report provides a more detailed analysis of the impacts on different types of customers. Chapter 9 explains the draft prices for all the services provided by Sydney Water.

9 Pricing decisions for Sydney Water's water services

For this review we have introduced reforms to pricing structures to improve equity and cost reflectivity of charges. These reforms address current disparities in charges between houses and multi-residential premises, differences in charging across multi-residential premises, drainage charges, and sewerage usage charges for non-residential customers. These reforms and their impacts were outlined previously in Chapter 8.

Implementation of these reforms means that some customers will benefit more than others from the price changes over the next 4 years. The changes to price structures are necessary to ensure that all customers pay their fair share. Where possible, large price changes have been transitioned.

9.1 Water charges

9.1.1 Summary of draft pricing decisions

Draft decision

18 IPART's draft decision is that Sydney Water can charge the maximum water charges as set out in Table 9.1.

Table 9.1 IPART's decision on water charges (\$2011/12)

Financial year ending 30 June	2012/13	2013/14	2014/15	2015/16
Residential water service charge				
Individually metered property	122.46	107.12	92.17	77.44
Common metered property	77.44	77.44	77.44	77.44
Non residential (20mm individually metered property) service charge	122.46	107.12	92.17	77.44
Non-residential meter based service charge ^a	209.35	190.28	171.46	153.21
Usage charge	2.10	2.10	2.10	2.10

^a Meter based charge is based on a 25mm meter. Applicable meter charge is set using the following formula: (Meter size)² x meter based charge/625.

The fall in the water service charge for individually metered residential properties and non-residential properties shown in Table 9.1 is due in part to our decision to set a standard water service charge for all residential dwellings. This is a part of our price structure reforms. Also contributing to lower water service charges are:

- ▼ our decision to use a lower WACC than in the previous determination
- ▼ our decision to move from a pre-tax to a post-tax WACC
- ▼ lower bulk water costs due to our prices being set on the basis that the desalination plant will remain in water security shutdown mode for the full 4 years of the determination.

Charges for common metered properties remain constant, and are the same as charges for individually metered residential properties in the last year of the 2012 Determination. This is a result of our decision to transition water service charges for all residential properties to the same level.

The water usage charge has remained constant in real terms at \$2.10/kL as a result of our investigation of LRMC. Estimates of LRMC are examined in Appendix E.

9.1.2 Sydney Water's submission

Residential Water Service Charges

Sydney Water's proposal

Sydney Water proposed to charge all residential dwellings (houses, flats and units) a standard residential service charge. Sydney Water proposed to transition this change over 2 years.

Sydney Water also proposed to charge houses that have water connections greater than 20mm a higher service charge. Sydney Water did not make any allowance for an increase in revenue from this charge in their modelling as they believed nearly all customers would opt to have their 25mm meter replaced with a 20mm meter. Table 9.2 shows Sydney Water's proposed water service charges for houses, and Table 9.3 shows Sydney Water's proposed water service charges for residential units not individually metered.

Table 9.2 Sydney Water's proposed water service charges for houses (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total Increase
Annual Charge	144.79	162.64	162.64	162.64	162.64	17.85
Annual Increase		12.3%	0.0%	0.0%	0.0%	12.3%

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p110.

Table 9.3 Sydney Water's proposed water service charges for residential units not individually metered (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total Increase
Annual Charge	70.05 ^a	82.64	122.64	162.64	162.64	97.48
Annual Increase		18.0%	50.8%	32.6%	0%	149.6%

^a Average service charge paid by common-metered multi-tenancies.

Non-Residential Water Service Charges

Sydney Water's proposal

Sydney Water proposed to charge all non-residential multi-premise strata tenancies a standard water service charge set at the same level as houses and apartments. Sydney Water's proposed non-residential water service charges are shown below in Table 9.4.

Table 9.4 Sydney Water's proposed non-residential water service charges (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total Increase
Annual Charge - Houses and strata with individual meters	144.79	162.64	162.64	162.64	162.64	17.85
Annual Increase		12.3%	0.0%	0.0%	0.0%	12.3%
Annual Charge – Multi-tenancy single owner and strata with common meter ^a	70.05	73.19	73.19	73.19	73.19	73.19
Annual Increase		4.5%	0.0%	0.0%	0.0%	12.3%

^a Average service charge paid by common-metered multi-tenancies.

Source Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011 and supplementary data; IPART analysis.

Charges for all the different meter sizes are listed in Table 3 of the Draft Determination.

Water Usage Charges

Sydney Water's proposal

Sydney Water currently charges all water usage at the rate of \$2.10/kL. Sydney Water proposed to increase the water usage charge to \$2.35/kL by 2015/16. This is based on their calculation of the range of the Long Run Marginal Cost (LRMC)⁸⁵. This calculation is included in Appendix E of our report, together with our own analysis.

Table 9.5 Water Usage Charges (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Usage (\$/kL)	2.103	2.20	2.25	2.30	2.35
Annual Change		4.6%	2.3%	2.2%	2.2%

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p110.

9.1.3 Submissions from other stakeholders

Submissions that addressed the issue of changes to water price structures were generally opposed, or argued for an increased period of time to phase in the changes. Alternative suggestions for changes to price structures were also espoused by some stakeholders. These submissions were primarily concerned with changes to fixed charges for multi-residential properties.

The submission by Luke Foley MLC contended that the proposed changes to the pricing structure for multi-premises residential properties will result in excessive price increases.⁸⁶ The Owners Corporation Strata Plan 6006 argued that the current arrangements for charging multi-residential properties should remain in place.⁸⁷ Conversely, the Owners Corporation Network argued that multi-premise dwellings should be charged a fixed percentage of the residential house water service charge with the fixed percentage being lower than for houses. The Owners Corporation

⁸⁵ Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 351.

⁸⁶ Luke Foley, MLC, submission to IPART Review of Prices for Sydney Water Corporation's Water, Sewerage, Stormwater and Other Services, 18 October 2011, p 3-4.

⁸⁷ The Owners Corporation Strata Plan 6006, submission to Review of Sydney Water Corporation's Water, Sewerage, Stormwater and Other Service Prices from 1 July 2012, 4 October 2011, p 3.

Network also recommended gradual implementation of water service charge changes for multi-residential dwellings governed by a strata scheme.⁸⁸

We have taken these comments into account in our review of price structures that is discussed in Chapter 8. We consider that the changes we have made to price structures will result in charges that are more cost-reflective and remove existing cross-subsidies.

For a discussion of these submissions, refer to our *Review of price structures for metropolitan water utilities* available on our website (www.ipart.nsw.gov.au).

9.1.4 IPART's analysis

Draft Decision

19 IPART's draft decision is that residential premises with a common meter will no longer pay a single meter based charge (shared by the number of properties in the premises) but will each individually pay a water service charge equal to that paid by a property with an individual meter. This mirrors the current pricing regime for residential sewerage charges.

IPART and Sydney Water have together conducted a review of water and sewerage price structures. Our review of price structures is covered in detail in Chapter 8.

Some properties changing from a common meter charge to an individual water service charge may face a significant increase in their water bills. To manage this, a flat transition price has been set for the determination period (adjusted for inflation). This is close to the average price currently paid by this group of customers. By the end of the current determination period, all residential dwellings - be they house or apartments - will be paying the same residential service charges. Table 9.6 presents the residential water service charge for residential customers on an individual meter and for residential customers on a common meter (previously levied a share of a meter based charge). Residential customers already pay the same sewerage service charge.

Table 9.6 Residential water service charge (\$2011/12)

Financial year ending 30 June	2012	2013	2014	2015	2016	% change 2012-16
Individually metered	144.79	122.46	107.12	92.17	77.44	-46.5%
Common meter	75.41 ^a	77.44	77.44	77.44	77.44	2.7%

^a This example is for a premise sharing a 25mm meter with 3 properties in it. There are many different outcomes.

Note: The price impact for a property with a common meter will vary with the property's different circumstances.

⁸⁸ The Owners Corporation Network, submission to IPART review of prices for Sydney Water Corporation's Water, Sewerage, Stormwater and Other Services, 6 October 2011, p 3.

In an effort to maintain equity amongst similar customers, IPART's draft determination is to charge all 20mm individually metered non-residential customers the residential water service charge.

All other non-residential customers will be levied a meter based charge which is either:

- ▼ paid by the individual customer or,
- ▼ shared by the number of customers on that meter.

We have maintained the previous proportions between revenue received from residential and non-residential water service charges. The non-residential water service charges are presented in Table 9.7 below.

Table 9.7 Non-residential water service charge

Financial year ending 30 June	2012	2013	2014	2015	2016	% change 2012-16
20mm individually metered property	144.79	122.46	107.12	92.17	77.44	-46.5%
Individual water service charge based on meter size of:						
25mm connection	226.24	209.35	190.28	171.46	153.21	-32.3%
32mm connection	370.66	343.00	311.75	280.92	251.02	-32.3%
40mm connection	579.17	535.94	487.12	438.94	392.22	-32.3%
50mm connection	904.95	837.40	761.12	685.84	612.84	-32.3%
80mm connection	2,317	2,144	1,948	1,756	1,569	-32.3%
100mm connection	3,620	3,350	3,044	2,743	2,451	-32.3%
150mm connection	8,145	7,537	6,850	6,173	5,516	-32.3%
200mm connection	14,479	13,398	12,178	10,973	9,805	-32.3%
300mm connection	32,579	30,146	27,400	24,690	22,062	-32.3%
For meter sizes not specified above, the following formula applies						$(\text{Meter size})^2 \times 25\text{mm charge}/625$

Where a meter is shared the customer pays a share of the charge. For example, if there are 10 customers that share a 50mm meter, each customer would pay one tenth of the charge applicable to the 50mm meter.

In past reviews, we set water usage charges with reference to LRMC derived on an average incremental cost (AIC) basis. As requested, Sydney Water has provided calculations for its estimates of LRMC which range from \$1.76 to \$2.50/kL and are consistent with IPART's own calculated estimates ranging from \$1.82 to \$2.54/kL. The mid points of these ranges are \$2.13 and \$2.18/kL respectively. Whilst the current \$2.10/kL water usage price paid by all Sydney Water's customers is slightly below the midpoint of the range, we decided to maintain the current level in real

terms for the duration of the determination. In nominal terms, customers will face small increases.

Table 9.8 Water usage charges (\$2011/12)

Financial year ending 30 June	2012	2013	2014	2015	2016	% change 2012-16
Water usage charge	2.10	2.10	2.10	2.10	2.10	0.0%

9.2 Unfiltered water charges

9.2.1 Summary of draft pricing decisions

Draft decision

20 IPART's draft decision is to maintain the current approach to setting charges for unfiltered water. This means that the fixed service charge for unfiltered water will be the same as the fixed service charge for drinking water and the usage charge for unfiltered water will be \$0.30 less than the usage charge for drinking water.

Unfiltered water is water that has been subject to chemical treatment, but not treated at a water filtration plant. Sydney Water currently only sells unfiltered water to BlueScope Steel's Port Kembla plant in Wollongong.

There is a cost difference between unfiltered and drinking water, primarily in the cost of treating the water. Also, unfiltered water does not postpone investment in any form of water augmentation because it is dam water that would otherwise be treated and sold as drinking water. There may, however, be a very small amount of avoided costs of deferred investment in new treatment plants.

In the 2008 determination, IPART considered that the cost differential between unfiltered and drinking water should be reflected in the usage charge rather than the fixed service charge because unfiltered water is water that would have otherwise been treated and sold as drinking water. Therefore, the usage charge for unfiltered water was set as a uniform price so that it was \$0.30 less than the usage charge for drinking water.

IPART has decided to maintain the usage charge for unfiltered water so that it is \$0.30 less than the usage charge for drinking water because:

- ▼ based on Sydney Water's submission, the average cost of filtration can range from \$0.26 to \$0.32 depending on varying forecasts of how much drinking water its contracted filtration plants will provide
- ▼ the discount of \$0.30 used in the 2008 Determination is still within the range of possible average filtration costs.

Given that we have maintained our decision to reflect the cost difference between unfiltered water and drinking water in the usage charge, we have also left the fixed service charge so that it is the same as the fixed service charge for drinking water.

9.2.2 Sydney Water's submission

Sydney Water has explored 2 broad approaches in setting the unfiltered water price:

- ▼ setting a uniform price for the unfiltered water usage charge by subtracting the costs of filtration from the drinking water usage charge
- ▼ setting a location specific charge for unfiltered water.

Sydney Water has submitted that its preferred approach is setting a uniform price for the unfiltered water usage charge by subtracting an average cost of filtration of \$0.32. This is based on its contracts with private third party, build, own and operate (BOO) filtration plants and estimates of how much drinking water they will provide and is shown in Table 9.9.

Table 9.9 Estimated average BOO filtration costs (\$2011/12/kL)

	2011/12	2012/13	2013/14	2014/15	2015/16
BOO filtered water (ML)	364,856	364,270	363,190	364,955	368,393
BOO payments (\$'000, \$2011/12)	116,153	116,365	116,830	117,631	117,662
BOO costs (\$/kL, \$2011/12)	0.32	0.32	0.32	0.32	0.32

Note: IPART adjusted using 2.5% for inflation to convert to BOO payments into \$2011/12 which is consistent with SWC's approach stated on p 461.

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Appendix 25 p 455,461 & IPART calculations.

Sydney Water has not commented on the fixed service charge for unfiltered water in its submission.

9.2.3 IPART's analysis

IPART considers that Sydney Water has forecast somewhat low estimates for the amount of water that the BOO plants will filter, because they have set their proposed prices on SDP operating at full capacity over the next 4 years. In its submission, Sydney Water has estimated that it will provide about 490,000 ML of drinking water per year over the determination period of which some will be from the Sydney Desalination Plant (SDP).

As shown in Table 9.10 below, if the SDP were to operate at full capacity throughout this determination period, the average BOO cost would be around \$0.32. If the SDP does not provide any drinking water to Sydney Water then the average BOO cost per kL would decrease to about \$0.26 per kL.

Table 9.10 Average BOO costs per kL of drinking water

	SDP provides no drinking water	SDP operates at full capacity
Sydney Water's forecast water demand (ML)	490,000	490,000
SDP filtered water provision (ML)	0	90,000
Volume of water filtered by BOO plants (92%) ^a (ML)	450,800	368,000
Average BOO payments (\$'000, \$2011/12)	117,122	117,122
Average BOO cost (\$/kL, \$2011/12)	0.26	0.32

^a Sydney Water has indicated that the BOO plants filter about 92% of its water. Sydney Water submission to IPART 2012 pricing determination, Appendix 25 p 455. 368,000 is calculated as (490,000 – 90,000) x 0.92.

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Appendix 25 p 455,461 & IPART calculations.

We have decided to maintain the usage charge for filtered water so that it is \$0.30 less than the usage charge for drinking water because:

- ▼ based on Sydney Water's submission, the average cost of filtration can range from \$0.26 to \$0.32 depending on varying forecasts of how much drinking water its contracted filtration plants will provide
- ▼ the discount of \$0.30 used in the 2008 determination is still within the range of possible average filtration costs.

Sydney Water has not commented on the fixed service charge for unfiltered water under this method (which is also its preferred method). IPART has assumed that Sydney Water accepts IPART's decision in the 2008 Determination for setting the fixed service charge under this method so that it is the same as the fixed service charge for drinking water.

9.3 Sewerage charges

9.3.1 Summary of draft pricing decisions

Draft decision

- 21 IPART's draft decision is that Sydney Water can charge the maximum sewerage charges as set out in Table 9.11.

Table 9.11 IPART's decision on sewerage charges

	1 July 2012 to 30 June 2013	1 July 2013 to 30 June 2014	1 July 2014 to 30 June 2015	1 July 2015 to 30 June 2016
Residential sewerage service charge (\$2011/12)	543.73	546.52	548.36	550.22
Non residential (20mm individually metered property) service charge (\$2011/12)	543.73	546.52	548.36	550.22
Non-residential meter based service charge ^a (\$2011/12)	967.62	1110.20	1273.36	1460.28
Sewerage usage charge (\$nominal)	1.40	1.30	1.20	1.10

^a Meter based charge is based on a 25mm meter. Applicable meter charge is set using the following formula: (Meter size)² x 25mm service charge/625.

Note: Charges for all possible meter sizes are listed in the Draft Determination.

Table 9.11 shows that sewerage service charges for residential and 20mm individually metered non-residential customers remain relatively flat compared to the current charge of \$539.53. This is because the costs of providing sewerage services remain relatively constant. Non-residential meter based service charges increase significantly, as these properties were previously cross-subsidised by non-residential strata properties, and the usage charge has declined, meaning that in order to recover a given amount of revenue, service charges need to increase.

The usage charge has decreased by \$0.10 per year in nominal terms in order to transition to more cost-reflective levels.

9.3.2 Sydney Water's submission

Residential Sewerage Service Charges

Sydney Water currently charges all residential dwellings (houses, flats and units) a standard residential sewerage service charge with no additional sewerage usage charge.

Sydney Water proposes no change to this structure. However, its proposed sewerage service charge did increase substantially from the current 2011/12 level of \$539.53 to \$638.84 by the last year of this determination. Sydney Water also proposed a larger increase in the sewerage service charge of 12.3% in the first year of this determination. Sydney Water's proposed sewerage service charges are shown below in Table 9.12.

Table 9.12 Sewerage service charges (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Service (\$/year)	539.53	605.82	618.40	629.00	638.84
Increase (%)		12.3%	2.1%	1.7%	1.6%

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p110.

Non-Residential Sewerage Service Charges

Sydney Water currently charges 20mm stand alone properties and multi-tenancy strata tenancies a standard sewerage service charge. Multi-tenancy single owner properties are charged a common meter charge.

Sydney Water did not propose a change to the non-residential sewerage service price structure. The proposed price increases for stand alone properties and multi-tenancy stratas were the same as for residential sewerage service charges, and involved larger increases in prices in the first year of this determination. Sydney Water's proposed non-residential sewerage service charges are shown in Table 9.13 below.

Table 9.13 Non-Residential Sewerage Service Charges (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Stand alone properties and multi-tenancy stratas	539.53	605.82	618.40	629.00	638.84
Annual Change		12.3%	2.1%	1.7%	1.6%

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 110.

Non-Residential Sewerage Usage Charges

Sydney Water currently charges all non-residential sewerage customers \$1.49/kL for all domestic strength effluent discharges above 500 kL pa. Sydney Water proposes to increase the sewerage usage charge to \$1.59/kL and lower the discharge threshold to 200 kL pa. Sydney Water's proposed sewerage usage charges are shown below in Table 9.14.

Table 9.14 Sewerage Usage Charges (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Usage (\$/kL)	1.49	1.52	1.55	1.57	1.59
Annual Change		2.0%	2.0%	1.3%	1.3%

Note: If the discharge allowance is not reduced to 200kL Sydney Water is proposing to increase the sewerage usage charge to \$1.77/kL.

Source: Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p138.

9.3.3 Submissions from other stakeholders

Submissions to the Sydney Water review tended to focus generally on the size of the overall bill increases rather than on price increases for individual services.

Many of the submissions received from stakeholders objected to the size of Sydney Water's proposed price increases and argued that the size of the increases was excessive. Also of concern was that a large portion of the price increase occurred in the first year of the price path (this is reflected in the sewerage service charges with the majority of the overall increase occurring in the first year). As a means of overcoming the negative impacts of the price increases, some stakeholders suggested the phasing-in of price increases over the determination period.

For non-residential sewerage usage charges, stakeholder feedback has been received through our review of price structures. This is responded to in that review but was considered in this review. In the price structure review, Hunter Water, Gosford and Wyong Councils supported setting the non-residential sewerage usage charge with reference to the short run marginal cost (SRMC). The SRMC is the cost to Sydney Water of collecting, treating and disposing of an extra kilolitre of sewage. A move towards SRMC would see Sydney Water's non-residential sewerage charges fall from current levels. The Property Council and Total Environment Centre both argue that the sewerage usage charge should remain closer to long run marginal cost to create incentives to minimise discharge. Issues surrounding charges for sewerage are addressed further in our price structures review that is being undertaken concurrently with this review.

9.3.4 IPART's analysis

Draft Decisions

- 22 IPART's draft decision is to phase-in a decrease in the usage charge for sewerage from the current \$1.49 per kL to \$1.10 (in nominal terms) per kL by 2015/16.
- 23 IPART's draft decision is to phase-in a reduction to the free allowance threshold from the current 500 kL per year to 300 kL per year by the end of the determination period.

We have made no price structure changes to the residential sewerage service charge. As was the process for water, we have maintained the previous proportions between revenue received from residential and non-residential sewerage charges. This is to remove the potential for introducing cross subsidies between residential and non-residential customers when implementing the price structure changes made to non-residential charges.

Our draft decision is to reduce the sewerage usage charge throughout the determination period. This is because we estimate that the short run marginal cost of collecting, transporting, treating and disposing of sewage is less than \$0.30 per kL and so we have phased-in a decrease in the usage charge for sewerage from the current \$1.49 per kL to \$1.10 (in nominal terms) per kL by 2015/16. We have decided

to set the usage charge having regard to the SRMC rather than LRMC because the disaggregated nature of sewerage catchments makes it difficult to calculate a single LRMC and applying the LRMC of one catchment across the whole network would be distortionary.

We have also decided to lower the free allowance threshold from the current 500 kL to 150 kL per year. This is because we estimate that the average discharge volume from residential properties is about 150 kL per year and this is embodied in their service charge, hence the service charge for non-residential properties should embody a similar amount. Given the potential impact on some customers, we have decided to phase-in the reduction by decreasing the threshold by 50 kL per year. This means that for this determination, the free allowance threshold decreases from the current 500 kL per year to 300 kL per year by the end of this determination period, with a view to reducing it ultimately to 150 kL per year in the following Determination period.

Table 9.15 shows our draft decisions for the usage charge and the free allowance threshold.

Table 9.15 Sewerage usage charges and free allowance threshold (\$nominal)

	2011/1 2	2012/1 3	2013/1 4	2014/1 5	2015/1 6	Change 2011/12- 15/16
Sewerage usage charge	1.49	1.40	1.30	1.20	1.10	-0.39
% change		-6%	-7%	-8%	-8%	-26%
Free allowance threshold (kL pa)	500	450	400	350	300	200

The service charge for sewerage is calculated as a residual from the sewerage usage charge and the free allowance threshold so that in total Sydney Water receives the revenue we determine as required for sewerage services.

Consistent with the pricing decisions made for water, we have set the charge for a 20mm individually metered non-residential property to be equal to the residential sewerage service charge. All other non-residential customers will be levied a meter based charge which is either paid by the individual customer or shared by the number of customers on that meter. Also customers who share a meter will no longer be subject to a minimum sewerage charge which was the 20mm service charge. The sewerage service charges are presented in Table 9.16 below.

Table 9.16 Residential and non-residential sewerage service charge (\$2011/12)

Financial year ending 30 June	2012	2013	2014	2015	2016	% change 2012-16
Residential	539.53	543.73	546.52	548.36	550.22	2.0%
Non residential 20mm individually metered property	539.53	543.73	546.52	548.36	550.22	2.0%
Individual water service charge based on meter size of:						
25mm connection	843.02	968	1,110	1,273	1,460	73.2%
32mm connection	1,381	1,585	1,819	2,086	2,393	73.2%
40mm connection	2,158	2,477	2,842	3,260	3,738	73.2%
50mm connection	3,372	3,870	4,441	5,093	5,841	73.2%
80mm connection	8,633	9,908	11,368	13,039	14,953	73.2%
100mm connection	13,488	15,482	17,763	20,374	23,364	73.2%
150mm connection	30,349	34,834	39,967	45,841	52,570	73.2%
200mm connection	53,954	61,928	71,053	81,495	93,458	73.2%
300mm connection	121,396	139,337	159,869	183,364	210,280	73.2%
For meter sizes not specified above, the following formula applies		(Meter size) ² x 25mm charge/625				

We note that the 73.2% increase in non-residential meter based service charges is substantial. However, we note that most non-residential customers will face lower increases. These charges are applicable for customers on stand alone meters only. The current sewerage charging structure gave rise to significant inequities between similar multi-premise properties and a cross subsidisation between non-residential customers on an individual meter and those on a common meter. Changing the pricing structure removes these inequities, and ensures that all customers pay a fair share, but results in larger price increases for some customers. Customers who share a meter will no longer be subject to a minimum service charge of about \$540 but will now pay a share of the service charge for that meter. For example, if there were 8 equal strata units sharing a 40mm meter then in the first year of this determination, each strata unit would pay about \$310 (\$2011/12) each rather than the 20mm charge of about \$544 (\$2011/12).

Another reason for the increase in sewerage service charges is the reduction in the sewerage usage charge, to better reflect costs. The reduction in the free allowance threshold offsets this to some extent because some customers will pay more in usage charges as the free allowance threshold falls below their discharge volumes. Overall however, the result is a reduction in revenue collected from sewerage usage charges, resulting in an increase in the revenue required from service charges.

Customers should be advised that they may elect to move from a larger meter size to a 20mm meter if an assessment of their requirements confirms that a 20mm meter is adequate. Customers requesting to move from a larger meter to a 20mm meter will pay a charge to move to a smaller meter.

Customers can also request to have their discharge factor reassessed if they think their current discharge factor is not accurate.

9.4 Stormwater drainage charges

9.4.1 Summary of draft pricing decisions

Draft decision

- 24 IPART's draft decision is that stormwater drainage charges will transition to area based charges, with a low impact discount for large non-residential customers who have minimal stormwater runoff, as shown in Table 9.17.

Stormwater drainage services are largely the responsibility of the local councils in Sydney Water's area of operations. Sydney Water owns and operates some stormwater drainage assets, primarily trunk drainage. Sydney Water supplies stormwater drainage services to around 520,000 customers. At present there is 1 residential charge and 1 non-residential charge.

In 2005, we requested Sydney Water develop a proposal for an area based stormwater drainage charging scheme. At the time of the 2008 Determination, Sydney Water had not completed its proposal. In its submission to this review Sydney Water included an area based stormwater drainage charge, but did not endorse the proposal. Sydney Water proposes that we maintain the current price structure.

Table 9.17 Draft prices for stormwater drainage services (\$2011/12)

	2012/13	2013/14	2014/15	2015/16
Apartments	\$50	\$43	\$28	\$16
Houses	\$60	\$73	\$80	\$86
Non-residential 0-200m ²	\$50	\$43	\$28	\$16
Non-residential 201-1,000m ² and low impact	\$60	\$73	\$80	\$86
Non-residential 1,001-10,000m ²	\$200	\$350	\$500	\$580
Non-residential > 10,000m ² per 100m ²	\$3	\$8	\$13	\$17
	(min \$300)	(min \$800)	(min \$1,300)	(min \$1,700)

9.4.2 Sydney Water's submission

Sydney Water's submission recommends maintaining the current price structure. They consider the current structure to be working well, citing very few complaints from customers.

Sydney Water includes an area based stormwater drainage charge, as we requested in the 2008 price review.

Sydney Water has analysed this proposal extensively and cannot see sufficient justification to change the current structure.⁸⁹

Sydney Water analyses 2 options:

1. a 'pure' area based charge where every customer's charge is linked to its property size
2. a 'simplified/smoothed' area based charge where residential properties are grouped into single premise dwellings and multi-premise dwellings, and non-residential properties are grouped into 4 bands with those over 10,000m² having a charge linked to their property size.

Sydney Water notes that property size is not perfectly correlated with contribution to stormwater. It notes that other factors such as localised rainfall, topography and soil type also have an effect. Sydney Water also states that it does not support discounts for large properties with a low impact.

9.4.3 Submissions from other stakeholders

The Total Environment Centre's submission indicates that it supports an area based stormwater drainage charge, and recommends properties with a low ratio of impervious area and take measures to mitigate stormwater runoff should be given allowances.

9.4.4 IPART's analysis

We have considered Sydney Water's submission, however we consider there to be sufficient benefits from moving towards an area based charge to justify its costs. The current stormwater drainage charges are not cost reflective.

The key cost drivers of drainage services are peak stormwater flow, total volume of water and pollutants. How much stormwater and how many pollutants each property contributes are determined by a variety of factors including: area, slope, proportion of impervious area, land use and soil. Area based charges reflect that land area is a key determinant of the costs to a drainage system, and can be used as a simple proxy for a property's contribution to runoff. We consider an area based drainage charge to be the most cost reflective and feasible stormwater drainage charge.

⁸⁹ Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 120.

We have considered that there may be some large properties in Sydney Water's area that have minimal runoff due to having a low level of impervious area or a slope that retains stormwater. So the charges to these properties remain cost reflective we have allowed a low impact discount to be awarded at Sydney Water's discretion.

Our decision has significant price impacts for some customers. The charge will be reduced for multi-premise dwellings and non-residential properties with an area smaller than 1,000m²; however the charge will increase for houses and non-residential properties larger than 1,000m², compared to the current charges. To mitigate the impact of these changes we have decided to transition to these charges over the determination period.

We recognise that for over 500 non-residential properties, there will be significant price increases. Under the current cost structure these properties are contributing around 0.3% of all drainage revenue, but cover 15.0% of Sydney Water's stormwater drainage catchment. They are being subsidised by small non-residential customers and multi-premise dwellings that contribute most of the stormwater drainage revenue (54.5%) while only covering 13.9% of Sydney Water's stormwater drainage catchment. Under our decision this cross subsidy will end.

In making our decision we considered implementing a standard charge for all non-residential properties in the largest band. However, we note that there is a significant variation in property sizes within this band, and a standard charge would result in significant cross-subsidies. The alternative prices we modelled setting a standard charge for the largest properties are shown in Table 9.18 below.

Table 9.18 Prices for drainage service charges under our option to have a uniform charge for all non-residential properties greater than 10,000m² (\$2011/12)

	2012/13	2013/14	2014/15	2015/16
Option 2 - Standard charge for all customers over 10,000m ²				
Apartments	\$50	\$43	\$28	\$16
Houses	\$60	\$73	\$80	\$86
Non-residential 0-200m ²	\$50	\$43	\$28	\$16
Non-residential 201-1,000m ² and low impact	\$60	\$73	\$80	\$86
Non-residential 1,001-10,000m ²	\$200	\$350	\$500	\$580
Non-residential > 10,000m ²	\$1,300	\$3,200	\$5,800	\$7,400

In their submission, Sydney Water estimated that 510 properties were in this band, however the property sizes varied from 10,000m² (or 1 hectare) to 640,000m² (or 640 hectares). According to additional information we received from Sydney Water, around 81% of non-residential properties in the largest band of non-residential customers are better off under our draft decision.

We welcome submissions from stakeholders on our draft decisions for drainage charges and the alternative options.

9.5 Charges for the Rouse Hill Development Area

The Rouse Hill Development Area (RHDA) covers about 13,000 hectares and was established by a consortium of public and private sector land holders in 1998. The stormwater drainage system at the RHDA consists of large areas of open space to accommodate flood flows, natural creeks and grass lined channels, and artificial wetlands.

Currently Sydney Water owns and manages the trunk drainage services and about 215 hectares of flood prone land. Sydney Water also manages an additional 27 hectares of flood-prone land owned by other parties.

9.5.1 Summary of draft pricing decision on the Rouse Hill River Management Charge

Draft decision

25 IPART's draft decision is that Sydney Water is to maintain the existing River Management Charge (in real terms) over the determination period.

9.5.2 Sydney Water's submission

As part of the 2008 price determination, Sydney Water agreed to review the River Management Charge including a review of costs and the level of cost recovery being achieved against the original charging methodology.⁹⁰ In this methodology the River Management Charge would recover operating costs only (such as cleaning out trash racks, bush regeneration, weed and ground management).

In its submission Sydney Water presented the results of modelling the historic stormwater drainage operating costs for Rouse Hill. The estimated costs were derived from actual costs incurred in 2009/10. It should be noted that only one year of actual data was used. These operating costs were extrapolated using the historic profile of capital expenditures (such as land acquisitions and trash racks), assumed land covered by service contracts, customer numbers and other assumptions.

⁹⁰ IPART, *Review of prices for Sydney Water Corporation's water, sewage, stormwater and other services - Final Report*, June 2008, p 99.

Using the extrapolated cost estimates, Sydney Water found that it did not recover its direct operating costs through the River Management Charge in any year until 2007/08. It estimated that the present value of River Management Charge less direct operating costs between 1993 and 2025 is -\$4.2 million (\$2010/11). If an allocation is made for overhead costs, the present value drops to -\$19.4 million.⁹¹

Assuming that the current charges are indexed by inflation and growth forecasts are achieved, Sydney Water concludes in its submission that it would finally recover its cumulative total operating costs in 2022/23.⁹²

Sydney Water proposes to maintain the river management change in real terms at \$128.58 (\$2011/12) over the determination period.

9.5.3 Submissions from other stakeholders

Lend Lease's submission⁹³ explained that residences in the Rouse Hill Regional Centre development (referred to as 'The New Rouse Hill') will operate a community title scheme. Under this scheme extensive areas of open space will remain in community ownership with ongoing operating and maintenance activities to be at the community cost. These costs will be met through a community scheme fee levied each year.

In its submission Lend Lease argued that Sydney Water's River Management Charge should not be charged by Sydney Water on certain categories of land (such as, Community Titled Land), or it should be substantially adjusted, to remedy the situation of the current double charging.

We asked Sydney Water to provide a response to Lend Lease's submission. Sydney Water explained that a Community Titled Scheme is not an exempt property under Schedule 2 of the *Sydney Water Act 1994*.⁹⁴ All properties within the declared catchment area are subject to the service charges.

Sydney Water clarified that the New Rouse Hill development is a small part of a declared catchment area that is serviced by Sydney Water's trunk drainage system. It argued the levying of a River Management Charge is appropriate and justified to contribute towards Sydney Water's costs of operating and maintaining the drainage system.

While Sydney Water is entitled to charge properties located in the declared stormwater drainage area, we consider the reporting of the operating expenditure to the Rouse Hill Development Area (RHDA) community needs to be improved to provide greater transparency to customers of what they are being charged for.

⁹¹ Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Appendix 20, p 370.

⁹² Ibid, p 370.

⁹³ Lend Lease GPT (Rouse Hill) Pty Ltd, submission dated 5 September 2011.

⁹⁴ Sydney Water letter dated 11 November 2011.

9.5.4 IPART's analysis

Currently there are a number of stormwater drainage charges that a resident at the RHDA could be paying to different parties depending on who owns and manages the stormwater drainage assets including:

- ▼ **Sydney Water's River Management Charge:** covers the operating costs of Sydney Water's trunk drainage assets (including flood prone land and wetlands).
- ▼ **Council rates:** covers council's existing stormwater drainage costs such as reticulated lot and street drainage. For example, a resident in Rouse Hill could be paying rates to The Hills Shire Council.
- ▼ **Community levies:** pays for the maintenance of Community Titled land which includes open space that provides stormwater drainage service.

We believe that Sydney Water's record keeping and reporting of the operating costs for their trunk drainage assets at the RHDA should improve. There is a need to provide greater transparency of Sydney Water's expenditure to its customers at Rouse Hill.

Recommendation

- 26 IPART's recommendation is that Sydney Water report on its activities and operating expenditures associated with its trunk drainage assets to its Rouse Hill customers.

Sydney Water's modelling of the operating costs associated with the River Management Charge was limited as only one year of actual data was used and a number of assumptions were used to reconstruct data over a 30 year period.

Despite the limitations of the modelling, we accept Sydney Water's proposal that the River Management Charge should be maintained in real terms over the determination period.

9.5.5 Summary of draft pricing decision on Rouse Hill Stormwater Drainage Charge

Draft decision

- 27 IPART's draft decision is that, commencing on 1 July 2012, Sydney Water can charge the owner of a new property in the Rouse Hill Development Area that is served by Sydney Water's trunk drainage system, a Rouse Hill Stormwater Drainage Charge of \$877 per year for 5 years following the date of occupation of a new property.

9.5.6 Sydney Water's submission

Historically Sydney Water charged a Rouse Hill Trunk Drainage System Developer charge to all development that drained to this system.⁹⁵ In December 2008, the NSW Government decided to set this developer charge to zero to lower the costs of development in Sydney's greenfield areas.

Currently, Sydney Water has no means of recovering the capital costs for the Rouse Hill trunk drainage system. In its submission, Sydney Water argues that the funding model needs to change as there are significant future land purchases required at the RHDA.

Land purchases make up the majority of Sydney Water's capital expenditure in the RHDA. Sydney Water states that it is obligated under the Baulkham Hills and Blacktown Local Environment Plans, as the designated acquisition authority for land zoned for trunk drainage, to acquire land when landowners satisfy certain conditions.⁹⁶

Sydney Water proposes that these capital costs should be recovered from all sewerage customers. Sydney Water reasons that all customers are indirectly benefiting from the stormwater drainage capital expenditure at Rouse Hill by reducing nutrients in the Hawkesbury-Nepean river system. Sydney Water estimates that the annual sewerage charge would increase by \$2 by 2015/16 and \$4 by 2019/20 (\$ nominal).⁹⁷

We believe that this approach does not reflect the fact that Rouse Hill customers are the major and direct beneficiary of Sydney Water's land purchases as this protects their properties from flooding.

9.5.7 Submissions from other stakeholders

There were no submissions from other stakeholders on this issue.

9.5.8 IPART's analysis

To address the question of who should pay for the provision of stormwater drainage infrastructure at Rouse Hill it is important to establish:

- ▼ what services are being provided by this infrastructure
- ▼ who benefits from these services either directly or indirectly.

⁹⁵ The developer charge for one equivalent tenement of development in the drainage system was \$4,098 (\$2000/01). Sydney Water Corporation, 2001 Development Servicing Plan – Rouse Hill Trunk Drainage System, Executive Summary.

⁹⁶ Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Appendix 20, p 370.

⁹⁷ Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Appendix 20, p 385.

Rouse Hill residents are directly benefiting as the land purchases help to prevent their properties from flooding. The remainder of the capital expenditure is for civil projects (such as constructing grass lined channels or artificial wetlands) and the provision of trash racks to remove rubbish from the water. This expenditure improves the quality of the water entering the Hawkesbury-Nepean river system and indirectly benefits Sydney Water's general customers.

We have decided that the most appropriate funding model is to apportion costs using a 'beneficiary pays principle'. Applying this principle, the costs of future land purchases for drainage and stormwater management should be borne by the new residents at Rouse Hill. The remainder of the capital expenditure on civil projects should be recovered from Sydney Water's sewerage customers.

We have estimated that new Rouse Hill customers should pay 70% of the costs and Sydney Water's sewerage customers should pay 30% of the costs. This has been calculated using the NPV model outlined below.

Capital costs to be recovered

As part of the operating and capital expenditure review, Atkins Cardno were asked to review the efficiency and prudence of historic and forecast capital expenditure of Sydney Water's stormwater drainage activities at the RHDA.

Atkins Cardno⁹⁸ found that the historic expenditure at Rouse Hill was prudent. In terms of future expenditure, Atkins Cardno argued that the \$7m that customers have funded for land acquisition in the current determination period should be carried forward into the 2012 price path. Also given uncertainties in timing of capital expenditure, Atkins Cardno proposed to defer \$2.5m of expenditure. This would result in a reduction in allowable capital expenditure of \$9.5m in the future price path (ie, \$7m + \$2.5m). We have made an adjustment of \$2.375m of future capital expenditure for each of the 4 years commencing 2012/13.

Net Present Value (NPV) model

We have developed a NPV model to calculate the value of a capital charge for new Rouse Hill residents. The model uses the following information:

- ▼ Capital expenditure data over 10 years provided by Sydney Water in its submission⁹⁹. This data has been converted to \$2011/12 using an inflation rate of 2.5%.
- ▼ A downward adjustment of \$9.5 million to the future capital expenditures over a 4-year period commencing 2012/13, reflecting advice from Atkins Cardno.

⁹⁸ Email from Nigel Jones on 18 December 2011.

⁹⁹ Sydney Water's submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, Appendix 20, p 383.

- ▼ A discount rate of 6.5% pre-tax WACC reflecting pre-tax cash flows provided by Sydney Water.
- ▼ An annual residential growth rate of 4.5% and non-residential growth rate of 0.7%. These rates use information provided in Sydney Water's Annual Information Return.

We considered a number of options for recovering the capital charges from new customers at Rouse Hill. We decided that a 5-year charge of \$877 per year was the most appropriate for new customers at Rouse Hill and for Sydney Water to recover its costs.

9.6 Recycled water

9.6.1 Summary of draft pricing decisions

Draft decision

- 28 IPART's draft decision is that Sydney Water can charge customers of the Rouse Hill recycled water scheme a usage charge of 80% of the potable water price and remove the service charge.
- 29 IPART's draft decision is that Sydney Water is to set the prices for all other mandated recycled water schemes in accordance to IPART's 2006 Guidelines "Pricing arrangements for recycled water and sewer mining – SWC, HWC, GSC, WSC".
- 30 IPART's draft decision is that Sydney Water will not be able to include any avoided costs for the expansion of the Rouse Hill recycled water network in the RAB and therefore in prices, until it can provide further evidence that robust ring-fencing arrangements are in place.

Recycled water is highly treated sewage that is suitable for gardens, toilet flushing, steel making, replacing dam flows into river systems and other non-consumption uses. As per our 2006 Guidelines,¹⁰⁰ we considered the avoided costs of recycled water and the prices charged to customers of mandated recycled water schemes. Sydney Water currently has, or is building, 5 mandated recycled water schemes:

- ▼ Rouse Hill
- ▼ Hoxton Park
- ▼ Colebee
- ▼ Oran Park and Turner Road
- ▼ Ropes Crossing.

¹⁰⁰ IPART, *Pricing Arrangements for Recycled Water and Sewer Mining – SWC, HWC, GSC, WSC*, 2006.

There is a cost difference between recycled and drinking water, primarily in the higher cost of treating sewage for re-use compared to the lower cost of treating fresh water. Recycled water can also provide avoided costs elsewhere in the distribution and supply system. For example, the construction of recycled water systems delays the need for water supply augmentation and may avoid additional costs to traditional sewerage systems.

In the 2005 and 2008 Determination, we set prices for the Rouse Hill recycled water scheme. These prices were set in line with our pricing guidelines.

In their submission, Sydney Water requested we set prices for Rouse Hill recycled water scheme, but not for the other mandated schemes as they are not sufficiently established. Sydney Water proposed that the recycled water usage charge remain pegged at 80% of the charge for drinking water and that the recycled water service charge be removed. Sydney Water also proposed that \$19.3 million and \$2.3 million in avoided costs should be added to the sewerage and water RABs, respectively.

We have decided to set prices for Rouse Hill again in this determination. We have decided to accept Sydney Water's proposal to set the recycled water usage charge at 80% of the charge for drinking water and to remove the recycled water service charge. It is our intention for this to be the last time we set prices for recycled water schemes.

In future determinations we expect that a more 'light handed' approach to recycled water pricing be taken, with Sydney Water required to set prices according to our guidelines, and we will perform a price monitoring role. We are making this change as it was foreshadowed by the Guidelines, there are an increasing number of small schemes that would require increased resources to regulate them, and that setting prices for these schemes requires detailed information and we consider Sydney Water may be better placed than us to set these prices. This approach will result in proportionate regulation. Details of this approach are explained in section 9.6.4.

Our draft decision is that Sydney Water will not be able to include any avoided costs for the expansion of the Rouse Hill recycled water network in the RAB and therefore in prices. At this stage, we are not satisfied that Sydney Water has implemented robust and effective ring-fencing for Rouse Hill over its period of operation.

However, as noted in section 6.2.3, we will reconsider this decision if Sydney water demonstrates that Sydney Water customers in general have not already paid some of the costs of the Rouse Hill development.

9.6.2 Sydney Water's submission

Recycled water prices

In its submission, Sydney Water proposes that the Rouse Hill recycled water usage charge remains at 80% of the potable water price and the recycled water service charge be removed. Sydney Water considers the recycled water service charge to be unfair to small customers. It notes that if a recycled water customer uses less than 34kL of recycled water, they would pay more for their service than customers using the same amount of water but only connected to the potable water system. 23.5% of Rouse Hill customers are in this situation.

Sydney Water does not propose that we set prices for the other mandated recycled water schemes.

Avoided costs included in prices

In 2009, Sydney Water expanded the Rouse Hill recycled water network to reduce the nutrient load on the Hawkesbury-Nepean river system. Sydney Water considered 4 options to reduce the load and decided the expansion of the recycled water network was the most cost effective option. Sydney Water is seeking avoided costs, of \$19.3 million, to transfer the burden of costs of expanding the network to sewerage customers. Sydney Water is also seeking to reduce recycled water developer charges in line with the savings water customers realise due to delays in water supply augmentation. Sydney Water calculates these savings to be \$2.3 million.

Sydney Water does not seek avoided costs for any other recycled water scheme.

9.6.3 Atkins Cardno's review of recycled water avoided costs

We asked Atkins Cardno to look at the ring-fencing of Sydney Water's recycled water schemes. Atkins Cardno looked at Sydney Water's ability to ring-fence its recycled water projects.

Overall [they] were satisfied that Sydney Water is able to ring-fence recycled water costs in an approximate manner but to an acceptable degree of accuracy.¹⁰¹

However, Atkins Cardno did express some concerns about the ring-fencing arrangements particularly that corporate overheads are not allocated to recycled water schemes. In addition, we note Atkins Cardno's comment this applies to Sydney Water's current ring-fencing arrangements for recycled water in general and is not an assessment of the Rouse Hill recycled water scheme ring-fencing in the previous determination.

¹⁰¹ Atkins Cardno, *Final Report Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure*, November 2011, p 152.

9.6.4 IPART's analysis

Recycled water prices

We have considered Sydney Water's submission with reference to our pricing guidelines. Our guidelines require that all operating costs are recovered and that the price balances supply and demand. At the 2008 Determination setting the recycled water price to 80% of the drinking water price has achieved a healthy balance between supply and demand. At 80% of the drinking water price the Rouse Hill recycled water scheme recovers its operating costs. As such, we consider the recycled water usage charge to be priced well and have decided to continue to peg it at 80% of the drinking water charge. Since all operating costs will be recovered by the usage charge, our draft decision is to adopt Sydney Water's proposal to remove the recycled water service charge.

We have decided to require Sydney Water to set the prices of new schemes in accordance to our 2006 Guidelines because:

- ▼ this change was foreshadowed by the 2006 Guidelines
- ▼ the number of recycled water schemes is growing and determining prices for an increasing number of schemes would require more resources, increasing the costs of regulation
- ▼ given the detailed information necessary to set prices, the small size of schemes, and that prices are set on a scheme by scheme basis, we consider that Sydney Water may be better placed, than we are, to determine prices for these schemes on an individual basis.

Our general approach is to undertake proportionate regulation which is best practice and ensures that prices are only regulated in proportion to the costs and benefits of regulation. The benefits of us determining each of numerous different small schemes are unlikely to outweigh the costs of regulation. Rather, we intend to move to robust price monitoring the implementation of the 2006 Guidelines.

We intend for this to be the last time we set prices for Rouse Hill or any mandated recycled water schemes. In future determinations, we expect to implement 'light handed' regulation of recycled water prices for mandatory schemes. For the reasons outlined above, we consider it unnecessary for us to determine prices for mandated recycled water schemes, instead we will price monitor.¹⁰² Over regulation in the future in such instances is likely to be unwarranted given the costs and benefits of regulation.

¹⁰² We note that while some customers are obliged to connect, they are free to disconnect from the service for a fee.

We expect that our 'light handed' regulatory approach to recycled water would require utilities to set their prices in accordance with our pricing principles, and we would monitor the prices they set. We anticipate our price monitoring regime will function as follows:¹⁰³

- ▼ we will undertake a review once every 5 years of the utilities' application of the Guidelines and supporting calculations
- ▼ a draft of the review report will be provided to the utility for comment prior to us finalising the review
- ▼ review findings will be published and communicated to the customers of the recycled water scheme
- ▼ depending on the review findings, we may make recommendations to the utility and/or Minister regarding the implementation of the Guidelines

We seek comment from the recycled water stakeholders regarding our proposed 'light handed' regulatory approach for future Rouse Hill Determinations and for other mandated schemes.¹⁰⁴

Recycled water avoided costs

We agree with Sydney Water that the option they chose was the least expensive option of those it surveyed. However, we note ring-fencing is a requirement of our recycled water guidelines and a pre-requisite for the consideration of inclusion of avoided costs. We note that over the working life of the Rouse Hill recycled water scheme operating and capital costs have not been fully recovered by prices. Sydney Water did not provide information on how Rouse Hill's historical losses will be recovered. As such, without further information, we are concerned that the rest of Sydney Water's operations may have subsidised these losses. If so, this would suggest that robust ring-fencing is not in place.

For us to be satisfied that the costs of providing recycled water services have been adequately ring-fenced, Sydney Water would need to demonstrate that the system assets have been quarantined from inclusion in Sydney Water's RAB. This will satisfy us that Sydney Water's broader water and sewerage customer base has not been funding some of Rouse Hill's recycled water infrastructure.

On these grounds we have not awarded any avoided costs.

We would review this draft decision if Sydney Water provides further evidence of robust and effective ring-fencing arrangements for the Rouse Hill recycled water scheme.

¹⁰³ However, we will consult more fully on this process when we revise our 2006 guidelines.

¹⁰⁴ A mandated recycled water scheme is one where customers are required to connect to the scheme.

9.7 Trade waste charges

Trade waste is defined as wastewater from commercial and industrial customers with concentrations of pollutants that exceed a domestic equivalent.¹⁰⁵ Commercial and industrial customers are charged based on the mass of pollutants discharged to the sewer that are above domestic equivalents (pollutant charges), and pay application and agreement fees to Sydney Water to cover the cost of establishing and processing new applications, administering agreements, inspections, and monitoring trade waste discharges.

Trade waste pollutant charges cover the cost of transport, corrosion and treatment of trade wastewater. Wastesafe charges cover the cost of the Wastesafe electronic tracking system, administration support, and liquid waste transport and processing.

In the 2008 Determination we decided to maintain the existing trade waste charges in real terms over the determination period, in line with Sydney Water's proposal at the time. At that time Sydney Water's rationale for maintaining the charges in real terms and not seeking larger increases was that:

- ▼ the principal operating costs with trade waste were linked to CPI and were largely labour
- ▼ it did not want to encourage illegal dumping, and
- ▼ it recognised that many businesses had on-site treatment costs before they were permitted to discharge to the sewer network.

We accepted Sydney Water's proposal to maintain the charges in real terms in the 2008 Determination as it considered this was reasonable and there was no widespread opposition from stakeholders to this proposal.

In the 2008 final report, we stated that we would conduct a more extensive review of trade waste charging arrangements in the 2012 review, given that the last detailed review was in 2003. In response, Sydney Water agreed to participate in a comprehensive review of trade waste charges in preparation for the 2012 Determination. Sydney Water has undertaken this work, which included a project that estimated the costs of corrosion that Sydney Water incurs in managing trade waste discharges, as well as the review of trade waste charges and development of proposed prices for the 2012 Determination. We engaged consultants Deloitte to review Sydney Water's proposed trade waste costs and charges and provide recommendations on these. The 2012 review of trade waste charges is discussed in the section below. There are some outstanding issues that need to be addressed for the final report.

¹⁰⁵ A domestic equivalent is a concentration or level the same as would be found in household wastewater.

9.7.1 Sydney Water's Initial Submission and Provision of a Supplementary Submission

Sydney Water's initial submission that addressed trade waste charges did not provide a full breakdown of the costs of providing a number of the trade waste services. Additionally, the costs of corrosion on which Sydney Water had based some of its trade waste charges were based on a study of 3 primary treatment plants, and we had concerns as to whether these costs were the same across different treatment plants and areas. Sydney Water did not provide detail about the robustness and rationale for its cost allocation methodology for its trade waste charges, which meant that there was uncertainty as to whether the methodology was appropriate and whether charges were cost reflective.

In order to further the development of cost reflective and efficient trade waste charges we held a workshop with Sydney Water and key trade waste stakeholders on 20 January 2012. We requested that Sydney Water develop a supplementary submission that would address the issues described above. The supplementary submission would ensure the establishment of cost reflective charges and address the issue of possible phasing-in of charges. The supplementary submission does not address the Wastesafe charge, as the information provided in the initial submission and by our trade waste consultants was sufficient to reach a draft decision on this service.

Sydney Water's initial submission relating to trade waste had significant implications for commercial and industrial customers with respect to bill impacts. There were large bill increases and decreases for different customers, and for many of the charges Sydney Water had not developed an approach to phase-in the large potential bill impacts. In making its supplementary proposal Sydney Water has undertaken to ensure that bill impacts on customers are not excessive.

Sydney Water's supplementary submission addressing trade waste issues will be published on our website at the same time as the draft report and stakeholders will have the opportunity to comment on both the draft report and the supplementary submission in the same timeframe. Stakeholder responses to the draft report and Sydney Water's supplementary submission are due by 13 April 2012. We will be holding a public workshop on charges for trade waste prior to finalising our decisions for the final report. We will take these into account in developing our final decisions on Sydney Water's charges to apply from 1 July 2012.

Due to the approach we have taken for trade waste charges and the requirement for Sydney Water to provide a supplementary submission, stakeholders have not had the opportunity to comment on a draft decision. However, we consider that stakeholders will have had an opportunity to provide comment on Sydney Water's proposals through both the trade waste workshops we have conducted and by responding to its supplementary submission.

9.7.2 Wastesafe Charges

Wastesafe is Sydney Water's tracking system for monitoring the generation, collection, transportation and disposal of liquid waste. For the 2012 Determination, Sydney Water has proposed changes to the Wastesafe system. Under the current approach:

- ▼ contractors are responsible for cleaning customers' liquid waste traps and transporting the liquid waste to depots for treatment
- ▼ these contractors bill customers directly for cleaning the traps and transporting the waste
- ▼ customers pay Sydney Water a volumetric charge for processing and treatment of the liquid waste at (privately owned) depots, and depots bill Sydney Water for processing and treatment.

Draft decision

- 1 IPART's draft decision is to approve the introduction on 1 July 2014 of the Wastesafe charges shown in Table 9.19. Prior to 1 July 2014 the current Wastesafe system will remain in place, with charges to be increased by CPI.

Table 9.19 Draft Decision on Wastesafe Charges (\$2011/12)

Charges	Units	2012/13	2013/14	2014/15	2015/16
Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	NA	NA	92.85	92.85
Missed service (pump-out) inspection charge for liquid waste traps <=2kL	\$/liquid waste trap/event	NA	NA	255.75	255.75
Missed service (pump-out) inspection charge for liquid waste traps >2kL	\$/liquid waste trap/event	NA	NA	511.50	511.50
Processing grease trap waste	\$/litre	0.14	0.14	NA	NA

9.7.3 Sydney Water's Proposal

According to Sydney Water's proposed approach contractors will bill customers for cleaning, transport, processing and treatment, thereby taking over responsibility for payments to the depots for processing and treatment. In order to fund the continued running of the Wastesafe system, Sydney Water is proposing to introduce the following charges:

- ▼ a fixed charge per waste trap
- ▼ charges for inspections required as a result of missed pump-outs.

Currently, the costs of running the Wastesafe system are recovered by the difference in charges that waste generators pay to Sydney Water for processing and treatment and the amount that Sydney Water rebates to depots for processing and treatment. This is a margin in between the 2 charges expressed in cents/litre.

Sydney Water's proposed Wastesafe charges are shown in Table 9.20 below.

Table 9.20 Sydney Water's Proposed Wastesafe Charges (\$2011/12)

Charges	Units	2012/13	2013/14	2014/15	2015/16
Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	102.30	102.30	102.30	102.30
Missed service (pump-out) inspection charge for liquid waste traps <=2kL	\$/liquid waste trap/event	255.75	255.75	255.75	255.75
Missed service (pump-out) inspection charge for liquid waste traps >2kL	\$/liquid waste trap/event	511.50	511.50	511.50	511.50

Source: Sydney Water's Submission to IPART's review of Prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 425.

9.7.4 Deloitte's Recommendation

We engaged consultants Deloitte to review Sydney Water's proposed trade waste costs and charges and assess the cost reflectivity of the charges as well as bill impacts on customers. We are interested in ensuring that charges are as cost reflective as possible while customer bill impacts resulting from proposed charges are not excessive.

Deloitte found that the missed service charge for liquid waste traps less than 2kL was reasonable and reflected the costs incurred. This charge is derived in Sydney Water's trade waste model from a base amount of \$250. This cost was based on the costs of the minimum additional inspection charge for industrial/commercial customers (\$173.91 per inspection) plus an estimate of the additional administrative costs associated with handling a missed service (\$74.47 per event) which includes things such as issuing letters, receiving calls and recording the event in the system.

In relation to the fixed waste trap charge, Deloitte identified inconsistencies between the IT costs used by Sydney Water to set charges and the IT costs approved in the contract variation documentation provided as part of the review. Deloitte recommended that Sydney Water reduce its fixed Wastesafe charges to ensure cost recovery based on the costs set out in the contract variation documentation provided by Sydney Water (on the basis of current expectations of the number of traps as set out in Sydney Water's Trade Waste Cost Model).

Deloitte's proposed adjustment to the fixed Wastesafe charge is shown in Table 9.21 below.

Table 9.21 Recommended Adjustments to Wastesafe Charges (\$2011/2012)

	Charges	Units	2012/13	2013/14	2014/15	2015/16
Sydney Water Proposal	Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	102.30	102.30	102.30	102.30
Deloitte Recommendation	Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	92.85	92.85	92.85	92.85

Source: Deloitte, *Review of Sydney Water Trade Waste Costs and Charges*, p 42.

Deloitte also recommended that Sydney Water ensure that its policy for applying missed service charges is made clear to customers prior to their introduction, and that Sydney Water include revenue forecasts for missed service events in the calculation of its Wastesafe charges for future reviews.

We consider that Deloitte's proposed adjustment to the fixed \$/liquid waste trap charge to adjust for differences in IT costs between those that were used to set charges by Sydney Water and those set out in the contract variation documentation is appropriate. We contend that the charges for missed service pump-outs are appropriate given that Deloitte found that the charge for liquid waste traps less than 2 kL was appropriate. However, Sydney Water should provide evidence for the next review that the charge for waste traps greater than 2 kL is appropriate.

9.7.5 Stakeholder Comments

At the public hearing on 22 November 2011, the Waste Contractors and Recyclers Association raised concerns that Sydney Water's proposal may result in more missed services, environmental damage, and less investment in waste processing infrastructure. This is because Sydney Water would be relying on waste processing businesses to invest in infrastructure. They also raised concerns that waste generators may not receive a price signal until up to 3 months after a missed service. We have considered these concerns, however we consider that the charges for missed service pump-outs should provide an appropriate incentive for customers to maintain their grease traps. Additionally, Sydney Water will maintain the Wastesafe system to ensure that customers continue to meet their obligations in relation to servicing grease traps. The system will be funded by the fixed charge per waste trap.

The maintenance of the current rebate system may also discourage innovation and beneficial re-use of grease trap waste.

The Waste Contractors and Recyclers association also stated that the new system may create confusion for generators because they pay a fixed fee per grease trap.

9.7.6 IPART's analysis

We have considered Sydney Water's proposal and Deloitte's recommendations, as well as stakeholder feedback from the Waste Contractors and Recyclers Association and other trade waste stakeholders on the timeframe for phasing in the change to the charging system. We consider that if advanced notice is given to customers of the changes to the system and Sydney Water provides customers with an appropriate level of information ahead of the changes, then customers should be able to adjust to the new system. We consider that 2 years provides an adequate amount of time to prepare and adjust to the new system.

Our draft decision is to introduce the new Wastesafe charges on 1 July 2014 in response to comments from the Waste Contractors and Recyclers Association that businesses would need advance notice to move from the current system and implement the new charges. Sydney Water should also ensure that Wastesafe customers are provided with adequate information well ahead of the changes so they can adjust to the new Wastesafe charging system.

9.8 Miscellaneous charges

9.8.1 Summary of draft pricing decisions

Draft decision

- 31 IPART's draft decision is that the maximum prices Sydney Water can charge for Miscellaneous Charges are as proposed in its pricing submission to IPART.
- 32 IPART's draft decision is that Miscellaneous Charges will be maintained in real terms over the remainder of the determination period.

9.8.2 Sydney Water's submission

In the 2008 determination of Sydney Water's prices, we alerted Sydney Water that we would undertake a detailed review of its miscellaneous charges for the next determination in 2012/13. In response, Sydney Water has completed a comprehensive review of its miscellaneous services¹⁰⁶ which analysed customer requirements and calculated the cost of providing the services in line with our Pricing Principles for Miscellaneous Charges (see Box 9.2 which shows our calculation formula for Miscellaneous Charges). The review identified an opportunity to streamline the number and magnitude of the charges and the structure of the services.

¹⁰⁶ Sydney Water also terms some of these services as Ancillary Services.

Sydney Water proposes to simplify charging arrangements for the services by the introduction of charging bands and proposes a range of structural changes that help reduce the number of chargeable services from 55 to 23. Box 9.1 shows the results of Sydney Water's review.

Box 9.1 Results of Sydney Water's review into its Miscellaneous Charges

- ▼ 9 plumbing-related services will be transferred to the Department of Services Technology and Administration (DSTA) pending passing of new plumbing regulations in April 2012
- ▼ 8 charges could be discontinued
- ▼ a redefined service 'Integrated Service Connection Application' could allow 12 Services to be recovered through 2 current charges and 1 new charge on a common Integrated Service Connection Application form – these charges will only apply to complex connections and not standard connections, 10 of the old services will now be listed with a nil charge
- ▼ 3 Services with different hourly rates could be combined (banded) into a common Sydney Water hourly rate
- ▼ the charge for Workshop Test of Water Meter (currently 1 common charge) needs to vary according to meter size
- ▼ 3 trade waste related ancillary services have been moved to the trade waste services charging schedule
- ▼ the Road Closure Application service could also be reduced to a nil charge
- ▼ 6 other Services could be consolidated into 3 Services of similar nature
- ▼ 2 new charges need to be introduced – they are a Monthly Meter Reading Request by Customer charge (generally industrial customers) and a Replacement of Meter Damaged by Customer charge
- ▼ all chargeable Services could be placed in one of 13 charging bands.

Sydney Water reports that the review found that Sydney Water's costs for most of the miscellaneous services have fallen since 2004/05 because:

- ▼ efficiencies have been delivered in customer operations through the use of more cost effective customer service channels, and implementation of business and process improvements
- ▼ customers now pay third party service providers directly, instead of Sydney Water levying charges and passing these fees on to contracted service providers. For example, Property Link conveyancing brokers charge customers direct for their service
- ▼ lower overheads as a result of efficiency, and the change in calculation of overheads to align with our revised method.

This has allowed a proposed average reduction in charges of 15%. Sydney Water estimates that revenue will decrease from \$11.8 million per annum to \$6.8 million per annum (\$2011/12) in 2012/13. This is largely due to a decrease of \$4 million due to the transfer of several plumbing related services to the DSTA. The remaining decrease is attributed to the reduction in costs for the other miscellaneous services.

Sydney Water also reports that it has adopted a method for calculation of its charges which it considers is consistent with, although slightly different to, our formula.¹⁰⁷ We have established Pricing Principles for Miscellaneous Charges¹⁰⁸ with the main principle being that charges should be cost reflective. The 2 formulae are compared in Box 9.2 below.

Box 9.2 Comparison of IPART's and Sydney Water's Miscellaneous Charges formulae

IPART's Miscellaneous Charges formula:

Miscellaneous Charge = [(direct cost of labour including on costs + transport + equipment) x (business unit overheads)] + direct material cost

Sydney Water has calculated its costs in line with the following formula:

Miscellaneous Charge = Direct payroll cost (including on costs) + direct agency/contract costs + direct business unit overheads (inclusive of transport costs etc) + direct system support costs

Sydney Water has calculated business unit overheads as a cost per transaction rather than as a percentage of direct costs. This is a slight variation to our formula. However, Sydney Water considers that its approach means that overheads do not vary across Services depending on the direct cost inputs.

9.8.3 Submissions from other stakeholders

We did not receive any submissions that commented on Sydney Water's proposals for miscellaneous charges.

9.8.4 IPART's analysis

We have examined Sydney Water's proposals and consider that they will result in a better service for customers and more cost reflective charges.

¹⁰⁷ Sydney Water has not incorporated corporate overheads in its formula for calculating Miscellaneous Charges. Our interpretation of its method is that corporate overheads should be allocated to miscellaneous charges otherwise this would lead to other charges bearing the cost of those overheads. This is a minor difference in principle and outcome but we will consult with Sydney Water on this issue before the next determination.

¹⁰⁸ IPART, *Pricing principles for miscellaneous charges*, September 2004.

We consider that Sydney Water's charging method is a reasonable interpretation of our Pricing Principles and appropriate for Sydney Water's circumstances. Charges will reduce on average by 15% and while Sydney Water's revenue will decrease, the proposed charges are cost reflective overall. There will be increases in some charges, but these are limited in number and many charges will be reduced or set at zero.

After receiving its submission, we asked Sydney Water if it had any information that would indicate the level of satisfaction of those customers that use its miscellaneous services. Sydney Water provided the following evidence¹⁰⁹ in support of its claim that the majority of customers are satisfied with the services provided:

- ▼ there are over 300,000 miscellaneous services transactions per year
- ▼ in the 2010/11 year, Sydney Water only received 26 customer complaints in the delivery of miscellaneous services (1 complaint for every 12,500 applications)
- ▼ the majority of the complaints were around the delay in the availability of products, where information had not been yet provided by an external party and the customer was frustrated with the delay.

In view of the simplification of the charging schedule, the reduction in the level of charges on average and the establishment of cost reflectivity, we have decided to support Sydney Water's proposals for its miscellaneous charges for 2012/13 and to increase the charges annually by the change in CPI for the remainder of the determination period.

9.9 Minor service extension charges

9.9.1 Summary of draft pricing decisions

Draft decision

- 33 IPART's draft decision is that the existing minor service extensions methodology is robust and should remain in place.

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. In 2003, we first regulated the price of minor service extensions. We established a methodology for Sydney Water to set the maximum price.

$$P_0 = \frac{PV(\text{Capital Expenditure}) - PV(\text{Revenues} - \text{Costs})}{PV(\text{Equivalent Tenements})}$$

¹⁰⁹ Meeting between Sydney Water and IPART, 1 December 2011.

Where PV stands for the present value, and the revenues and costs are those attributable to the minor service extension. This formula mirrors the formula for calculating developer charges.

9.9.2 Sydney Water's submission

Sydney Water considers it unfair that customers in growth areas receive a similar service for free, since developer charges were set to zero, while those receiving a minor service extension are charged the same cost.

Sydney Water proposes a change to the way it calculates customer contributions to minor service extensions. Under Sydney Water's proposal all minor service extension customers would receive a subsidy, from Sydney Water, to the value of its average contribution, to supplement developer charges, for connecting properties to its network in growth areas.

9.9.3 IPART's analysis

We consider the methodology we set out in 2003 to be sound. Under Sydney Water's proposal other water and sewerage customers would be forced to subsidise a service they do not benefit from. This subsidy would be made without government direction, unlike the decision to set developer charges to zero. Further, Sydney Water cannot predict how many applications for minor service extensions they will receive. As a result, we have decided to maintain the current pricing formula, as it is the most appropriate means of allocating those costs.

9.10 Exempt land

Draft decision

34 IPART's draft decision is that the existing urinal closet and water closet based sewerage charges for exempt land be removed and replaced with the non-residential sewerage usage charge and discharge allowance.

Exempt properties currently benefit from a discount for water and sewerage services. Currently, exempt properties pay the water usage charge for their water usage and we set a fixed charge per water closet or urinal closet for exempt properties. Exempt properties do not pay the water service or the sewerage service charge.

9.10.1 Sydney Water's submission

In its submission, Sydney Water proposes that the urinal closet charge and water closet charge be removed. Sydney water proposes that from 1 July 2012, exempt properties will pay:

- ▼ a water usage charge
- ▼ a sewerage usage charge for discharges above the allowed threshold.

9.10.2 IPART's analysis

Under Sydney Water's proposed charging structure, exempt properties would pay only the usage charges associated with using the water and sewerage systems. This is consistent with Sydney Water's obligations regarding exempt properties under the *Sydney Water Act 1994*. Further, the sewerage and water usage charges send appropriate pricing signals regarding water usage and sewerage discharge.

We consider that Sydney Water's proposal is sound and as such we have decided to remove maximum charges for urinal closets and water closets and introduce sewerage usage charges for exempt properties.

9.11 Combination and mixed development

Draft decision

35 IPART's draft decision is to set a standard residential water charge and a standard residential sewerage service charge for all mixed development dwellings and occupancies and all dwellings and occupancies in combination strata properties.

9.11.1 IPART's analysis

Mixed Developments are single-owner multi-premises which comprise a mixture of residential dwellings and non-residential shops or suites. They have a common meter (or number of common meters) and as such it is not possible to determine the level of water consumption or the quantity of sewerage discharge for any individual residential dwelling or non-residential occupancy.

Mixed Development properties currently attract:

- ▼ a single meter based water service charge for the entire property
- ▼ a standard residential sewerage service charge for each of the residential dwellings in the development
- ▼ a single standard residential sewerage service charge for the non-residential occupancies regardless of the number of occupancies.

Combination properties are also a mixture of residential and non-residential dwellings and shops/offices, also with only a common meter. The difference between combination properties and mixed developments is that combination properties are strata title properties.

Combination properties currently attract:

- ▼ a single meter based water service charge for the entire property
- ▼ a standard residential sewerage service charge for each of the residential dwellings in the development
- ▼ a standard residential sewerage service charge for each of the non-residential occupancies.

Sydney Water's data shows that on average, there are 6 residential dwellings for every one non-residential occupancy in combination properties. While no equivalent data is available for mixed developments, we assess that the ratio of residential to non-residential occupancies will be similar.

Given the high proportion of residential dwellings as a total of all combination properties, our decision is to set a standard residential service charge and standard residential sewerage service charge for all residential dwelling and non-residential occupancies in both combination properties and mixed developments.

10 Implications of draft pricing decisions for Sydney Water customers

In making our draft determination, we had regard to all the matters in the IPART Act. (Appendix A lists these matters in full and indicates where each matter is discussed in this report.) We are satisfied that the determination achieves an appropriate balance between these matters, particularly the needs and interests of water customers, Sydney Water and its shareholders, general inflation and the environment. This chapter discusses our analysis of the implications for customers; Chapter 11 focuses on the implications for Sydney Water, inflation and the environment.

Before finalising our draft pricing decisions, we assessed their implications for residential and non-residential customers. In particular, we analysed the impacts of our decisions to restructure some prices (discussed in Chapter 8), as well as the impacts of our draft determination overall on the affordability of Sydney Water's services for various customer groups, including pensioners and other vulnerable customers. We also looked at the impact of the previous NSW Government's 2008 decision to limit Sydney Water's ability to levy developer charges for water infrastructure on customers in general, and on customers in the Rouse Hill area.

The sections below summarises our findings, then discuss our analysis of the implications for customers in detail.

10.1 Summary of draft findings on implications for customers

Under the draft determination, prices for Sydney Water's water services decrease in real terms, and as a result many customers will experience falls in their annual water and sewerage bills over the determination period. However, some customers will experience bill increases, because our draft decisions to restructure some prices affect customer groups in different ways.

For most residential customers, the change in their annual water and sewerage bill will be a decrease of greater than 3.8% over the 4-year determination period.

For non-residential customers, most will face annual water and sewerage bill increases over the 4-year determination period.

Residential customers who receive a pensioner rebate will be largely unaffected by bill changes, as the most significant changes for residential customers stem from the restructuring of the fixed water service charge, and Sydney Water provides pensioners with a rebate for 100% of this charge.

It is important to note that the draft prices discussed in this report do not reflect the costs Sydney Water will incur if it is required to purchase drinking water from the Sydney Desalination Plant (SDP) during the determination period. If Sydney Water does need to purchase drinking water from the SDP in any year of the period, the draft determination provides for Sydney Water to pass through the associated costs to customers by adjusting prices in the following year.

The size of these costs and their impact on customers will depend on SDP's operating schedule. However, as an indication, if SDP operates at 100% capacity in any year it will cost Sydney Water an additional \$50 million to \$70 million (\$2011/12) each year.¹¹⁰ For residential customers, this will add an additional \$33 to \$38 (\$2011/12) to their total bill each year. For non-residential customers, the amount it will add to their total bill will depend on their meter size. However, those with an individual 25mm meter will pay an additional \$58 to \$75 (\$2011/12) each year and those with larger meters will pay proportionately higher amounts.¹¹¹

In our 2008 Determination of Sydney Water's prices, we included a mechanism to pass through to customers any increased costs resulting from changes to SCA's charges to Sydney Water for bulk water purchases. We reviewed and set SCA's prices in 2009. In this Determination, we have included all of Sydney Water's bulk water costs from the SCA in our prices. As such, there is no pass through mechanism for SCA's charges in this Determination.

10.2 Impact of price restructuring on different customers

As noted above, our draft determination includes changes in the structure of some prices, which will affect customers differently. As Chapter 8 explains, these changes in price structure do not aim to increase the total revenue Sydney Water recovers from its customer base. Rather, they are intended to improve horizontal equity between customer groups and reduce cross-subsidies. Thus they reflect the principle that customers who impose a similar cost on Sydney Water's network should pay similar charges.

¹¹⁰ The actual amount can vary between \$50 million to \$70 million (\$2011/12) each year because of varying maintenance costs.

¹¹¹ If SDP has to restart and/or shut down over the period, Sydney Water will incur large one-off charges of up to \$5.5 million. If this occurs, this will also add to customer bills.

Our draft decisions on price restructuring result in changes to:

- ▼ **Water service charges for residential customers.** By the last year of the determination period, all residential customers will pay a standard water service charge of \$77.44 (\$2011/12). Those with an individual water meter (mostly houses) currently pay around \$144 and so will pay a lower service charge. Those with a shared meter (mostly apartments) currently pay around \$70.05 (on average)¹¹² and so will pay a higher service charge.
- ▼ **Sewerage service charges for residential customers.** All residential customers will continue to pay the residential sewerage service charge.
- ▼ **Water and sewerage service charges for non-residential customers with an individual 20mm meter.** The water and sewerage service charge for non-residential with an individual 20mm meter is currently equal to the water and sewerage service charge for residential customers. This will be maintained in this determination. However, this does not apply to non-residential customers sharing a 20mm meter.
- ▼ **Sewerage service charges for non-residential customers sharing a meter.** Non-residential properties sharing a meter will no longer be subjected to the minimum service charge of the 20mm service charge for sewerage. This means that non-residential customers who were previously paying the minimum charge will now pay less because they will now pay an equal share of the service charge for the meter they are connected to and will not have to pay the higher 20mm minimum charge.
- ▼ **Sewerage usage charge for non-residential customers.** We have made draft decisions to decrease the usage charge move towards the short run marginal cost associated with discharging, and have decided to reduce the free threshold allowance from 500 kL to 300 kL per year by the end of the determination period. Customers who use less than 300kL per year will face no change in usage charges. Large water users will face decreases as the decrease in the free threshold allowance is offset by the decrease in the usage charge.
- ▼ **Stormwater drainage service charges for residential and non-residential customers.** We have made a draft decision to base these charges on the area of the customer's property. Residential customers currently pay a fixed charge of \$49.08. Over the determination period, this charge will decrease to \$16 for customers with an apartment, and increase to \$86 for those with a house (to reflect the difference in their average property size). Non-residential customers currently pay a fixed charge of \$127.74. For customers with a property of 1000m² or smaller, this charge will decrease to the levels paid by residential customers with similar-sized properties. For those with a larger property, it will increase significantly.

¹¹² Calculated from Sydney Water's 2010/11 AIR projected to 2011/12.

Residential customers

In this draft determination, customers living in individually metered residential properties such as houses will face:

- ▼ A decrease in water bills.
- ▼ Modest increase in sewerage bills (overall it is less than 2% in real terms).
- ▼ An increase in stormwater drainage bills (due to move to area based charging). Houses will pay more and residential properties sharing a meter and individually metered apartments will pay less. There are currently 28% of Sydney Water's customers receiving stormwater drainage services from Sydney Water.

The above effects, combined with our decision on Sydney Water's revenue, lead to an overall decrease in water, sewerage and stormwater drainage bills for customers residing in houses.

Customers living in residential properties on a shared meter, such as apartments, will face:

- ▼ An increase in their water service charge.
- ▼ A modest increase in their sewerage service charge (overall it is less than 2% in real terms).
- ▼ A decrease in their stormwater drainage charge (due to move to area based charging). Residential properties sharing a meter and individually metered apartments will pay less and houses will pay more.

We note that for residential customers living in properties on shared meters, they are charged for their water usage by their strata management company via strata levies and are not billed directly by Sydney Water.¹¹³ However, later in this chapter, we have shown illustrative examples of the changes that some residential customers can expect to face in their annual water, sewerage and stormwater charges over the determination period.

Residential customers living in properties on shared meters can expect to face an increase in their annual water and sewerage charge (service charge billed by Sydney Water and usage charge paid via strata levies) because we have maintained the usage charge at \$2.10 (\$2011/12) and increased their water and sewerage service charges. Residential customers who also receive stormwater services from Sydney Water, will experience decreases in their stormwater charge but the overall impact will be dependant on how much they are affected by the increase in the water service charge to the standard \$77.44 (\$2011/12) for all residential customers living in properties with a shared meter.

¹¹³ Sydney Water bills customers directly for service charges.

There are also individually metered residential apartments that receive services from Sydney Water. These customers will also face an overall decrease in water, sewerage and stormwater drainage bills and the decrease will be larger compared to customers residing in houses. This is because individually metered residential apartments will be charged the lower stormwater drainage charge and will pay a lower water service charge.

Non-residential customers

Individually metered non-residential customers will face:

- ▼ A decrease in water bills (customers on 20mm meters will face a larger decrease since they pay the same water service charge as houses and the water service charge for houses decreases by 46.5% over the determination period compared to the decrease in the water service charge of 32.3% for non-residential properties over the same period).
- ▼ An increase in sewerage bills (the service charge will increase due to a decrease in the usage charge and a decrease in the service charge for non-residential properties sharing a meter – they will no longer be subject to the minimum 20mm meter charge).¹¹⁴ For customers on 20mm meters the increase in sewerage bills will be modest (overall less than 2%) as their service charge for sewerage will also be the same as houses which is lower than all the non-residential sewerage charges.¹¹⁵ Customers on 25mm meters or greater will face larger increases. For large water users, some of the increase in service charge will be offset by the decrease in the usage charge.
- ▼ A decrease in stormwater drainage bills if they are on property less than 1,000m² (which covers small and medium sized properties. The decrease in bills is due to moving to an area based charge and so smaller properties will now pay less).
- ▼ An increase in stormwater drainage bills if they are on property greater than 1,000m² (due to moving to an area based charge for stormwater drainage where larger land areas will pay more).

The above effects, combined with our decision on Sydney Water's revenue, mean that customers on a stand alone 20mm meter will face overall decreases in their water, sewerage and stormwater drainage bills and customers on stand alone 25mm meters or larger will face increases. Customers on larger properties in excess of 1,000m² will face greater bill increases for water, sewerage and stormwater drainage.

¹¹⁴ There is a small effect of the reduction in the free threshold allowance increasing sewerage bills. This has a relatively bigger effect for smaller water users than larger water users.

¹¹⁵ These non-residential customers on stand alone 20mm meter will not be subject to a usage charge for sewerage.

Non-residential properties sharing a meter will face:

- ▼ a decrease in the water service charge
- ▼ a decrease in sewerage service charge if they were previously paying the minimum 20mm meter charge and an increase otherwise
- ▼ a decrease in stormwater drainage charges if they are situated on property less than 1,000m² (due to move to area based charging)
- ▼ an increase in stormwater drainage charges if they are situated on property greater than 1,000m² (due to move to area based charging).

We note that for non-residential customers occupying properties on shared meters, they are charged for their water usage by their strata management company via strata levies and are not billed directly by Sydney Water.¹¹⁶ However, later in this chapter, we have shown illustrative examples of the changes they can expect to face in their annual water, sewerage and stormwater charges over the determination period.

Customers with non-residential properties on shared meters can expect to face a decrease in their annual water and sewerage charge (service charged billed by Sydney Water and usage charge paid via strata levies) if they were previously subjected to the 20mm meter service charge for sewerage - if they were not then they can expect to pay an increase.

Customers with non-residential properties on shared meters who also receive stormwater services from Sydney Water can expect to receive a decrease in annual water, sewerage and stormwater charges if they were previously paying the minimum 20mm meter sewerage service charge and have a property on land that is less than 1,000m². For other customers with non-residential properties on shared meters different circumstances will give rise to different price impacts.

10.3 Impact on the affordability of services for residential customers

To assess the impact of our draft determination on the affordability of Sydney Water's services for residential customers we analysed the overall impact of our pricing decisions on the annual bills for a range of customers. We analysed the impact on:

- ▼ water and sewerage bills for customers with a range of water usage
- ▼ water, sewerage and stormwater drainage bills for customers with a range of water usage
- ▼ water and sewerage bills for pensioner customers with a rebate.

¹¹⁶ Sydney Water bills customers directly for service charges.

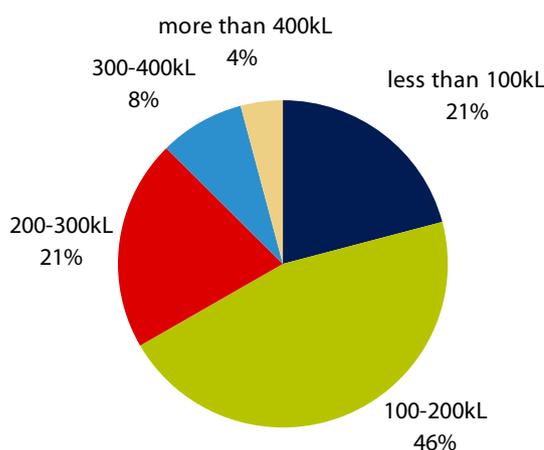
We also looked at the impact on water and sewerage bills relative to average earnings over the determination period, and compared average bills to customers' forecast disposable incomes in the final year of the 2012 determination period.

The section below provides some contextual information on household water usage and metering arrangements in the Sydney area. The following sections discuss the findings of our analysis.

10.3.1 Household water usage and metering arrangements in the Sydney area

According to the results of our 2010 household survey, almost half of Sydney's households use between 100 kL and 200 kL of water per year (Figure 10.1). The average household water usage is 200 kL per year.

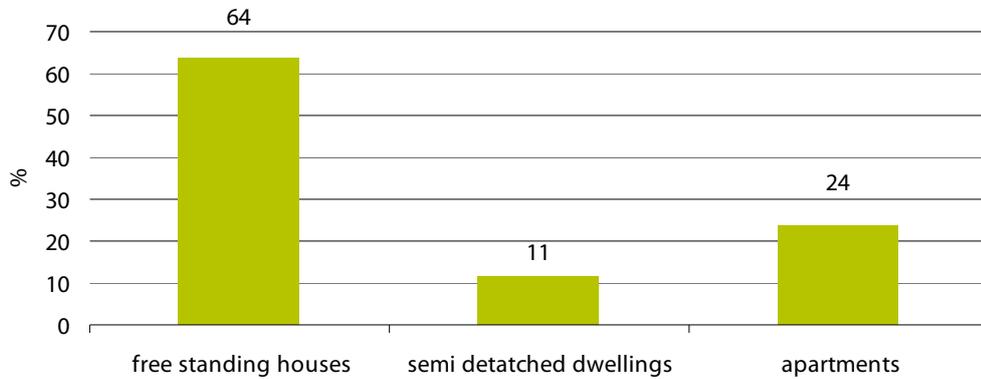
Figure 10.1 Distribution of households by annual water consumption, Sydney (2010)



Data source: IPART, *Residential energy and water use in Sydney, the Blue Mountains and Illawarra, Results from the 2010 household survey*, p 90.

The latest available census data (2006) suggests that around three-quarters of the homes in the Sydney area are free-standing or semi-detached houses, and around one-quarter are apartments (Figure 10.2). It is likely that the proportion of homes that are apartments has changed over the past few years. Nevertheless, the latest available census data suggest that more than half of Sydney Water's residential customers have individual meters.

Figure 10.2 Proportion of private dwellings by dwelling type, Sydney (2006 Census)



Note: Occupied private dwellings. Excludes 'other/not stated' (less than 2% of the total). The data above is according to statistical region.

Note: Free standing houses are separated from other dwellings by at least half a metre. **Semi detached dwellings** have their own private grounds and no other dwelling above or below them. They are either attached in some structural way to one or more dwellings or are separated from neighbouring dwellings by less than half a metre.

Apartments are all dwellings in blocks of flats, units or apartments.

Data source: ABS, 2006 Census QuickStats, for Hunter (Statistical Division), Gosford-Wyong (Statistical Subdivision), Illawarra (Statistical Division), Sydney (Statistical Division) and Blue Mountains (Statistical Local Area).

10.3.2 Impact on residential water and sewerage bills

Our analysis indicates that under the draft determination, individually metered (ie, all those with a free-standing house, most of those with a semi-detached house, and some of those with an apartment) residential customers' annual water and sewerage bills will decrease in real terms, whatever their water usage.

Impact on residential customers with individual meters

Table 10.1 shows indicative water and sewerage bills for residential customers with individually metered properties and a range of water usage under the draft determination. For comparison, it also shows indicative bills for these customers over the current determination period.

The table indicates that over the 2012 determination period, the bills for a customer with average water usage (200 kL per year) will decrease by 5.2% (or \$57) in real terms over the 4-year period. This represents an average decrease of 1.3% per year. The bills of a customer with lower than average water usage will decrease by more than this, while those of a customer with higher than average usage will decrease by less. This is because the decrease in these customers' bills stems from decreases in

their fixed water service charge, and this charge represents a larger proportion of the bill for customers with lower water usage.

Table 10.1 Annual water and sewerage bills for residential customers with an individual meter under the 2008 and draft 2012 determinations (\$2011/12)

	2008 Determination				2012 Determination				Change 2011/12- 15/16
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	
100 kL pa	777	836	866	895	876	864	851	838	-57
% increase		7.6%	3.6%	3.3%	-2.1%	-1.4%	-1.5%	-1.5%	-6.4%
150 kL pa	864	935	970	1,000	981	969	956	943	-57
increase		8.2%	3.7%	3.1%	-1.9%	-1.3%	-1.4%	-1.3%	-5.7%
200 kL pa	951	1,034	1,073	1,105	1,086	1,074	1,061	1,048	-57
% increase		8.7%	3.8%	3.0%	-1.7%	-1.2%	-1.2%	-1.2%	-5.2%
300 kL pa	1,126	1,232	1,280	1,315	1,296	1,284	1,271	1,258	-58
% increase		9.4%	3.9%	2.8%	-1.4%	-1.0%	-1.0%	-1.0%	-4.4%
400 kL pa	1,300	1,430	1,486	1,526	1,506	1,494	1,481	1,468	-58
% increase		10.0%	3.9%	2.6%	-1.3%	-0.8%	-0.9%	-0.9%	-3.8%

Source: IPART analysis.

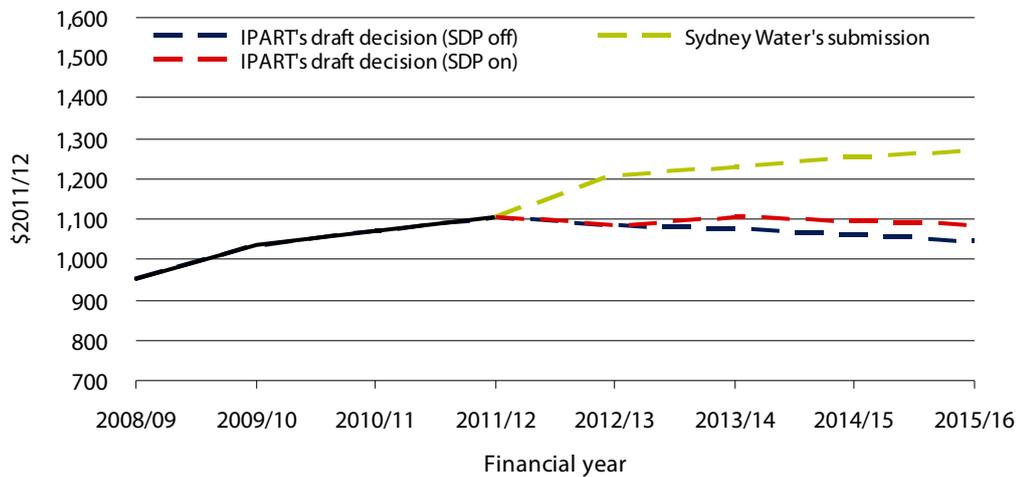
The bill decreases under the Draft Determination reverse the trend over the 2008 determination period, when bills increased fairly significantly eg, in 2009/10,¹¹⁷ and continued to increase over the rest of the 2008 Determination period. For example, the bill increase for a residential customer with an individual meter and water usage of 200 kL per year was about 35% over the 4-year 2008 Determination period or an average of 7.8% per year.¹¹⁸ Had we accepted Sydney Water's pricing proposal for the 2012 determination period, these customers' bills would have continued to increase broadly in line with the trend over the 2008 determination period (Figure 10.3).

Also in Figure 10.3, we have compared the impact of our draft determination on annual water and sewerage bills against Sydney Water's submission for residential customer living in an individually metered property and consuming 200 kL pa. The chart also shows the impact of our draft determination on annual water and sewerage bills with the Sydney Desalination Plant operating at 100% capacity throughout the determination period.

¹¹⁷ The relatively large increase in 2009/10 was mainly due to costs associated with the Sydney Desalination Plant, recycled water and increases in Sydney Water's operating expenditure.

¹¹⁸ The annual water and sewerage bill for an individually metered residential customer using 200 kL per year was \$817.67 (\$2011/12) in 2007/08.

Figure 10.3 Impact of IPART’s draft decision on annual water and sewerage bills compared to Sydney Water’s submission for residents consuming 200 kL per year



Note: If the SDP becomes 100% operational then it will add about \$33 in 2013/14, \$36 in 2014/15 and \$38 in 2015/16 in real terms (\$2011/12) to residential customers' bills.

Data source: Sydney Water submission to IPART 2012 pricing determination p x and IPART analysis.

Impact on residential customers with shared meters

The actual bill increases for residential customers with a shared meter will depend on how much they pay in water service charges now. There is currently no standard charge for such customers. The amount they pay depends on the size of the shared meter and how many units share it. In 2011/12, the average amount customers with a shared meter will pay in water service charges is about \$70.05.¹¹⁹ For those paying this average amount, the move to a standard charge of \$77.44 (\$2011/12) per year in 2012/13 and represents an increase of 10.5% (or \$7.39) in real terms.

We note that properties on shared meters are invoiced by Sydney Water directly for service charges but not for usage charges. Residential customers living in properties sharing a meter are charged for water usage by their strata management company according to the relevant strata plan.

Table 10.2 shows indicative water and sewerage charges that residential customers with a shared meter and a range of water usage could expect to face under the draft determination. This is an average across all residential customers living in properties on shared meters. Table 10.2 indicates that these customers' charges will increase over the 2012 determination period, with a larger increase in the first year due to an increase in their fixed water service charge. The total increase over the determination period is larger for customers with lower water usage because the service charge represents a larger proportion of their total charge.

¹¹⁹ Projected 2011/12 average from Sydney Water's 2010/11 AIR.

Table 10.2 Indicative annual water and sewerage charges for residential customers with a shared meter (\$2011/12)

	Current (2011/12)	2012/13	2013/14	2014/15	2015/16	Change 2011/12- 15/16
100 kL pa per property	820	831	834	836	838	18
%increase		1.4%	0.3%	0.2%	0.2%	2.2%
150 kL pa per property	925	936	939	941	943	18
%increase		1.2%	0.3%	0.2%	0.2%	1.9%
200 kL pa per property	1030	1,041	1,044	1,046	1,048	17
%increase		1.1%	0.3%	0.2%	0.2%	1.7%

Note: For 'current, 2011/12', we have applied the average amount that properties on shared meters pay for water service charges which is about \$70.05. Also residential customers on shared meters will not actually receive a bill from Sydney Water for the amounts shown above. They will receive an invoice from Sydney Water directly for their water and sewerage service charges, but will be paying for their water usage charge via their strata levies. The service charge for water and sewerage combined will increase by 1% from \$621.17 (\$2011/12) to \$627.66 (\$2011/12) by 2015/16.

Source: IPART analysis.

We have also provided some specific examples for properties sharing different meter sizes and indicative impacts of our pricing decisions on their water and sewerage charges. Table 10.3 shows that in percentage terms, the increase in total charges (service charge billed by Sydney Water and the usage charge paid via strata levies) is expected to be larger for customers who live in blocks with a relatively large number of units for their particular meter size. This is because such customers currently pay a relatively small share of the water service charge applicable to the meter size, and so will be more affected by the introduction of a standard water service charge of \$77.44 (\$2011/12) for all residential properties on shared meters.

Table 10.3 Indicative annual water and sewerage service charges for residential customers with units in different sized blocks and sharing different sized meters (\$2011/12)

Water use	Meter size	No of units	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2011/12- 15/16
150 kL pa per unit	40mm	10	913	936	939	941	943	30
				2.5%	0.3%	0.2%	0.2%	3.3%
150 kL pa per unit	65mm	26	914	936	939	941	943	29
				2.4%	0.3%	0.2%	0.2%	3.2%

Note: Residential customers on shared meters will not actually receive a bill from Sydney Water for the amounts shown above. They will receive an invoice from Sydney Water directly for their water and sewerage service charges, but will be paying for their water usage charge via their strata levies. The service charge for water and sewerage combined will increase by 1% from \$621.17 (\$2011/12) to \$627.66 (\$2011/12) by 2015/16.

Source: IPART analysis.

10.3.3 Impact on residential water, sewerage and stormwater drainage bills

Impact on residential customers with individual meters

Sydney Water provides stormwater drainage services to a small proportion of its customers.¹²⁰ The tables below set out the draft determination's indicative impacts on the total water, sewerage and stormwater drainage bills for these customers with varying levels of water usage.

Table 10.4 indicates that the bills of customers with an individually metered house decrease in real terms, regardless of the customer's water usage. However, the size of the decrease is lower than that for similar customers who only receive water and sewerage services (see Table 10.1). This is because stormwater charges for customers in a house increase over the determination period due to price restructuring.

Table 10.4 Annual water, sewerage and stormwater drainage bills for residential customers residing in a house (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2011/12-15/16
100 kL pa	944	936	937	931	924	-20
%increase		-0.8%	0.0%	-0.7%	-0.7%	-2.1%
150 kL pa	1,049	1,041	1,042	1,036	1,029	-20
%increase		-0.7%	0.0%	-0.6%	-0.7%	-1.9%
200 kL pa	1,154	1,146	1,147	1,141	1,134	-20
%increase		-0.7%	0.0%	-0.5%	-0.6%	-1.8%
300 kL pa	1,364	1,356	1,357	1,351	1,344	-21
%increase		-0.6%	0.0%	-0.5%	-0.5%	-1.5%
400 kL pa	1,575	1,566	1,567	1,561	1,554	-21
%increase		-0.5%	0.0%	-0.4%	-0.4%	-1.3%

Source: IPART analysis.

Table 10.5 shows that the bills of customers who reside in individually metered apartments will decrease. The difference between these customers and those who live in houses are lower stormwater charges. The stormwater charge for these customers will decrease over the determination period because of our price restructuring.

¹²⁰ It provides these services to just over 500,000 residential and non-residential customers, mostly located in the inner west and inner south west of Sydney. For the remaining customers, stormwater drainage services are supplied by their local council.

Table 10.5 Indicative water, sewerage and stormwater drainage bills for residential customers residing in an individually metered apartment (\$2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2011/12-15/16
100 kL pa	944	926	907	879	854	-90
%increase		-1.9%	-2.1%	-3.1%	-2.8%	-9.5%
150 kL pa	1,049	1,031	1,012	984	959	-90
%increase		-1.7%	-1.9%	-2.8%	-2.5%	-8.6%
200 kL pa	1,154	1,136	1,117	1,089	1,064	-90
%increase		-1.5%	-1.7%	-2.5%	-2.3%	-7.8%
300 kL pa	1,364	1,346	1,327	1,299	1,274	-91
%increase		-1.3%	-1.5%	-2.1%	-1.9%	-6.6%
400 kL pa	1,575	1,556	1,537	1,509	1,484	-91
%increase		-1.2%	-1.3%	-1.8%	-1.6%	-5.8%

Source: IPART analysis.

Impact on residential customers with shared meters

Table 10.6 shows indicative impacts of our draft determination on the total charges that residential customers residing in properties (same size unit and same water usage) on a shared meter can expect to face for water, sewerage and stormwater charges. Residential customers who live in properties sharing a meter can expect an overall decrease in water, sewerage and stormwater charges. This is because of the decrease in the stormwater service charge due to our price restructuring.

Table 10.6 Indicative annual water, sewerage and stormwater service charges for residential customers with units in different sized blocks and sharing different sized meters (\$2011/12)

Water	Meter size	No of properties	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2011/12-15/16
150 kL pa per unit	40mm	10	962	986	982	969	959	-3
%increase				2.5%	-0.4%	-1.3%	-1.0%	-0.3%
150 kL pa per unit	65mm	26	963	986	982	969	959	-4
%increase				2.4%	-0.4%	-1.3%	-1.0%	-0.4%

Note: Residential customers on shared meters will not actually receive a bill from Sydney Water for the amounts shown above. They will receive an invoice from Sydney Water directly for their water, sewerage and stormwater service charges, but will be paying for their water usage charge via their strata levies. The service charge for water, sewerage and stormwater combined will decrease by 4.1% from \$671.17 (\$2011/12) in 2012/13 to \$643.66 (\$2011/12) by 2015/16.

Source: IPART analysis.

10.3.4 Impact on pensioners

Sydney Water provides rebates for service charges to pensioners. The concessions are 100% of the service charge for water, 83% of the service charge for sewerage, and 50% of the service charge for stormwater drainage.

Eligible pensioners will be largely unaffected by the pricing changes under the draft determination. Table 10.7 below shows that their average annual water and sewerage bill are likely to increase by about \$1 in real terms over the 4-year period.¹²¹ As pensioners receive a concession of 100% of the water service charge, they are unaffected by our draft decision to restructure this charge.

Table 10.7 Annual water and sewerage bills for pensioners (\$2011/12)

	2012	2013	2014	2015	2016	Change 2012-16
100 kL pa	302	302	303	303	304	2
%increase		0.1%	0.2%	0.1%	0.1%	0.5%
150 kL pa	407	407	408	408	409	1
%increase		0.1%	0.1%	0.1%	0.1%	0.3%
200 kL pa	512	512	513	513	514	1
%increase		0.0%	0.1%	0.1%	0.1%	0.2%
250 kL pa	617	617	618	618	619	1
%increase		0.0%	0.1%	0.1%	0.1%	0.2%
300 kL pa	723	722	723	723	724	1
%increase		0.0%	0.1%	0.0%	0.0%	0.1%

Note: Concessions of 100% and 83% have been applied to the water and sewerage service charge respectively.

Source: IPART analysis.

10.3.5 Impact on residential water and sewerage bills relative to average earnings

To help assess the impact of the draft determination on the affordability of Sydney Water's service, we compared the indicative annual water and sewerage bills for customers with an individual water meter and average water usage to actual and forecast average earnings in NSW over the 2008 and 2012 determination periods (Table 10.8). We found that water and sewerage bills have been a relatively stable proportion of average earnings over the past few years, increasing from 1.8% in 2008/09 to 2.0% in 2011/12. Assuming that earnings increase at a rate of 0.98% per year in real terms,¹²² average bills should be less than the recent high of 2% of average earnings, by 2015/16.

¹²¹ Based on an average consumption of 150 kL per year for pensioners.

¹²² NSW Treasury has forecast the wages price index to increase at 3.5% per year until 2014/15 (see NSW Treasury, Half-Yearly Review 2011-12, 15 December 2011 p19). We have assumed that the wage price index will also increase by 3.5% over 2014/15 to 2015/16, and also applied our inflation forecast of 2.5% to forecast a real wage price index of 0.98%.

Table 10.8 Indicative bills for residential customers with an individual meter and average water usage as a proportion of average earnings

Year	Average water & sewerage bill ^a (\$2011/12)	Average earnings NSW ^b (\$2011/12)	Average bill as a proportion of average earnings (%)
2007/08	818	54,305	1.5
2008/09	951	53,487	1.8
2009/10	1,034	54,336	1.9
2010/11	1,073	54,636	2.0
2011/12	1,105	55,169	2.0
2012/13	1,086	55,707	1.9
2013/14	1,074	56,251	1.9
2014/15	1,061	56,800	1.9
2015/16	1,048	57,354	1.8

a Annual water and sewerage bill for a customer that consumes 200 kL per annum.

b Annual average gross (before tax) earnings of full time adults. Average of 4 quarters ending May.

Source: Australian Bureau of Statistics, *Average weekly Earnings Australia, 6302.0*, November 2011 and IPART calculations.

Source: IPART analysis.

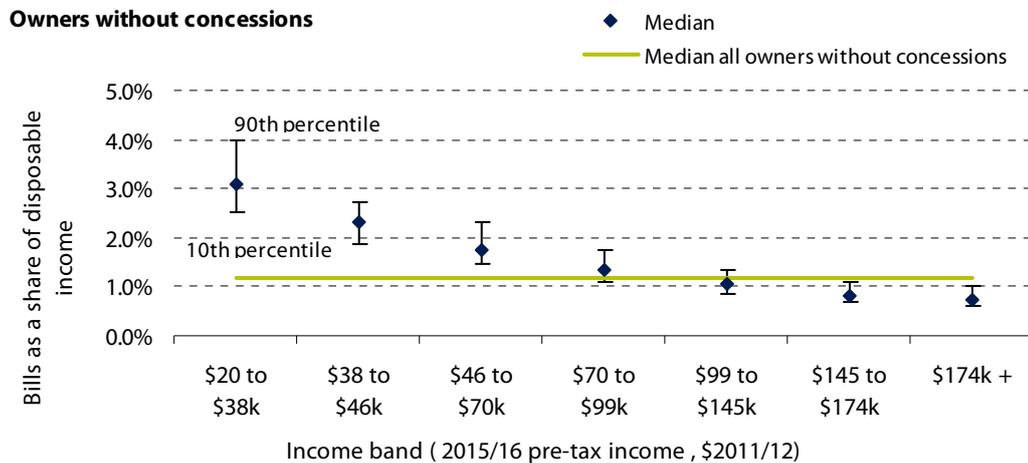
While annual water and sewerage bills for residential customers with a shared meter increase relative to the 2011/12 bills over the determination period, these customers will not pay more in water and sewerage charges than customers with an individual meter and the same water usage. Therefore, the bills of these customers as a proportion of average earnings will be no more than that shown above in Table 10.8.

10.3.6 Residential water and sewerage bills relative to customers' forecast disposable incomes

We also compared our draft pricing decisions at the end of this determination against our forecast of disposable income separated into various income bands. We based this analysis on the water usage and income levels collected in our latest household survey (2010).

Figure 10.4 summaries the results of this analysis for customers not eligible for pensioner concessions. It shows the impact of water and sewerage bills for these customers in 2015/16 as a share of their forecast disposable income, excluding the results for those in the highest and lowest 10% of each income band. For example, it suggests for 80% of customers in the second lowest income band (\$38,000 to \$46,000), annual water and sewerage bills will represent between 1.9% and 2.7% of their disposable income, and for the majority of these customers it will exceed 2%.

Figure 10.4 Distribution of residential water and sewerage bills relative to customers' forecast 2015/16 disposable income for customers without pensioner concessions (\$2011/12)



Note: We have inflated income by 0.98% per annum based on our analysis of NSW Treasury's wage price index forecast and our inflation adjustment of 2.5%.

Data source: Calculations based on IPART's household survey, 2010.

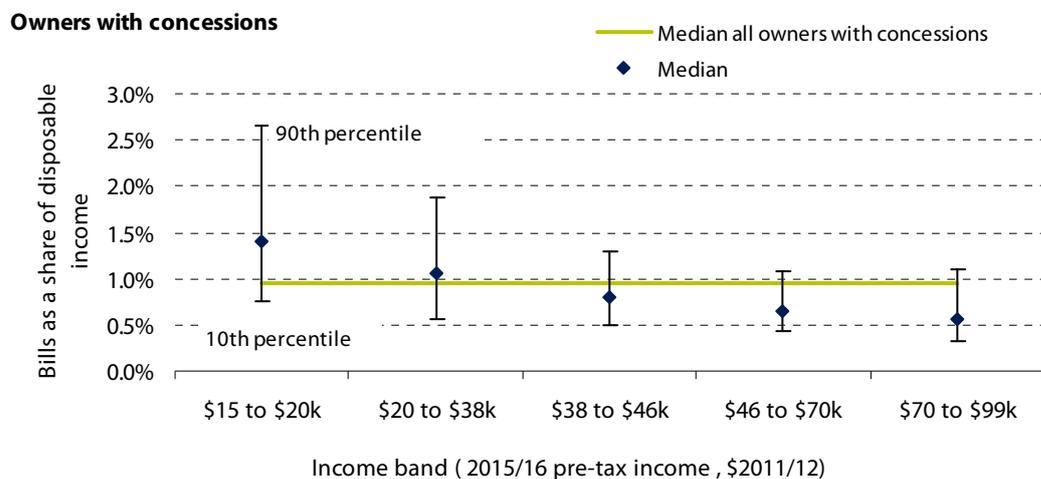
For those in the lowest income band, these bills will generally represent a higher percentage of their income, ranging from 2.4% to 4% for 80% of customers in this band (with 50% of customers in the band having bills representing 3.1% of their income). This range is much wider than the range for customers in higher income bands.

Overall, we consider that our draft pricing decisions will not adversely affect vulnerable customers without concessions, including those in the lowest income categories, given that they generally result in small decreases in customer bills in real terms. We note that the draft decisions mean that by 2015/16, all residential customers will pay the same water and sewerage service charges. Thus the variability between customers' total annual water and sewerage bills in 2015/16 will only be due to differences in their water usage.

Some customers in the lower income categories and who have larger families may consume large amounts of water. These customers may experience some difficulty paying their bills. We note that Sydney Water has a range of social programs aimed at assisting vulnerable customers. These assistance measures are shown in Box 10.1.

Figure 10.5 summaries the results of the analysis for customers who are pensioners. It indicates that for 80% of pensioners in the lowest income band (\$15,000 to \$20,000), water and sewerage bills will represent between 0.8% and 2.7% of their disposable income in 2015/16. For the majority of these pensioners – and the majority in all the other income bands – water and sewerage bills will represent less than 1.5% of their disposable income.

Figure 10.5 Distribution of residential water and sewerage bills relative to forecast 2015/16 disposable income for pensioners (\$2011/12)



Note: We have inflated income by 0.98% per annum based on our analysis of NSW Treasury's wage price index forecast and our inflation adjustment of 2.5%.

Data source: Calculations based on IPART's household survey, 2010.

Box 10.1 Social programs

Sydney Water has a range of social programs aimed to assist vulnerable customers pay their water and sewerage bills. They include:

- ▼ Extended payment options – Sydney Water offers customers flexible extended payment terms and a range of payment options to help them manage their bills. Sydney Water also intends to introduce bill smoothing as another regular payment option.
- ▼ No interest loan scheme – Sydney Water contributes to this scheme to assist low-income households purchase water- efficient appliances. Sydney Water intends to expand the scheme to include general plumbing, sewerage connections and products for hot water systems.^a
- ▼ Payment assistance scheme – under this scheme, participating welfare agencies assess the financial position of customers and provide payment vouchers to customers in financial difficulty.
- ▼ Pensioner rebates – eligible pensioners can receive, on their service charges, a rebate of 100% for water, 83% for sewerage and 50% for stormwater drainage.
- ▼ PlumbAssist program – Sydney Water’s previous retrofit program where domestic properties were fitted with water efficient devices free of charge if they meet certain eligibility criteria will now be extended to include plumbing repairs or replacements.

^a Sydney Water submission to IPART 2012 pricing determination, p 129.

10.4 Impact on the affordability of services for non-residential customers

As for residential customers, we assessed the draft determination’s implications for the affordability of Sydney Water’s services for non-residential customers by analysing its impact on the annual bills for a range of customers. We analysed the impact on:

- ▼ water and sewerage bills for customers with varied water usage and metering arrangements
- ▼ water, sewerage and stormwater drainage bills with varied water usage and metering arrangements.

Non-residential customers may have an individual meter or share a meter, and meters range from 20mm to 600mm in diameter. Those with an individual meter pay the full water, sewerage and stormwater service charge applicable to their meter’s size. Those with a shared meter will now pay an equal share of the service charges applicable for the meter they are connected to, without being subject to a minimum charge (prior to this draft determination, non-residential customers were subject to a minimum sewerage service charge of the 20mm service charge for sewerage).

10.4.1 Impact of water and sewerage bills for non-residential customers with individual meters

Table 10.9 shows indicative annual water and sewerage bills for non-residential customers with individual meters of different sizes and varied levels of water usage. It shows that the bills for customer with an individual 20mm meter and 260 kL water usage a year decrease by 4.7% (or \$57) over the determination period (in real terms). This bill decrease is due to our draft decision to set water service charges for these customers in line with those for residential customers. We estimate that non-residential customers with an individual 20mm meter is expected to comprise around 51% of Sydney Water's non-residential water meter connections in 2012/13.¹²³

However, the bills of non-residential customers with an individual meter larger than 20mm (and larger water usage) may increase over the determination period (in real terms). This is due largely to the increase in fixed sewerage service charges for these customers, which may offset the decrease in their sewerage usage charge. The size of the bill increase in percentage terms is larger for those with lower water usage, as the sewerage service charge makes a larger proportion of their total bill. In addition, those with higher discharges benefit more from the decrease in sewerage usage charges.¹²⁴

Table 10.9 shows for example, that an individually metered non-residential property on a 40mm meter and consuming 1,000 kL of water per year is expected to face water and sewerage bill increases of about 23%. This represents an average yearly increase over the 4 years of about 5.3% per annum. However, larger dischargers may experience bill decreases due to the relatively high proportion of the bill being sewerage usage charges which is decreasing.

¹²³ Sydney Water is estimated to have 96,254 non-residential water meter connections of which 49,522 are estimated to be on individual 20mm size connections in 2012/13.

¹²⁴ We have also reduced the free threshold allowance for sewerage from 500 kL pa to 300 kL pa over the determination period. This has more of an impact for lower water users.

Table 10.9 Indicative annual water and sewerage bills for non-residential customers with individual meters (\$2011/12)

Water usage pa	Meter size (2011/12)	Current (2011/12)	2012/13	2013/14	2014/15	20/1516	Total change
260 kL	20mm	1,231	1,212	1,200	1,187	1,174	-57
%increase			-1.5%	-1.0%	-1.1%	-1.1%	-4.7%
350 kL	25mm	1,628	1,709	1,802	1,912	2,042	414
%increase			4.9%	5.5%	6.1%	6.8%	25.4%
1,000 kL	40mm	4,820	5,057	5,315	5,604	5,934	1,114
%increase			4.9%	5.1%	5.4%	5.9%	23.1%
10,000 kL	100mm	46,354	46,756	47,358	48,252	49,483	3,129
%increase			0.9%	1.3%	1.9%	2.6%	6.8%

Note: Average sewage discharge factors used.

Note: We have applied an average discharge factor of 79%, calculated from information submitted by Sydney Water in early November 2011 in response to requests from IPART.

10.4.2 Impact on water and sewerage bills for non-residential customers with shared meters

As for residential properties sharing a meter, we note that non-residential properties on shared meters are also invoiced by Sydney Water directly for service charges but not for their usage charges. Non-residential customers on properties sharing a meter are charged for their water usage by their strata management company according to the relevant strata plan.

The wide variation in non-residential properties with shared meters makes it difficult to estimate indicative increases in charges for these customers. However, we have shown indicative water and sewerage charges for strata units that are equal in size and water consumption just as an example so that customers can gauge what the impact of our pricing decisions might be on the total charges¹²⁵ that some non-residential properties on a shared meter can expect to pay.

The decrease in indicative water and sewerage charges in Table 10.10 is largely due to the decrease in the water and sewerage service charges. The customers illustrated in Table 10.10 will experience a decrease in the service charge for sewerage because they will no longer be subject to the minimum service charge for sewerage of the 20mm meter service charge for sewerage. For example, currently (2011/12) each strata is paying \$539.53 for their annual sewerage service charge, but for a strata unit connected to a 25mm with 2 other equal strata units, they will now pay \$322.54 (\$2011/12) each in 2012/13.¹²⁶ This represents a 40.2% decrease in the service charge.

¹²⁵ The service charge is billed by Sydney Water and the indicative usage charges are paid by non-residential customers via their strata levies.

¹²⁶ The service charge for sewerage in 2012/13 will be \$967.72 (\$2011/12).

Table 10.10 Indicative annual water and sewerage charges for strata units sharing a meter (\$2011/12)

Water use (kL pa)	Meter size	Equal strata connections	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2011/12-15/16
350 kL pa per unit	25mm	3	1,515	1,232	1,268	1,306	1,347	-168
% increase				-18.7%	2.9%	3.0%	3.1%	-11.1%
350 kL pa per unit	40mm	8	1,667	1,347	1,357	1,371	1,391	-276
% increase				-19.2%	0.7%	1.1%	1.5%	-16.6%

Note: Non-residential customers on shared meters will not actually receive a bill from Sydney Water for the amounts shown above. They will receive an invoice from Sydney Water directly for their water and sewerage service charges, but will be paying for their water usage charge via their strata levies.

We have applied an average discharge factor of 79%, calculated from information submitted by Sydney Water in early November 2011 in response to requests from IPART. We have also distributed the free threshold allowance for sewerage evenly between strata units.

Source: IPART analysis.

10.4.3 Impact on non-residential water, sewerage and stormwater drainage charges

Sydney Water provides stormwater drainage services to a small proportion of its non-residential customers.¹²⁷ Around 90% of these customers are small to medium sized business with a property size of less than 1,000m².¹²⁸ As noted above, we have made a draft decision to set charges for these services based on the customer's property (land) size, as this better reflects the costs Sydney Water incurs in providing stormwater drainage services.

The tables below set out the draft determination's indicative impacts on the total water, sewerage and stormwater drainage bills for these customers with various property sizes, meter arrangements and water usage.

Table 10.11 shows indicative bills for customers with an individual meter. It indicates that a small business with property area under 200m², an individual 25mm meter and water usage of 350 kL per year will face total bill increases of about 17.2% by 2015/16 in real terms. This increase is mainly driven by increases in its sewerage service charge, which more than offset the decrease in its stormwater drainage charges. This is due to the removal of the cross-subsidy that these customers are currently receiving.

¹²⁷ It provides these services to just over 500,000 residential and non-residential customers, mostly located in the inner west and inner south west of Sydney. For the remaining customers, stormwater drainage services are supplied by their local council.

¹²⁸ Sydney Water submission to IPART 2012 pricing determination, p 359.

Table 10.11 Indicative annual water, sewerage and stormwater drainage bills for non-residential customers with individual meters (\$2011/12)

	Meter size	Stormwater drainage charge category	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2011/12-15/16
260 kL pa	20mm	0 - 200m²	1,359	1,262	1,243	1,215	1,190	-169
% increase				-7.1%	-1.5%	-2.3%	-2.0%	-12.4%
350 kL pa	25mm	0 - 200m²	1,756	1,759	1,845	1,940	2,058	302
% increase				0.2%	4.9%	5.2%	6.1%	17.2%
1,000 kL pa	40mm	201 - 1,000m² and low impact	4,948	5,117	5,388	5,684	6,020	1,072
% increase				3.4%	5.3%	5.5%	5.9%	21.7%
10,000 kL pa	100mm	1,001 - 10,000m²	46,482	46,956	47,708	48,752	50,063	3,582
% increase				1.0%	1.6%	2.2%	2.7%	7.7%

Note: We have applied an average discharge factor of 79%, calculated from information submitted by Sydney Water in early November 2011 in response to requests from IPART.

Source: IPART analysis.

Table 10.12 shows the impact of our stormwater pricing decisions on total water, sewerage and stormwater charges that non-residential customers on shared meters can expect to pay. Non-residential customers on properties that are situated on land less than 1,000m² can expect to face an overall decrease in their water, sewerage and stormwater bills.

Table 10.12 Indicative annual water, sewerage and stormwater drainage charges for non-residential customers with shared meters (\$2011/12)

	Meter size	Stormwater drainage charge category	2011/12	2012/13	2013/14	2014/15	2015/16	Change 2011/12-15/16
350 kL pa per strata (3 equal strata units)	25mm	0m² - 200m²	1,643	1,282	1,311	1,334	1,363	-280
%increase				-21.9%	2.2%	1.7%	2.2%	-17.1%
350 kL pa per strata (8 equal strata units)	40mm	201m² - 1,000m² and low impact	1,795	1,407	1,430	1,451	1,477	-318
%increase				-21.6%	1.6%	1.5%	1.8%	-17.7%

Note: Non-residential customers on shared meters will not actually receive a bill from Sydney Water for the amounts shown above. They will receive an invoice from Sydney Water directly for their water, sewerage and stormwater service charges, but will be paying for their water usage charge via their strata levies.

We have applied an average discharge factor of 79%, calculated from information submitted by Sydney Water in early November 2011 in response to requests from IPART. We have also distributed the free threshold allowance for sewerage evenly between strata units.

Source: IPART analysis.

10.5 Impact of 2008 decision to limit Sydney Water's ability to levy developer charges

Prior to December 2008, Sydney Water was able to levy a range of developer charges for water infrastructure. The total revenue it received from developer charges over one determination period was subtracted from the value of its regulatory asset base before rolling it forward to the start of the subsequent determination for price setting purposes. This ensured Sydney Water only earned a return on the funds that it had invested in infrastructure, and not on the developer charges it had raised.

However, in December 2008, the former NSW Government decided that some of these developer charges would be set to zero to help increase housing supply and affordability. This meant that Sydney Water did not raise the expected revenue from developer charges in the 2008 determination period.

Given that Sydney Water collected about \$55 million to \$60 million in developer charges per year in the determination period prior to the 2008 determination period,¹²⁹ our preliminary view is that the decision to set some developer charges at 0 will add about \$30 to a typical residential customers' annual Sydney Water bill over the 2012 determination period.¹³⁰

10.5.1 Impact on Rouse Hill customers

During the 2008 determination, Sydney Water built stormwater drainage infrastructure in a development area in Rouse Hill. As a result of the Government's 2008 decision on developer charges, Sydney Water can not recover the stormwater drainage capital costs from developer charges. We have made a draft decision to accept Sydney Water's proposal to levy a stormwater drainage charge on new customers (residential and non-residential) in Rouse Hill of \$877 (\$2011/12) each year over a 5-year period (see section 9.5).

In addition, Sydney Water currently levies a River Management Charge (RMC) on all customers in Rouse Hill. This charge recovers the operating costs of Sydney Water's trunk drainage assets used on flood-prone land and wetlands in Rouse Hill. We have made a draft decision to allow Sydney Water to collect the RMC from Rouse Hill customers and have maintained this charge in real terms at \$128.58 (\$2011/12) for both residential and non-residential customers throughout the determination period.

As a result of these decisions:

- ▼ new customers in Rouse Hill will pay \$1,005.58 (\$2011/12) per year in addition to their water and sewerage bills
- ▼ existing customers will pay \$128.58 (\$2011/12) in addition to their water and sewerage bills.

These are the only stormwater drainage charges payable to Sydney Water by Rouse Hill customers. They do not pay the area-based stormwater drainage charges outlined above.

¹²⁹ *Sydney Water Annual Information Return to IPART*, September 2011.

¹³⁰ IPART analysis.

11 Implications of draft pricing decisions for Sydney Water, general inflation and the environment

In addition to considering the implications of our draft decision on customers (see Chapter 10), we had regard to the other matters listed in the IPART Act (see Appendix A) – particularly its implications for Sydney Water’s service standards, financial viability and shareholders, and for general inflation and the environment. We are satisfied that the determination achieves an appropriate balance between these matters.

11.1 Implications for Sydney Water’s service standards

Under our draft determination, Sydney Water is expected to achieve both operating and capital efficiency savings. We are satisfied that Sydney Water can achieve these efficiency savings and thus can generate sufficient revenue from these prices to maintain these standards. Indeed, we have set draft prices in the expectation that current services levels will be maintained and that efficiency savings will not be obtained at the expense of service standards.

Sydney Water is licensed under the *Sydney Water Act 1994*. The Act requires Sydney Water to hold an operating licence issued by the Minister and reviewed annually by IPART. This licence contains a number of standards that Sydney Water must meet or risk penalties associated with a breach of licence conditions. Sydney Water’s submission must identify expenditure associated with its regulatory requirements to ensure that adequate funding is made available for it to meet its obligations under both its operating and environmental licences. The operating licence also includes performance indicators against which Sydney Water’s compliance with the licence conditions are reviewed as part of the annual audit process.¹³¹

In its review of Sydney Water’s operating and capital expenditure for this determination, Atkins Cardno noted that Sydney Water performed well over the 2008 determination period. It maintained its service standards related to water pressure, continuity, leakage and sewage overflows and there were no breaches of its operating licence conditions.¹³² This is consistent with the findings of Sydney Water’s operating license audits over the same period.

¹³¹ The 2010/11 audit was completed in January 2012. The report can be accessed at www.ipart.nsw.gov.au

¹³² WS Atkins International Ltd, *Detailed review of Sydney Water Corporation’s Operating and Capital Expenditure*, November 2011, p 16.

Sydney Water has raised concerns over Atkins Cardno's recommendations on the efficient level of Sydney Water's operating and capital expenditures over the 2012 determination period (discussed in Chapters 5 and 6). It has indicated that the efficiency targets incorporated in these recommendations will be difficult to achieve. It also put the view that the proposed capital expenditure that Atkins Cardno recommended be deferred until the next determination should rather be carried out in the 2012 period.

Sydney Water has proposed that at least \$285 million of the identified expenditure savings be reinstated, and has indicated that it is unwilling to cut costs if it means compromising service standards.¹³³ Atkins Cardno provided a response, which can be found on our website. Given the robust analysis provided by Atkins and that Sydney Water provided no new information in support of its claim, we have made a draft decision to accept Atkins Cardno's recommended expenditures, subject to 2 arithmetical corrections confirmed by Atkins Cardno.

We have revised the output measures introduced in the 2008 Determination to reflect the nature of the capital program over the 2012 determination period. These will assist us to identify how expenditure proposals will enable Sydney Water to meet its regulatory requirements. A list of output measures for Sydney Water (along with targets) is set out in Appendix B.

11.2 Impact on Sydney Water's financial viability and shareholders

We are satisfied that our draft determination will not adversely affect the ability of Sydney Water to operate, maintain, renew and develop the assets required to deliver the regulated services over the 2012 determination period. In particular, we are satisfied that this Draft Determination will enable Sydney Water to earn a reasonable rate of return. Our preliminary modelling shows that Sydney Water will also achieve an investment grade credit rating as required by the NSW Government.¹³⁴

In our assessment of Sydney Water's financeability, we have used a dividend payout ratio of 70% rather than the fixed dividends contained in Sydney Water's submission. We have based our 70% dividend payout ratio on NSW Treasury's standard reference point of a dividend payout ratio of 70% of after-tax profit for Government businesses.¹³⁵

¹³³ Sydney Water correspondence 11 January 2012.

¹³⁴ NSW Treasury, *Capital Structure Policy for NSW Businesses*, September 2002, p 2.

¹³⁵ NSW Treasury, *Financial Distribution Policy for Government Businesses*, TPP 09-06, p 5.

11.2.1 Rate of return

The decisions made on pricing means that Sydney Water is able to achieve at least the total revenue requirement in each year of the determination period. Hence, the real post-tax rate of return on Sydney Water's Regulatory Asset Base (RAB) is expected to be at least the target rate of 5.5% in each year of the determination. This calculation is based on the assumptions used in our modelling of the financial impacts of its pricing decisions and depends on Sydney Water achieving the efficiency targets we have set.

11.2.2 Financeability

For most determinations, we base prices on our estimate of the revenue the regulated business will require to meet its efficient costs over the determination period. The 'building block' approach gives the business the opportunity to recover its costs and remain financially viable in the long term. However, it does not necessarily ensure that it will be able to finance its operating and capital costs over the 4 years of the determination period. Therefore, before we finalise our pricing decisions we apply a financeability test to understand how our decisions are likely to affect a business's short-term viability¹³⁶.

Our financeability test involves calculating notional credit ratings and comparing them with a benchmark of an investment grade credit rating of BBB+ as a minimum to be achieved across the determination period. If we identify potential financeability issues, we then consider likely causes of these issues and the options for addressing them.

Our methodology uses a range of financial ratios that are commonly used by credit rating agencies to assess an entity's financial strength and ability to service and repay debt. The ratios are compared with ratio targets that depend on the underlying business risk of the entity. For the 2012 Draft Determination, we assumed that Sydney Water has a 'low risk' business risk profile, which is the lowest level of risk and the same profile that NSW Treasury assigned to Sydney Water in 2008.¹³⁷

The ratios are calculated using actual gearing ratios and forecast cash flows based on our pricing decisions. Previously we have used the interest rates assumed for the WACC in calculating interest expense. Because our objective is to provide a cross-check on the financeability as an external stakeholder (eg, lender or rating agency) would view the business, we consider that the analysis should reflect actual interest

¹³⁶ IPART, *Financeability tests and their role in price regulation*, January 2011.

¹³⁷ NSW Treasury provided information on the business risk category of Sydney Water in 2008. We have used that information in our analysis of financeability for this Draft Determination. We have requested assistance from Treasury to update our financeability methodology to reflect its current approach.

expense. Hence, we have used the businesses' actual and projected interest rates in calculating interest expense.¹³⁸

We assessed the impact of our draft determination on Sydney Water's financial viability using the methodology outlined in our 2011 financeability policy¹³⁹. Our methodology incorporates inputs provided by NSW Treasury which are no longer available. As an interim measure, we have undertaken our financeability assessments using our previous approach. We will obtain further information and update our analysis of Sydney Water's financeability before the Final Determination.

In its submission, Sydney Water, raised concerns about its long-term financial viability and emphasised the need for increased revenue to maintain its financial viability. However, our preliminary financial modelling indicates that the maximum prices set in the draft determination will mean that Sydney Water will maintain at least an investment grade credit rating over the 2012 determination period. Dividend payments

As mentioned previously, we applied a 70% dividend payout ratio in our financeability assessment rather than the fixed dividend assumptions contained in Sydney Water's submission.

We consider that Sydney Water will be able to pay a 70% dividend payout ratio as shown in Table 11.1 and maintain an investment grade credit rating in this determination.

Table 11.1 Implication of IPART's draft decisions on dividends payable by Sydney Water (\$millions, nominal)

	2011/12	2012/13	2013/14	2014/15	2015/16
IPART's draft determination					
Profit after-tax	252	300	283	260	254
70% dividend payout ratio (IPART applied)	176	210	198	182	178
Sydney Water's submission					
Profit after tax	274	407	446	494	545
Fixed dividends	242	245	250	260	270

Source: Sydney Water submission to IPART 2012 pricing determination pp 32 and 33 and IPART.

In its submission, Sydney Water, has included fixed dividends as stated in its 2011-12 *Statement of Corporate Intent* and shown in Table 11.1 above. We note that Sydney Water has indicated that its dividends will be reviewed in consultation with its shareholders following the 2012 price determination.¹⁴⁰

¹³⁸The paper on the financeability tests (*Financeability tests and their role in price regulation*, January 2011) did not discuss the interest rate to be used in calculating the financial ratios. We will set out the options and their relative merits, along with our preferred approach, when we update this paper for the change to the post-tax WACC.

¹³⁹ IPART, *Financeability tests and their role in price regulation*, January 2011.

¹⁴⁰ Sydney Water submission to IPART 2012 pricing determination, p 34.

11.2.3 Impact on the Consolidated Fund

Under section 16 of the IPART Act, IPART is required to report on the likely impact to the Consolidated Fund if prices are not increased to the maximum levels permitted. If this is the case, then the level of tax equivalent and dividends paid to the Consolidated Fund will fall. The extent of this fall will depend on Treasury's application of its financial distribution policy and how the change affects after-tax profit.

Our financial modelling is based on a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit. A one dollar decrease in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 49 cents in total, which is 70% of the decrease in after-tax profit of 70 cents.

11.3 Implications for general inflation

Under section 15 of the IPART Act, we are required to consider the effect of our determinations on general price inflation. Currently, water and sewerage costs in Sydney, contribute 0.29% towards the consumer price index (all groups, 8 capital cities).¹⁴¹ Under the draft determination, the annual average increase of a water and sewerage bill for a customer consuming 200 kL per annum is -1.3% (in real terms). Therefore, the approximate annual impact on general price inflation is -0.0037% points (above changes in the CPI).¹⁴²

11.4 Implications for the environment

The Government is responsible for determining any negative environmental impacts and imposing standards or requirements on Sydney Water to address them. For instance the Office of Environment and Heritage (OEH) regulates Sydney Water's activities including the discharge from its sewage treatment and recycling plants and reticulation systems.

Sydney Water is engaged in a range of environmental related projects, including:

- ▼ SewerFix – this program focuses on repairing sewer main chokes but also on minimising repeat impacts on the environment and customers.
- ▼ Wet Weather Overflow Abatement Program – this program is designed to prevent repeat wet weather overflows to customer properties and sensitive environmental sites.
- ▼ Active Leak Reduction – this program began in 1999 as one component of Sydney Water's strategy to reach its operating licence water conservation targets.

¹⁴¹ Australian Bureau of Statistics, *Consumer Price Index 16th Series Weighting Pattern* (cat. no. 6471.0).

¹⁴² $-0.0037\% = -1.3\% \times 0.29\%$



Appendices

A Matters to be considered by IPART under section 15 of the IPART Act

In making determinations IPART is required, under the IPART Act, to have regard to the following matters (in addition to any other matters IPART considers relevant):

- a) the cost of providing the services concerned
- b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
- c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales
- d) the effect on general price inflation over the medium term
- e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
- f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment
- g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets
- h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body
- i) the need to promote competition in the supply of the services concerned
- j) considerations of demand management (including levels of demand) and least cost planning
- k) the social impact of the determinations and recommendations
- l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

Table A.1 outlines the sections of the report that address each matter.

Table A.1 Consideration of section 15 matters by IPART

Section 15(1)	Report Reference
a) the cost of providing the services	Section 3.3 and chapters 4 to 6 generally
b) the protection of consumers from abuses of monopoly power	Section 11.1 and Chapter 10
c) the appropriate rate of return and dividends	Section 11.2
d) the effect on general price inflation	Section 11.3
e) the need for greater efficiency in the supply of services	Chapters 5 and 6
f) ecologically sustainable development	Section 11.4
g) the impact on borrowing, capital and dividend requirements	Section 11.2
h) impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body	Not applicable
i) need to promote competition	Chapters 9 to 11 generally
j) considerations of demand management and least cost planning	Chapter 7 and 11.4
k) the social impact	Chapter 10
l) standards of quality, reliability and safety	Sections 3.7 and 11.1

B Sydney Water's output measures and capital expenditure program

Sydney Water has provided information on its activity against output measures and capital expenditure over the 2008 determination period until 2010/11 and is provided in Table B.1 and Table B.2 below.

Table B.1 Activity against output measures 2010/11

Output or activity measure	Indicator of activity by 2011/12	Activity 2010/11	Cumulative progress as at 2011
Water services			
1. Renewal of critical water mains	40 km	13	28
2. Renewal/reliability of distribution mains	420 km	79	291
3. Pressure control areas established	112 no.	52	131
4. Bulk water meters: new and refurbished	200 no.	39	124
5. Water Pumping Station Renewals	28 no.	1	6
6. Installation/renewal of SCADA systems	2 sites	1	3
7. Renewal of customer water meters	426,000 no.	64160	197,157
8. Additional generation capacity installed	8.5 MW	4	9
Wastewater services			
9. Renew critical mains	55 km	14	45
10. Rehabilitate sewers subject to dry weather overflows	290 km	61	188
11. Major Sewage Treatment Plants (STP) renewals	North Head	0	Completed in 2009/10
12. Sewage Pumping Station (SPS) renewals	100 no.	27	74
13. Increase capacity at STP	6 no.	1	3
14. Reduce wet weather overflows	7 catchments	2	4
15. Priority Sewerage Program Schemes	5 no.	2	6
Recycled water			
16. Recycled water schemes	1 no.	Replacement Flows Complete in	Replacement Flows Complete in

B Sydney Water's output measures and capital expenditure program

Output or activity measure	Indicator of activity by 2011/12	Activity 2010/11	Cumulative progress as at 2011
		2010/11	2010/11
Stormwater services			
17. Complete Alexandria Canal Improvements to satisfaction of DIPNR by 2009	Water quality improvements 2009/10	0	0
18. Pipe and channel renewal and rehabilitation	15 km	0.4	1.8
Desalination			
19. Desalination Project	Completion by 2009/10	0	Completed in 2009/10

Source: Sydney Water, 2010-11 Activity against output measures and capital expenditure report, 15 November 2011.

Table B.2 Capital expenditure program 2010/11 (\$2010/11, \$million)

Description	Actual 2010/11	Allowed 2010/11	Actual cumulative 2008-2011	Allowed cumulative 2008-2011	Allowed over determination period
1. Maintain water distribution systems - Sydney, Blue Mountains	109	128	413	312	466
2. Sewer Network Reliability Upgrades	87	110	274	286	382
3. Overflow abatement	63	76	182	168	260
4. Water meter replacement program	7	9	24	27	35
5. Growth works to service urban development	81	227	293	395	628
6. Critical water main program	46	18	110	52	75
7. Upgrade Illawarra Sewage Treatment Plants to protect beaches	2	6	19	21	21
8. Upgrade Hawkesbury/Nepean Sewage Treatment Plants	0	0	5	27	29
9. Upgrade reliability of sewage treatment plants	44	32	126	114	150
10. Blue Mountains Sewage	1	0	40	54	54
11. Upgrade to Warriewood Sewerage Treatment Plant to protect oceans	1	4	9	21	21
12. Maintain Stormwater Capacity	0	0	0	0	0
13. Improve Stormwater Quality	3	6	10	31	36
14. Maintenance Plant Renewals	2	4	8	12	16
15. Property Management and Acquisition	23	3	196	79	82
16. South Western Sydney Sewerage Scheme	1	0	4	11	11

Description	Actual 2010/11	Allowed 2010/11	Actual cumulative 2008-2011	Allowed cumulative 2008-2011	Allowed over determination period
17. Information Technology Projects	70	31	206	114	144
18. Brooklyn Dangar Island Sewerage Scheme	1	0	8	2	2
19. Mt Ku-ring-gai Sewerage Scheme	0	0	2	0	0
20. Mulgoa Wallacia Silverdale Sewerage Scheme	0	0	1	1	1
21. North Head STP Performance and Reliability	2	0	70	54	54
22. Recycled Water Projects	0	0	1	5	5
23. Desalination Project	4	0	1,140	1,160	1,160
24. Priority Sewerage Program - Stage 2	1	5	3	9	50
25. Western Sydney Recycled Water Initiative	6	0	179	192	192
26. Hawkesbury Heights Yellow Rock	10	0	46	29	29
27. Freemans Reach, Glossodia and Wilberforce	36	42	107	76	93
28. Appin, Wilton and Douglas Park	9	22	9	38	48
29. Agnes Banks and Londonderry	8	19	22	34	34
30. Diamond Bay/Vaucluse Sewage Transfer Scheme	0	0	0	1	19
Total	616	741	3,506	3,322	4,095

Source: Sydney Water, 2010-11 Activity against output measures and capital expenditure report, 15 November 2011.

Table B.3 below relates to IPART's decision to require Sydney Water to report against output measures as discussed in section 3.7.

Table B.3 Output Measures

Output (or activity) Measure	Output
Water services	
Critical water mains renewals	51 km
Reticulation water mains renewals	287 km
Reservoir reliability program	13 reservoirs re-roofed 24 reservoirs re-lined
Water pumping station renewals program	24 pumping stations renewed
System reliability	At least 3 projects in construction phase
Renewal of customer water meters	384,400 meters
Wastewater services	
Avoid fail sewers	64 km
Dry weather flows	137 km
Wastewater treatment plant renewals	HV renewals at 11 WWTPs

B Sydney Water's output measures and capital expenditure program

Output (or activity) Measure	Output
	Major renewals completed at Cronulla, North Head and Malabar
Wet weather overflow abatement	Northern Beaches, Illawarra and Southern catchments completed

Source: Atkins/Cardno, *Final Report – Detailed Review of Sydney Water's Operating and Capital Expenditure*, November 2011, p 67

Table B.4 Sydney Water's capital expenditure program (\$2011/12, \$million)

Description	2012/13	2013/14	2014/15	2015/16	Total
Water					
Water Flowmeter Upgrade Program	5,248	5,273	-	-	10,521
Critical Water Main Renewals 2013-16	60,373	64,268	65,241	67,189	257,070
Reticulation Water Main Renewals 2013-16	60,485	61,623	61,613	61,408	245,129
Reservoir Reliability Program	15,990	14,965	13,633	13,120	57,708
Water Pumping Station Renewals Program 20013-16	13,325	11,275	7,688	6,663	38,950
Water Filtration Plant Renewals	5,053	4,223	3,137	2,962	15,375
Metro IICATS - R&R Water Remote Terminal Units	6,458	6,458	6,458	-	19,373
System Reliability	2,563	8,200	23,575	38,694	73,031
North West Growth Centre	10,127	31,365	22,263	1,025	64,780
South West Growth Centre	29,482	11,688	8,918	38,950	89,038
Developer Operations Growth Water	19,147	17,917	17,917	17,917	72,898
Infill Growth	9,738	5,330	13,735	17,733	46,535
Greenfield Growth	13,882	23,575	11,275	6,150	54,882
Water Modelling System	3,155	-	-	-	3,155
Sewerage					
Avoid Fail Sewer Rehabilitation Program 2013-16	60,129	60,129	60,129	60,129	240,516
Dry Weather Overflow Reduction 2013-16	17,041	17,041	17,041	17,041	68,163
Cronulla Odour Management	1,128	-	-	-	1,128
Malabar Odour Management	2,337	-	-	-	2,337
Wastewater Treatment Plant Renewals Program 2013-16	29,213	29,213	29,213	29,213	116,850
Wastewater Pumping Station Renewals Program 2013-16	13,633	13,633	13,633	13,633	54,530
Saltwater Ingress Reduction	974	974	974	974	3,895
Replace SP0259 Quakers Hill	20,295	-	-	-	20,295
Malabar WWTP Improvement Program	5,381	14,606	23,831	-	43,819
Castle WWTP Reliability	1,948	4,869	6,816	-	13,633
NSOOS and North Head Odour and	14,606	19,475	14,606	-	48,688

Description	2012/13	2013/14	2014/15	2015/16	Total
Corrosion Management					
Odour and Corrosion Control including Chemical Dosing	4,869	6,816	16,554	-	28,239
Current Unidentified Civil Assets	3,152	3,152	1,576	-	7,880
Wet Weather Overflow Abatement 2013-16	72,570	80,463	15,375	15,375	183,783
Vaucluse Diamond Bay Strategy	1,025	3,690	14,606	29,366	48,688
North West Growth Centre	17,246	21,013	41,174	42,025	121,457
South West Growth Centre	1,743	7,380	13,325	7,688	30,135
Developer Operations Growth Wastewater	28,721	26,876	26,876	26,876	109,347
Infill Growth	11,378	8,405	17,118	29,725	66,625
Greenfield Growth	27,983	34,030	24,908	5,945	92,865
Freemans Reach, Glossodia and Wilberforce Sewerage Scheme	1,538	-	-	-	1,538
Hawkesbury Heights Yellow Rock Sewerage Scheme	615	-	-	-	615
Londonderry Agnes Banks Sewerage Scheme	308	-	-	-	308
Appin Sewerage Scheme	16,593	10,250	-	-	26,843
Future Priority Sewerage Schemes	52,678	60,938	48,377	23,780	185,774
Drainage					
Stormwater drainage Renewals	8,329	9,747	5,125	3,588	26,788
Corporate					
Treatment Plant Office Upgrade	11,101	9,738	7,693	-	28,531
IT - Access Replacement	488	952	3,714	13,136	18,290
Meter Investment Program	11,749	11,312	10,181	9,781	43,023

C Weighted average cost of capital

An important step in our review, is determining the allowance for a return on assets to be included in Sydney Water's notional revenue requirements. As part of our new approach to incorporation to company tax, we decided to use a real post-tax weighted average cost of capital (WACC).¹⁴³

The WACC for a regulated business is the expected cost of its various classes of capital (debt and equity) over the determination, weighted to take into account the relative share in its capital structure. To determine this cost for Sydney Water, we used our usual approach for price setting purposes. This approach involves 2 steps:

1. Estimating the possible range for the WACC, by calculating values for each of the parameters that influence the cost of debt and the cost of equity in the regulated business.
2. Making a judgement on the appropriate point estimate for the regulated business' WACC within this range.

The assumptions and parameters used in estimating the WACC are consistent with those used in commercial corporate valuation.

We then calculated the return on assets by multiplying the regulated asset base by this point estimate.

We consider a real post-tax WACC more accurately estimates the tax liability for a similar well-managed, privately owned business. Under this approach tax will be included as a separate cost building block. We consulted with Sydney Water as part of the decision making process.

The section below summarises our decisions on the WACC for Sydney Water. The subsequent sections outline the key inputs we considered in making these decisions, including Sydney Water's proposed WACC, submission comments, our previous WACC decisions, our analysis and decisions and the effect of our decision to adopt a real post-tax WACC.

¹⁴³ IPART, *The incorporation of company tax in pricing determinations*, December 2011.

C.1 Summary of our decision

We estimated an appropriate range for the industry WACC of between 4.0% and 5.5% with a midpoint of 4.6%. Due to current market uncertainty and historically low parameter estimates we decided an appropriate point estimate for the WACC is the upper bound of our range, 5.5%. Our draft decisions on parameters are shown in Table C.1 below.

Table C.1 Rate of return range and parameters – IPART’s decision for the draft determination

WACC parameters	Long term averages	Draft decision (market values)
Nominal risk free rate	5.4%	3.3%
Inflation	2.5%	2.6%
Market risk premium	5.5% to 6.5%	5.5% to 6.5%
Debt margin	2.0%	3.5% to 4.8%
Debt to total assets	60%	60%
Gamma	0.25	0.25
Equity beta	0.6 to 0.8	0.6 to 0.8
Cost of equity	8.7% to 10.6%	6.6% to 8.5%
Cost of debt	7.4%	6.8% to 8.1%
WACC range (real pre-tax) ^a	6.3% to 7.2%	4.7% to 6.5%
WACC midpoint ^b (real pre-tax) ^a	6.7%	5.5%
WACC range (real post-tax)	5.3% to 6.0%	4.0% to 5.5%
WACC midpoint ^b (real post-tax)	5.6%	4.6%
WACC point estimate (real post-tax)	N/A	5.5%

^a These estimates are not used by IPART, they are included for comparison to Sydney Water’s submission and our previous decisions.

^b The midpoint WACC is calculated using the midpoint of each of the parameters.

We determined the values for the parameters of the WACC based on market conditions over the 20 days to 9 January 2012.

The risk free rate and the debt margin have been affected by market volatility and the prolonged weak market conditions. The change in these factors has potentially created a disparity between these parameters (for which we use short term average data) and the market risk premium (for which we use long term average data). In the current market circumstances, there is some evidence to support the view that expectations for the market risk premium have risen as bond yields have fallen. However, it is difficult to measure these short term variations in expectations for the market risk premiums.

In this draft decision we have adopted a range for the debt margin. We are seeking comment from stakeholders regarding this decision. This issue is discussed further in Appendix D.

To guide our decision making on the point estimate for the WACC we estimated the long term averages of the risk free rate, inflation rate and the market risk premium. We found that using these long term averages, the WACC would have a midpoint of 5.6%. This midpoint is 100 basis points higher than the midpoint of the range we determined for the WACC.

In light of this, we consider it appropriate to use the upper bound of our WACC range, 5.5%, in setting prices for Sydney Water for the next 4 years. We consider that this WACC addresses the higher level of market uncertainty at this time, and Sydney Water's concerns in relation to the risk free rate, equity beta and the market risk premium. We note that this WACC is lower than Sydney Water's proposed WACC.

C.2 Sydney Water's proposed WACC

In its submission, Sydney water proposes a real pre-tax WACC of at least 7.5%. Sydney Water's main concern was around financeability, we have discussed this in section 11.2.

Based on the analysis of Sydney Water's current financial position and expected future cash flows, a WACC of at least the current rate (7.5%) is required to ensure business viability, retain the current credit rating, prevent an increase in borrowing costs and meet debt servicing costs.

A WACC rate above 7.9% may allow Sydney Water to further improve its current credit rating of BBB+, assuming its revenue requirements are accepted by IPART, target efficiency gains are realised and water usage matches demand forecasts for the next determination period.¹⁴⁴

Sydney Water's submission proposes changes to our approach for calculating the following parameters:

- ▼ term to maturity for the debt margin, inflation and risk-free rate - it proposes using a 10-year term to maturity
- ▼ inflation rate - it proposes using a geometric average of the Reserve Bank of Australia's inflation forecasts and inflation band over the term to maturity
- ▼ debt margin - it proposes excluding bonds issued in the United States from the calculation of the debt margin
- ▼ dividend imputation credits - it proposes we adopt a range of between 0 and 0.25 for gamma
- ▼ equity beta - it proposes that their systematic risk profile is higher than we had been previously assessed it to be, and proposed an equity beta of 1.0
- ▼ market risk premium - it proposes that we address internal consistency concerns, arising from the SDP review, through an increase in the market risk premium.

¹⁴⁴ Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 92.

Sydney Water used advice provided to them by VAA Advisers, this advice constituted appendix 14A of their submission. They also received advice from TCorp, this advice was part of appendix 14 of their submission.

Sydney Water's proposal is shown in Table C.2.

Table C.2 Sydney Water's proposal for the rate of return and parameters to calculate the WACC

WACC parameters	Sydney Water's proposal
Nominal risk free rate	4.5%
Inflation	2.6%
Market risk premium	6.5% to 7.0%
Debt margin	3.4%
Debt to total assets	60%
Gamma	0.25
Tax rate	30%
Equity beta	1.0
Cost of equity (nominal post-tax)	11.0% to 11.5%
Cost of debt (nominal pre-tax)	7.9%
WACC (nominal pre-tax)	10.4% to 10.7%
WACC (real pre-tax)	7.6% to 7.9%
WACC (real post-tax) ^a	6.4% to 6.6%

^a Sydney Water did not submit a real post-tax WACC estimate. We have used Sydney Water's parameters to estimate what its submission may have been in real-post tax terms. This is used as a guide only.

Source: Sydney Water's submission to IPART's review of prices for Sydney Water, Table 6.3, p 92.

C.3 Stakeholder comment

The Council of Social Service of NSW (NCOSS) and the Government commented on the rate of return in their submissions.

NCOSS suggested that there is a need for a balance between dividends to Government and increasing prices to customers. NCOSS expressed concern that increasing dividends from an essential service may be coming from increases to customers' bills.¹⁴⁵

The Government's submission recommended careful consideration of the appropriate rate of return.

Sydney Water has a relatively steady cash flow from a secure customer base – factors that IPART could take into account in setting the return on assets – particularly given the potential impact on household water bills.¹⁴⁶

¹⁴⁵ Council of Social Services NSW submission to IPART, October 2011, pp 2-3.

¹⁴⁶ NSW Government submission to IPART's Review of Sydney Water's Water, Wastewater and Stormwater Prices, October 2011, p 7.

The Government added that there is relatively little downside risk for consumption, using Sydney Water's forecasts.

C.4 Our past WACC decisions

Table C.3 shows the final parameters we adopted in the 2012 SDP, 2010 State Water, 2009 Hunter Water and 2008 Sydney Water determinations.

Table C.3 Rate of return parameters – past decisions

	Draft Decision	2012 SDP^b	2010 State Water^b	2009 Hunter Water^b	2008 Sydney Water^b
<i>Nominal risk free rate^a</i>	3.3%	3.9%	5.8%	4.6%	6.1%
<i>Inflation^a</i>	2.6%	2.6%	3.0%	2.5%	3.6%
Market risk premium	5.5% to 6.5%	5.5% to 6.5%	5.5% to 6.5%	5.5% to 6.5%	5.5% to 6.5%
<i>Debt margin^a</i>	3.5% to 4.8%	3.5%	1.8% to 3.8%	2.7% to 3.5%	3.1% to 3.7%
Debt to total assets	60%	60%	60%	60%	60%
Gamma	0.25	0 to 0.5	0.3 to 0.5	0.3 to 0.5	0.3 to 0.5
Tax rate	30%	30%	30%	30%	30%
Equity beta	0.6 to 0.8	0.6 to 0.8	0.8 to 1.0	0.8 to 1.0	0.8 to 1.0
Cost of equity (nominal post-tax)	6.6% to 8.5%	7.1% to 9.1%	10.2% to 12.3%	9.0% to 11.1%	10.6% to 12.6%
Cost of debt (nominal pre-tax)	6.8% to 8.1%	7.4%	7.6% to 9.6%	7.3% to 8.1%	9.3% to 9.8%
WACC range (real pre-tax)	4.7% to 6.5%	5.1% to 6.9%	6.2% to 8.7%	6.0% to 7.8%	6.8% to 8.4%
WACC (real pre-tax) point estimate	6.5%	6.7%	7.4%	6.5%	7.5%
WACC range (real post-tax)	4.6% to 5.5%	4.6% to 5.3%	5.5% to 7.4%	5.3% to 6.6%	5.9% to 7.1%
WACC point estimate (real post-tax)	5.5%	5.3%	6.4%	5.7%	6.5%

^a These parameters reflect market data at the time of the decision.

^b These reviews did not use a real post-tax WACC estimate. We have converted those WACCs to estimate what the decisions may have been in real-post tax terms. This is used as a guide only.

Table C.3 shows there has been a wide variation in the WACC range that we have determined over the years. The differences between the WACC decisions are due to:

- ▼ changes to market conditions - particularly the changes to the risk free rate, inflation rate and debt margin
- ▼ new analysis - in particular the gamma estimate and beta estimate were changed in the SDP review due to new information and the approach to the debt margin has changed for the SDP review

- ▼ changes to methodology – changing to a post-tax WACC has changed our point estimate dramatically, and has also led to changes in the gamma estimate.

Table C.3 highlights the recent changes some of the parameters that are not directly observable from market data, for the SDP review. Due to new and better information, we decided to expand the range of the estimate for gamma and to lower the equity beta. We value consistency to reduce regulatory risk and its associated costs, we only make these changes after an assessment of the available evidence and analysis of the impacts.

C.5 Our analysis of WACC parameters

C.5.1 Nominal risk free rate

The risk free rate is used as a point of reference in determining both the return on equity and the cost of debt within the WACC. In both the CAPM and the cost of debt calculation, the risk free rate is the base to which a premium or margin is added to reflect the riskiness of the specific business for which the rate of return is being derived.

We estimate the risk free rate from the 20-day average of the yield on nominal Commonwealth Government bonds 5-year term to maturity. Sydney Water proposed that we change this term to maturity to 10 years to better reflect utilities' longer term management on cost of capital. This proposal was supported by their consultant, VAA, and by TCorp.

We acknowledge the points made by TCorp in Sydney Water's submission. However, we decided that it is preferable to maintain regulatory consistency with our decision in April 2011 to use a 5-year term to maturity.¹⁴⁷ This ensures the regulatory environment created by our WACC decisions is as predictable and transparent as possible. We note that other jurisdictions, such as the Commerce Commission of New Zealand, have made similar changes.

Our decision to set the point estimate for Sydney Water at the upper bound of the WACC range addresses concerns that the 5-year bond yield is at historical lows and the current difference between the 5-year and 10-year bond yields is much larger than the historical average.

¹⁴⁷ IPART, *Developing the approach to estimating the debt margin – Final Decision*, April 2011, pp 14–28.

C.5.2 Inflation rate

The inflation rate is used to convert nominal parameters into real parameters. We estimate the forward inflation rate using data from the zero-coupon inflation-linked swap market. Sydney Water proposed using a geometric average of Reserve Bank forecasts and the mid-point of the Reserve Bank's targeted inflation band.¹⁴⁸

We consider that relying on swap market data has several advantages over other approaches. Our primary reason for using swap market data is that it is based on market observations and is therefore objective, repeatable and transparent. We also note that the swap market data estimate and Sydney Water's proposed inflation rate are the same.

C.5.3 Debt margin

The debt margin represents the cost of debt that a company has to pay above the nominal risk free rate. The debt margin is related to current market interest rates on corporate bonds, the maturity to debt, the capital structure and the credit rating. Our current approach is to calculate a debt margin that represents the margin over the risk free rate for BBB/BBB rate debt, without specifying the source of this rating. We determine the debt margin from our sample of BBB/BBB+ rated corporate bonds and added 20 basis points for debt raising costs.

Sydney Water proposed we change the term to maturity to 10-years and exclude US issued bonds from the bond sample. Sydney Water recommended using the Bloomberg 7-year fair value yield curve extrapolated to 10 years. Our discussion on the term to maturity was discussed above in C.5.1.

In relation to Sydney Water's proposal to replace US issued bonds with the Bloomberg 7-year fair value curve, we decided to set the debt margin with reference to our current universe of BBB+ rated securities. Private businesses are not restricted to Australian bonds for financing projects, it is therefore reasonable to include these bonds in our sample, as we are setting a benchmark industry WACC. We note that in recent months the Bloomberg Fair Value Curve has been more consistent with observed yields. Hence, there is little difference in the debt premia estimated by the 2 approaches.

In setting the margin, we determined the interquartile range from this sample and added 20 basis points for debt raising costs. This resulted in a debt margin range of 3.5% to 4.8%. The introduction of a range for the debt margin is discussed in Appendix D.

¹⁴⁸ Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, pp 90-91.

C.5.4 Equity beta

The equity beta is a business specific parameter that measures the extent to which the return of a particular security varies in line with the overall return of the market. It represents the systematic or market-wide risk of a security that cannot be avoided by holding it as part of a diversified portfolio. It is important to note that the equity beta does not take into account business-specific or diversifiable risks.

In estimating the equity beta for this review, we considered the views expressed by Sydney Water and its consultant VAA, and by our consultants from the SDP review, Strategic Finance Group (SFG) and Professor Ken Davis. Sydney Water's key proposals related to:

- ▼ the validity of comparing Sydney Water to listed British water utilities
- ▼ Sydney Water being a higher risk business than we had previously assumed requiring an equity beta of 1.0.

Sydney Water considers it inappropriate to compare it with British water utilities. Sydney Water argues that British water utilities have less water revenue volatility, due to less water metering and more stable water sales. Sydney Water also notes that Ofwat (consider systematic and diversifiable risks in their determinations, through mechanisms to adjust cash flows for specific risks.

We considered Sydney Water's arguments; however we did not consider their argument compelling. Sydney Water's risks from water sales are not significant, particularly using Sydney Water's new water forecasts. As mentioned in the NSW Government submission, there is minimal downside revenue risk. It is not consistent with our pricing methodology to consider diversifiable risks in the WACC; we consider diversifiable risks to be better addressed through cash flow adjustments.

In making our decision we considered the information provided by SFG and Professor Davis in the SDP review. In the SFG report they looked at empirical estimates of beta for other water utilities, in Great Britain and the United States. The empirical estimates suggested that the water utility industry beta has a mean of 0.52 to 0.55. SFG preferred to consider a downmarket beta, this is only calculated when the market's returns are lower than the risk free rate, which has a mean of 0.61 to 0.69.¹⁴⁹ Professor Davis recommended that we do not use the downmarket beta and that the beta estimates were otherwise robust.¹⁵⁰ We have discussed the principle of exclusion of diversifiable risk further in the SDP report.¹⁵¹

Our decision is to use a beta estimate of 0.6 to 0.8. We consider that this is the most appropriate range, given the information provided by Sydney Water and their consultants and from our consultants and our own research.

¹⁴⁹ Strategic Finance Group, *Cost of capital parameters for Sydney Desalination Plant, August 2011*, p 5.

¹⁵⁰ Davis, K., *Cost of capital parameters by Sydney Desalination Plant: by SFG Consulting, An initial review for IPART, August 2011*, pp 4-5.

¹⁵¹ IPART, *Review of water prices for Sydney Desalination Plant Pty Ltd, December 2011*.

C.5.5 Market risk premium

The market risk premium (MRP) is the expected return over the risk free rate that investors would require to invest in a diversified portfolio of risky securities. Our current approach is to estimate the MRP based on the long term historical arithmetic average market returns over the risk free rate. From this and other recent determinations, this approach results in an MRP of 6.0%.

In making our decision on the MRP we considered Sydney Water's submission, which proposed a MRP of 6.5%, and VAA's report, which recommended a MRP of at least 8.0%. VAA recommended that the market risk premium be adjusted in response to the historically high debt margins for BBB rated debt. VAA argued that it is inconsistent to use a spot priced debt margin and a historical MRP, stating:

... there are no impediments in moving across debt and equity markets and therefore one would expect that the MRP on equity to behave in a manner that mimics the debt market—the higher the average risk premium on the riskier end of the debt market should also be prevalent in the equity market.¹⁵²

VAA have developed an approach for addressing short term variations in the market risk premium which is interesting, but we consider it requires further testing and observation over time. Given this, VAA suggested that we should use a market risk premium of 8% for this price review.¹⁵³ We note that research has shown that most Australian investment practitioners have continued to use a market risk premium of 6% since the credit crisis of 2008.¹⁵⁴ Other regulators in Australia also commonly use 6%. The AER recently dropped from 6.5% to 6%.

We decided to use a MRP estimate of 5.5% to 6.5%, the same as we have used for our past determinations. This helps maintain a consistent regulatory environment.

C.5.6 Gearing ratio and dividend imputation credits (gamma)

The gearing ratio is the ratio of debt to total assets in the business's capital structure. In determining this ratio, our current practice is to adopt a benchmark capital structure (rather than the actual financial structure of the regulated entity) to ensure that customers will not bear the costs associated with an inefficient financial structure.

Gamma is the dividend imputation factor. Under the Australian dividend imputation system, investors receive a tax credit (franking credit) for the company tax paid before the dividend. This recognises the fact that companies already paid tax on profits from which the dividends are paid. Since July 200, imputation credits

¹⁵² Value Adviser Associates, *Dealing with risk in the regulatory building block approach: A report for Sydney Water*, August 2011, p 19.

¹⁵³ Ibid, p 25.

¹⁵⁴ Value Adviser Associates, *IER – a conservative and consistent approach to WACC estimation by valuers*, August 2009, pp 9-11.

in excess of personal tax liabilities have been available as a cash rebate. International investors cannot utilise imputation credits.

The value of imputation credits is represented in the CAPM by 'gamma' (γ). The rationale for including the value of gamma in the CAPM is that if investors are receiving a lower return than if there were no tax credits attached to this investment.

In the SDP review we concluded that the gamma range should move from 0.3 to 0.5 to 0 to 0.5. We are currently completing a review on the appropriate estimate for gamma and decided to use 0.25 as our gamma estimate. It is the midpoint of our range for SDP and the upper bound of Sydney Water's proposal. As the gamma is used to estimate tax expense under a post-tax WACC, we now have to use a point estimate of gamma rather than a range.

C.6 Our decisions on a pre-tax WACC basis

This section shows our draft decisions, which use a separate tax allowance and a real post-tax WACC, on the basis of our former pre-tax WACC approach. Our draft decisions use a real post-tax WACC of 5.5% and using the same parameters we estimate a pre-tax WACC of 6.5%.

Table C.4 shows our calculation of the draft decisions on Sydney Water's notional revenue requirement using a pre-tax WACC of 6.5% compared to our draft decision using a post-tax WACC of 5.5% and a tax allowance.

Table C.4 Tax implied in real pre-tax WACC and tax allowance approach (\$m, \$ 2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16	Total
Notional revenue: real pre-tax WACC	2,292.9	2,319.6	2,358.6	2,391.6	2,416.8	9,486.6
Notional revenue: real post-tax WACC and separate tax allowance	N/A	2,197.5	2,237.1	2,273.2	2,299.0	9,006.8
Difference in notional revenue		-122.1	-121.5	-118.5	-117.7	-479.8

The new approach results in a reduction in notional revenue of \$484.1 million, which reflects the different treatment of tax under the 2 approaches.

Table C.5 shows how each building block is affected by our new approach to tax. The \$123.1 million reduction in the notional revenue requirement in 2012/13 is due to a decrease in the return on assets of \$125.5 million partially offset by our \$4.4 million estimate of Sydney Water's tax allowance.

Table C.5 Rate of return under a pre-tax and post-tax WACC framework

	2012/13	2012/13	
	Pre-tax 6.5%	Post-tax 5.5%	Difference
Return on assets	837.1	711.6	-125.5
Return on working capital	7.9	5.9	-2.0
Tax allowance	–	4.4	4.4
Total	845.0	721.9	-123.1

D Debt margin range estimate methodology

Our draft decision on the cost of capital is explained in Appendix C. As part of our draft decision on the cost of capital, we are proposing to change the way we express the debt margin from a point estimate to a range.

Our debt margin estimate is based on the yields of bonds in our proxy bond portfolio. The inclusion of bonds into this portfolio is determined according to a set of criteria outlined in an earlier decision (the April 2011 decision).¹⁵⁵ The April 2011 decision also specified that the debt margin is set as a point estimate based on the median of the yields of the bonds in our proxy bond portfolio.

We are concerned that the impact of current market uncertainties is not fully reflected in a point estimate of the debt margin. We believe that a range better takes into account current market uncertainties than a point estimate. There is now a significantly larger sample of bonds in our proxy bond portfolio. We have therefore decided to determine the debt margin for this draft decision using the interquartile range of our proxy bond portfolio. The median of the bond yields is still used to estimate the debt margin in calculating the midpoint WACC estimate.

We are not proposing any changes to how we calculate the debt margin.

A change to using a range for the debt margin will be applied to future pricing decisions, and we seek comment from stakeholders on the following:

1. Do you agree that using a range for the debt margin is appropriate given market uncertainty and consistency with our other WACC parameters?
2. Will applying a range for the debt margin have any ramifications on future pricing decisions in water and other industries?
3. How do we address fluctuations in the sample size used to calculate the debt range?
4. Do you agree with using the interquartile range for the debt margin? If you do not agree, why?

A final decision on the appropriate range and/or point estimate of the debt margin will be released as part of our 2012 final Sydney Water Corporation Determination.

¹⁵⁵ IPART, *Developing the approach to estimating the debt margin – Final Decision*, April 2011.

This appendix outlines:

- ▼ reasons why we propose to use a range estimate for the debt margin
- ▼ the methodology we use to estimate the debt margin range
- ▼ likely implications for future decisions.

D.1 Why use a range for the debt margin?

This section addresses the reasons why we propose using a range for the debt margin and what other regulators do.

D.1.1 Market uncertainty

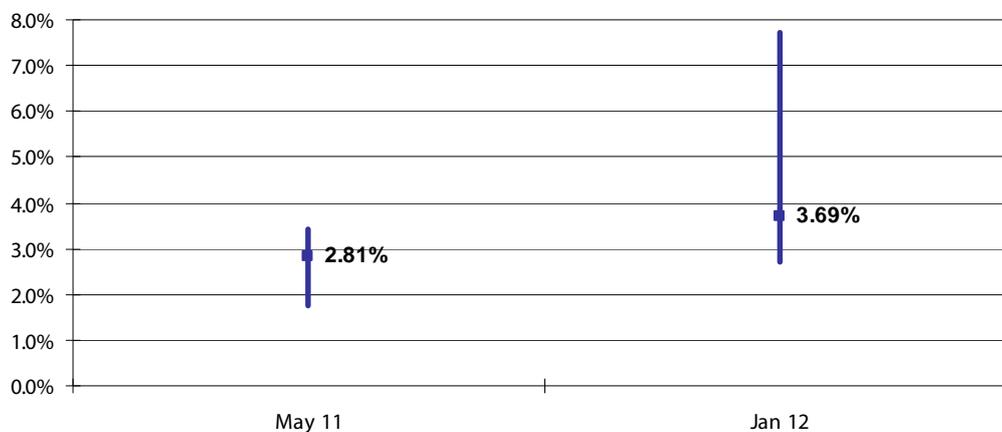
In our April 2011 decision we considered a number of statistical approaches to derive a range of values or a point estimate for the debt margin. Our final decision was that the median is the most suitable statistical approach to estimate the debt margin. This approach has several advantages over our previous approach of using the average of the highest and lowest yields in our proxy bond sample. Importantly, it removes weight from outliers and indicates the central tendency of a small sample.

Prior to the April 2011 decision, our approach of using the upper, lower and midpoint values in our WACC calculator placed weight on extreme observations, which can introduce distortion to the debt margin estimate. Therefore, we considered that it did not result in values that reflect the commercial cost of capital for the benchmark firm.

We are concerned that our current methodology of using the median to estimate the debt margin does not fully reflect the recent increases in uncertainty in the debt market. Figure D.1 shows that the range of yields of bonds in our proxy portfolio widened significantly between May 2011 and January 2012, with the following basis point increases:

- ▼ the median increased by 90 basis points
- ▼ the range increased by 337 basis points.

This may indicate some repricing of risk in the debt market, which is not reflected in the median.

Figure D.1 Debt margin total range and median

Source: Bloomberg, IPART analysis.

D.1.2 Larger sample size

At the time of our 2011 decision on the debt margin, a limited number of bonds met the selection criteria for our proxy bond portfolio:

- ▼ Prior to April 2011, bonds had to be issued in Australia by an Australian company under a BBB+ to BBB credit rating with a maximum term-to-maturity of 10 years.
- ▼ After our 2011 decision, we relaxed our selection criteria by including Australian BBB+ to BBB rated bonds issued in the US market with a maximum term-to-maturity of 5 years.

This change in methodology resulted in a larger sample size. For example, in April 2011:

- ▼ the Australian bonds-only sample portfolio included 10 bonds
- ▼ our new sample portfolio included 22 bonds.

The proxy bond portfolio used for this draft decision includes 25 bonds.

Given that we have a larger sample of bonds in our sample portfolio, we consider that it is appropriate to use a range for the debt margin.

We will monitor our proxy bond portfolio and in the future may reconsider our decision to use a debt margin range if the number of bonds included in the portfolio declines significantly.

D.1.3 Consistency with other WACC parameters

We use ranges rather than point estimates for many of our WACC parameters, such as the market risk premium (MRP) and the equity beta. We do this to account for the uncertainty involved in their estimation.

In our April 2011 decision on the debt margin, we noted that the use of the median may not be consistent with our approach to setting other WACC parameters. We use a range and midpoint valuation for other WACC that are inherently uncertain in their estimation (the MRP, gamma and equity beta).

Using a range for the debt margin ensures that the WACC parameters are estimated in a consistent manner and reflect the uncertainty involved in their estimation.

D.1.4 What do other Australian regulators do?

Table D.1 summarises current practice of other Australian regulators.

Table D.1 Australian regulatory decisions on the debt margin

Regulator / industry	Debt margin estimate	Methodology
Australian Energy Regulator (AER) / Gas Access Envestra (2012, final, Australian Competition Tribunal decision)	Point estimate	On appeal: BBB 7-year Bloomberg fair value curve with maturity adjustment to 10-year maturity
Essential Services Commission of South Australia (ESCOSA) / Water (2011, draft)	Point estimate	BBB 7-year Bloomberg fair value curve with maturity adjustment to 10-year maturity
Economic Regulation Authority of Western Australia (ERAWA) / Gas Access Dampier to Bunbury natural gas pipeline (2011, final)	Point estimate	Simple average of 4 different bond portfolios with different term-to-maturities
Queensland Competition Authority (QCA Gladstone Water Board (2010, final)	Point estimate	BBB 5-year Bloomberg fair value curve with maturity adjustment to 10-year maturity
Essential Services Commission, Victoria (ESC) / Metropolitan Melbourne water price review (2009, final)	Range	Based on advice from the Treasury Corporation of Victoria for credit ratings between BBB to AA+

Source: Different regulatory decisions.

Table 10.3 shows that most Australian regulators use a point estimate for the debt margin. Regulators who tend to use a point estimate rather than a range tend to estimate all WACC parameters as point estimates.

D.2 What methodology do we use to estimate the range?

We currently use the median of the total sample of bonds included in our proxy bond portfolio. Prior to our April 2011 decision on the debt margin, we used the average of the highest and the lowest yields of our proxy bond portfolio.

For this draft decision we use the interquartile range for the upper and lower bound of the debt margin and the median to establish the midpoint.

The interquartile range is the difference between the first (or the lower quartile) and the third (or the upper quartile). The upper quartile represents the top 25% of values in a set of data and the lower quartile represents the bottom 25%. The interquartile is a measure of statistical dispersion and describes the middle 50% of data values. It is generally preferred to the total range as it removes the effect of extreme outliers.

To establish the interquartile range we used the Microsoft Excel function:

- ▼ =QUARTILE(array,1) for the first quartile
- ▼ =QUARTILE(array,3) for the third quartile.

We then used the median as the midpoint of the range.

D.3 What are the implications for future decisions?

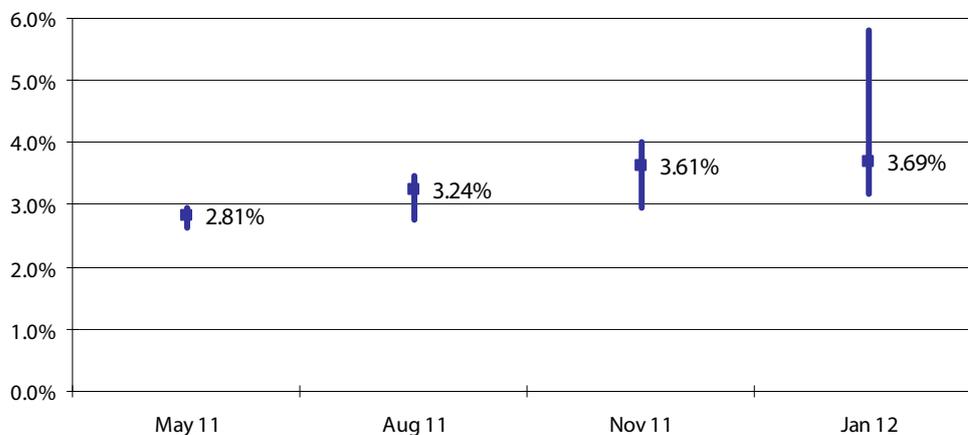
We believe that using a range instead of a point estimate will produce a debt margin which more accurately reflects the uncertainty involved in its estimation. A debt margin range is also consistent with the way we estimate other WACC parameters such as the equity beta and the market risk premium.

Under our proposed methodology we will still be using the median to establish the midpoint. This will result in no change in the midpoint compared to our current methodology, but we will add a wider range to the WACC estimate by introducing the interquartile range for the debt margin.

D.3.1 Impact on WACC decisions

Figure D.2 shows the interquartile ranges and the medians in May, August and November 2011 and January 2012.

Figure D.2 Debt margin interquartile range and median



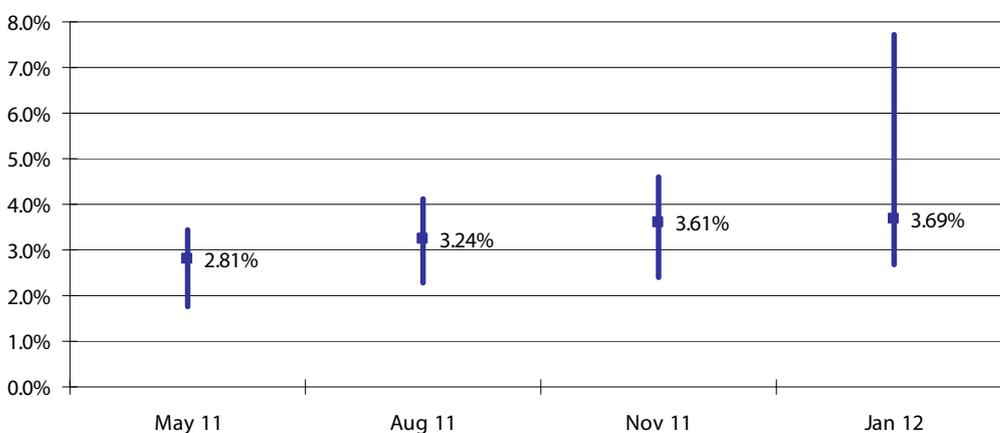
Data source: Bloomberg, IPART analysis.

Figure D.2 shows that the interquartile range increased from a range of 2.6 to 3.0, to a range of 3.2 to 5.8% between May 2011 and January 2012. There is little change in the median during the same period.

The widening of the range between November 2011 and January 2012 can be explained by the fact that 6 new bond issues of Australian companies in the US market have been included in our sample bond portfolio. These bonds were included according to our selection criteria outlined in our April 2011 decision.

Figure D.3 shows the total debt margin range, or the high and low of all the bonds in our proxy bond portfolio and the median of the highest and lowest estimate.

Figure D.3 Debt margin range of proxy bond portfolio and median



Data source: Bloomberg, IPART analysis.

Figure D.3 shows that using the total range of our sample portfolio of bonds results in a significantly wider range than the range generated using the interquartile range in Figure D.2.

Advantages and disadvantages of methodologies

Table D.2 compares the advantages and disadvantages of using the median as a point estimate or a range.

Table D.2 Advantages and disadvantages of methodologies

	Current methodology	Previous methodology	Proposed methodology
	Point estimate (median debt margin)	Total range high and low and average	Interquartile range and median
Advantages	<ul style="list-style-type: none"> ▼ Takes into account all observations 	<ul style="list-style-type: none"> ▼ Reflects full range 	<ul style="list-style-type: none"> ▼ Reflects changes in the widths of the range (see Figure E.2) ▼ Excludes outliers
Disadvantages	<ul style="list-style-type: none"> ▼ Does not fully reflect a widening or narrowing of the range. 	<ul style="list-style-type: none"> ▼ May place too much weight on outliers (see Figure E.3) 	<ul style="list-style-type: none"> ▼ Outliers may be important if there is a structural shift in risk pricing

Source: Various regulatory decisions.

For the purpose of calculating the debt margin for our draft decision, we used:

- ▼ the interquartile range of our proxy bond portfolio for the upper and lower bounds
- ▼ the median of the yields for the portfolio of bonds as the midpoint.

We believe that this methodology:

- ▼ reflects changes in the widths of the range
- ▼ removes extreme outliers from the estimate
- ▼ is generally consistent with the methodology we use to estimate other WACC parameters.

E Long Run Marginal Cost of Water

In past reviews, IPART has set water usage charges with reference to long-run marginal cost (LRMC) calculated on an average incremental cost (AIC) basis.

Sydney Water has estimated LRMC. These calculations are discussed below. We have also calculated LRMC. Our calculations are outlined in section E.7.

Sydney Water's estimates of LRMC range from \$1.76 to \$2.50/kL. Our estimates range from \$1.82 to \$2.54/kL. The mid points of these ranges are \$2.13 and \$2.18/kL respectively. The current (2011/12) \$2.10/kL water usage price paid by all Sydney Water's customers is slightly below the midpoint of the range.

Our draft decision is to set usage prices with regard to the mid point of that range and maintain the usage charge at current levels (in real terms) for 2 reasons:

- ▼ Firstly, if the water usage charge was set towards the lower end of the range this would have the effect of increasing fixed water service charges. This would exacerbate the impacts of the proposed structural changes to the fixed charges.
- ▼ Secondly, we consider that there is a risk discount rates being applied to benefits may be too high. Given the calculation of LRMC is highly sensitive to the discount rate applied there is a probability that the future benefits are underestimated. Hence the high end of the LRMC estimates may be over-inflated.

For this draft determination, we have increased the fixed water service charge for flats and units so that it transitions to the same level as houses. A reduction to the water usage charge would exacerbate the impact of an increased fixed charge on consumers.

As the current usage price of \$2.10/kL lies close to the middle of the range we decided to maintain the usage charge in real terms. Given our view that a detailed review of discount rates would see a lower number used in the future we held the usage charge constant in real dollars to avoid a large decrease in the usage price in the future.

E.1 Current and Proposed Water Usage Charge

In the 2008 Sydney Water price determination, we set the usage charge at the long-run marginal cost (LRMC) of the next increment of supply. This was taken to be the upgrade to 500 ML/d of the Kurnell desalination plant. The water usage price is now \$2.10/kL (\$2011/12).

Sydney Water proposed the water usage charges in Table E.1 for the 2012 Determination.¹⁵⁶

Table E.1 Sydney Water proposed water usage charges (\$2011/12)

2011/12	2012/13	2013/14	2014/15	2015/16
2.10	2.20	2.25	2.30	2.35

This was based on Sydney Water's estimates of LRMC which ranged between \$2.00 and \$2.50. Sydney Water used the following inputs and assumptions in its calculations of LRMC:

- ▼ an expansion of the Kurnell desalination plant to stage 2 is the next supply augmentation
- ▼ capital cost of the expansion of the desalination plant is \$1 billion
- ▼ operating cost of the additional capacity of the plant is \$80 million per annum
- ▼ additional output of the expanded plant is 250ML/day or 91.25 GL/year.

The usage price level has no impact on Sydney Water's total revenue. Firstly, we determine the annual revenue requirement for water. We then use the usage price and demand forecast to determine the expected usage revenue. The fixed service charges are set to recover the residual.

Using both Sydney Water's and our own calculations of a range for LRMC, and having regard to the midpoint of the ranges, our draft decision is to maintain the usage charge for water at \$2.10/kL in real terms over the 2012 Determination. This will continue to send a strong usage signal to consumers about the costs of consumption, as per the National Water Initiative Pricing Principles.

¹⁵⁶ Sydney Water submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, September 2011, p 110.

E.2 Analysis

Using the LRMC of the next increment of augmentation to calculate the usage price of water provides a price signal of the incremental costs of consumption. To determine LRMC, the generally accepted practice is to calculate the net present value (NPV) of the capital and operational costs of the augmentation project over its expected life, and divide this by the NPV of the benefits over the same period. The results of modelling are shown in section E.7.

Inputs and Assumptions

Inputs and assumptions that IPART made in its calculations of LRMC include:

- ▼ system augmentation will not be needed until 2035
- ▼ an expansion of Kurnell desalination plant to stage 2 is the next supply augmentation¹⁵⁷
- ▼ asset life equal to 30 years¹⁵⁸
- ▼ we used the capital costs identified in 2008 for the stage 2 augmentation and inflated these to \$2011/12
- ▼ we used the same operating costs for stage 2 of the desalination plant as stage 1, as advised by Sydney Desalination Plant Pty Ltd
- ▼ LRMC calculations based on capacity utilisation of 75% and 100% maximum capacity – these capacity utilisation rates determine the benefits of the plant
- ▼ discount rates of 6% and 7% real.

These inputs and assumptions are outlined in detail below. A description of the process of calculating LRMC is provided in section E.7.

E.2.1 Timing of next augmentation

This section looks at system yield, changes in system yield, consumption, and consumption growth projections to determine the timing of the next augmentation of supply.

¹⁵⁷ This is the same augmentation used by Sydney Water in its calculation of the LRMC range.

¹⁵⁸ This is a conservative assumption as the asset lives of many aspects of the plant will be longer than 30 years.

System yield criteria

The Sydney system yield is calculated using the following 3 criteria:

- ▼ Security Yield - the maximum amount of water that can be extracted from the system without the dams approaching emptiness more than 0.001% of the time (1-year in 100,000 years).¹⁵⁹
- ▼ Reliability Yield - the maximum amount of water that can be extracted from the supply system without the imposition of restrictions for more than 3% of the time on average.¹⁶⁰
- ▼ Robustness Yield - the maximum amount of water that can be extracted from the system without the imposition of restrictions for more than once in 10 years on average.

The lesser of the security, reliability and robustness yields is the system yield.

In 2010 SCA reported that the system yield for Sydney in 2011 is 620GL pa.¹⁶¹ This includes the addition to the supply system of the first stage of the desalination plant.¹⁶²

Factors that have affected System Yield since 2008

The 2 major items that have impacted on the system yield as calculated in 2008 are:

- ▼ updated hydrological modelling by the SCA
- ▼ the changed environmental flow regime.

Updated Hydrological Modelling

The hydrological modelling for the Sydney water supply system is undertaken using the WATHNET¹⁶³ model. At the 2008 Determination the system yield was calculated using hydrological data up to 2004. However, the recent drought added more variability to the WATHNET model. The latest modelling conducted in 2010 includes the 2005-2009¹⁶⁴ hydrology in the model coupled with refinements to the dam depletion modelling.¹⁶⁵

¹⁵⁹ Sydney Catchment Authority, *Greater Sydney's Sustainable Water Supply-Yield*, 2010, p 3.

¹⁶⁰ Ibid, p 3.

¹⁶¹ Sydney Catchment Authority, *Greater Sydney's Sustainable Water Supply-Yield*, 2010, p 3.

¹⁶² 2010 Metropolitan Water Plan dictates that the desalination plant be switched on at 70% and switched off at 80% system storage levels.

¹⁶³ Water Headworks Network software package.

¹⁶⁴ The 2008 Determination used the 2006 system yield estimate that included hydrology only up until 2004.

¹⁶⁵ Sydney Catchment Authority, *Greater Sydney's Sustainable Water Supply-Yield*, 2010, (WATHNET Run 12 and 16).

Environmental Flow Regime

The 2010 Metropolitan Water Plan introduced 80/20 environmental flow releases from metropolitan dams. This reduces the system yield by 25 GL pa.¹⁶⁶ The Warragamba environmental flow replacement by the Western Sydney (St Mary's) recycling plant lifts the system yield by 15 GL pa but this does not extend the time to augmentation. This is because the 15 GL forms part of the 70 GL of total recycled water capacity already factored into the calculation.

Current and Future Demand

Water demand as estimated by Sydney Water for 2010/11 is 490 GL per year. This is significantly below the usage estimated for 2008/09 at the last determination which was 519 GL.¹⁶⁷

There are a number of factors contributing to this:

- ▼ Restrictions were replaced with water-wise rules which dampened consumption bounce back.
- ▼ Industrial demand for potable water has declined with some potable use being replaced with recycled water from Camellia, Kurnell and Wollongong sewerage treatment/recycling plants.

Reduced Demand by 20 GL of recycling still to come on line

There is 20 GL of targeted 70 GL of recycled water still to come online.¹⁶⁸ This foreshadowed 20 GL pa has been deducted from demand¹⁶⁹ when forecasting the time of the next augmentation.

Rate of Growth of Demand

We used the NSW Department of Planning and Infrastructure's population projections¹⁷⁰ for the Sydney Statistical District and the Illawarra statistical district which covers almost all of Sydney Water's network. From this data we calculated the average annual population growth rate to be 1.07% pa.

¹⁶⁶ a) Sydney Catchment Authority, *Greater Sydney's Sustainable Water Supply-Yield*, 2010, (WATHNET Run 19)

b) http://www.riversymposium.com/2007_Presentations/B3B_Abood.pdf

¹⁶⁷ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services*, June 2008, p 84.

¹⁶⁸ Sydney Water submission to IPART 2012 price determination, p 185.

¹⁶⁹ It can equally be added to supply but by convention the WATHNET model treats it as a demand reduction.

¹⁷⁰ http://www.planning.nsw.gov.au/LinkClick.aspx?fileticket=9qUv_Q8RwkM%3d&tabid=124&language=en-AU

We then applied this annual growth rate of 1.07% to current water consumption to determine when, all other things being equal, demand will exceed supply of water. The projection contains the following assumptions.

- ▼ non-residential demand will increase at the same rate as residential demand
- ▼ no increase in water efficiency over the next 25 years
- ▼ the average number of people per dwelling will remain the same.

Demand Supply Balance

The timing of the next augmentation will be updated in the 2014 Metropolitan Water Plan. Under the 2010 Plan, modelling shows that augmentation will not be required until at least 2025.¹⁷¹ For the purposes of the 2012 Sydney Water price determination we have used an augmentation date of 2035. This estimate is based on lower drinking water demand by Sydney Water consumers, which delays augmentation. This is offset however by updated hydrological modelling and the introduction of environmental flow releases from metropolitan dams, which reduces the system yield.

When system yield, planned alternative sources of supply and consumption growth rates are considered, we project that, all other things being equal, demand will exceed supply in 2035.

E.3 Augmentation of Kurnell Desalination Plant to 500ML/d capacity.

The next increment of augmentation is assumed to be an expansion of the Kurnell desalination plant capacity from 250ML/d to 500ML/d. This is the same augmentation upon which the LRMC calculation for the 2008 Sydney Water Review was based and has also been used by Sydney Water in 2011 for its LRMC calculation.

In its submission to the 2012 Sydney Water Price Review, the Sydney Catchment Authority commented that there need not be a single augmentation and that a range of augmentation measures was included in the 2010 Metropolitan Water Plan.¹⁷² We maintain that using the next significant augmentation establishes the upper bound of LRMC, as these other augmentations are likely to be small scale options that are cheaper than stage 2 desalination. SCA did not elaborate on the costs of these small scale options.

The augmentation option to use for LRMC, and its timing, will need to be revisited in the next determination based on the 2014 Metropolitan Water Plan.

¹⁷¹ NSW Government, *2010 Metropolitan Water Plan*, August 2010.

¹⁷² SCA submission to Sydney Water Corporation 2011 Price Review, October 2011, p 1.

E.4 Costs – Capital Expenditure

Table E.2 identifies the capital costs for stage 1 and stage 2 of the Kurnell desalination plant.¹⁷³ Stage 1 is already in place and operational. It has a capacity of 250 ML per day (92 GL/pa). Stage 2 increases capacity by another 250 ML/d (92 GL/pa). The costs identified in 2008 for the stage 2 augmentation were inflated from \$2007/08 to \$2011/12 using the consumer price index (CPI).

Table E.2 Estimated Capital Costs for the Kurnell Desalination Plant

	\$2007/08	\$2011/12
Stage1 Desalination Plant (250ML/d)		
Water Distribution Infrastructure	525	585
Project Development Costs	48	53
Seawater intake system	199	222
Seawater concentration outlet system	60	67
Desalination Plant	799	890
Pre-operations Payment	9	10
Pumping Station	42	47
Land Acquisition	51	57
SDP Project Development capital cost	185	206
Total Stage 1	1918	2137
Stage 2 Desalination Plant (500ML/d)		
Desalination Plant	799	890
Pumping Station	42	47
SDP Project Development capital costs	185	206
Total Stage 2	1026	1143

Source: IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services*, June 2008, p 218. ABS 2011 (CPI numbers).

E.5 Costs - Operating Expenditure

The operating expenditure for stage 2 of the desalination plant has been modelled as being the same as the operating expenditure for stage 1 as advised in the Sydney Desalination Plant Pty Ltd submission to IPART.¹⁷⁴ The annual operating costs are \$90.2m (\$2011/12). We consider this should form the upper bound of operating costs in real terms because operating expenditure is predominately made up of energy costs and it is expected that technological advances and scale improvements will see energy costs of desalination fall into the future.

¹⁷³ These are the same costs that were used in the 2008 Determination. They have been updated for inflation.

¹⁷⁴ Sydney Desalination Plant Pty Ltd submission to IPART 2012 Pricing Determination quoted \$88.0m (\$2010/11). This was inflated to \$2011/12, p 12.

E.6 Benefits – Water Generated

The desalination plant has annual production of 92GLpa when operating at full capacity. At the 2008 determination, we determined the water usage price (LRMC) by assuming the desalination plant would operate at 75% capacity.¹⁷⁵

75% is therefore a reasonable estimate for the average capacity utilisation for stage 2. It is reasonable to assume that by the time stage 2 was constructed, Sydney would be facing a capacity constraint and stage 1 would be operating at full capacity. In this case stage 2 would then fill the role that stage 1 currently does which is a storage balancing and drought security role and therefore the same capacity utilisation assumption is justified.

E.7 Calculating Long Run Marginal Cost

Present value of costs

In order to calculate the present value of costs we have assumed that stage 2 of the desalination plant would have a life of 30 years. The capital cost of construction of stage 2 is \$1,143m (\$2011/12). This was discounted from 2035 to 2011/12 using a range of discount rates shown in the tables below.

The operating costs of \$90.2m pa (\$2011/12) were discounted for the 30 years between 2035 to 2065 back to \$2011/12 by the same set of discount rates.

Present Value of Benefits

To calculate the present value of benefits we assumed the benefits to be 1 of 2 capacity utilisation ratios namely 75% and 100%. The water volumes produced under these 2 scenarios were then discounted to a PV for the same 30-year period (2035-2065). The benefits for each scenario have been discounted at:

1. a rate of 0%
2. a social discount rate of 3%, based on reasoning analogous to that of the Bureau of Transport and Regional Economics.¹⁷⁶
3. standard rates for the time value of money of 4%, 5.5%, 6.0%, 6.5%, 7.0% and 10% that were used for discounting costs.

¹⁷⁵ IPART, *Sydney Water Corporation's water, sewerage, stormwater and other services*, June 2008, p 219.

¹⁷⁶ Bureau of Transport & Regional Economics (2006) *Cost of Aviation Accidents and Incidents*. BTRE Report 113, p 16.

Results

The results in Figure E.1 and Figure E.2 show that LRMC of water from Stage 2 of the Kurnell Desalination Plant, if built in 2035, varies between \$0.42/kL and \$2.88/kL depending on the discount rates applied to costs and benefits, and production volumes of the plant.

As presented in the introduction, if the range of the discount rates is limited to 6% and 7% then the range is \$1.82/kL to \$2.54/kL.

**Figure E.1 LRMC Estimate (\$2011/12) (30 Year Assumed Life) Desalination Plant
Capacity Utilisation 75%**

		CAPACITY UTILISATION 75%							
		Discount Rate (Costs)							
		00%	30%	40%	55%	60%	65%	70%	100%
Discount Rate (Benefits)	00%	\$ 1.84	\$ 0.71	\$ 0.53	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42
	30%		\$ 2.11	\$ 1.57	\$ 1.03	\$ 0.90	\$ 0.78	\$ 0.69	\$ 0.42
	40%			\$ 2.21	\$ 1.45	\$ 1.26	\$ 1.10	\$ 0.97	\$ 0.45
	55%				\$ 2.37	\$ 2.07	\$ 1.81	\$ 1.53	\$ 0.74
	60%					\$ 2.42	\$ 2.12	\$ 1.86	\$ 0.87
	65%						\$ 2.48	\$ 2.17	\$ 1.02
	70%							\$ 2.54	\$ 1.19
	100%								\$ 2.88

**Figure E.2 LRMC Estimate (\$2011/12) (30 Year Assumed Life) Desalination Plant
Capacity Utilisation 100%**

		CAPACITY UTILISATION 100%							
		Discount Rate (Costs)							
		0.0%	3.0%	4.0%	5.5%	6.0%	6.5%	7.0%	10.0%
Discount Rate (Benefits)	0.0%	\$ 1.38	\$ 0.53	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42
	3.0%		\$ 1.58	\$ 1.18	\$ 0.77	\$ 0.67	\$ 0.59	\$ 0.52	\$ 0.42
	4.0%			\$ 1.66	\$ 1.09	\$ 0.95	\$ 0.83	\$ 0.72	\$ 0.42
	5.5%				\$ 1.78	\$ 1.55	\$ 1.35	\$ 1.19	\$ 0.56
	6.0%					\$ 1.82	\$ 1.59	\$ 1.39	\$ 0.65
	6.5%						\$ 1.86	\$ 1.63	\$ 0.76
	7.0%							\$ 1.90	\$ 0.89
	10.0%								\$ 2.16

E.8 Discount Rates

In calculating a range for the long-run marginal cost of water, we examined and modelled the use of a number of different discount rates. The results of this modelling are covered in section E.7. In particular, we were interested in the appropriate rate at which to discount benefits. We will examine the appropriate approach to discounting benefits after the completion of this determination. For the purposes of determining a range for the LRMC for this determination, we have used discount rates of 6% and 7%.

Draft decisions:

- 36 IPART's draft decision is to hold the water usage price constant in real terms at \$2.10/kL.
- 37 IPART's draft decision is to investigate the appropriate use of discount rates after the completion of this review in preparation for the next review.

F Water and sewerage bills and disposable income analysis for Sydney Water

The following graphs show billing and disposable income information from households in each of the utilities' service areas, as derived from IPART's survey of households in 2010.¹⁷⁷ They further separate the same information specifically for low income households and concession holders. This information has been provided to show the impact of our current decisions (2008 Determination) on customers' annual water and sewerage bills for 2010/11. It does not include the impact of our draft decisions on water and sewerage charges for the 2012 Determination against customers' disposable income.

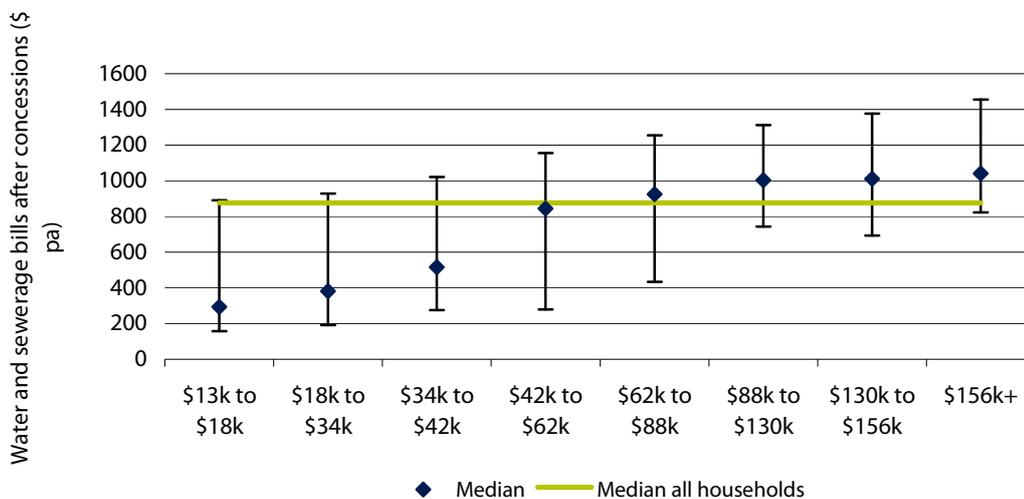
The results that we see in data from the Sydney Water service area differs from that of the other 3 retail utilities (which follow similar trends). This is more a reflection of the different demographics and income levels in the Sydney Water area than of differences in performance or magnitude of bills.

Sydney Water Corporation

The median water and sewerage bill amongst all Sydney Water customers in 2010/11 is \$875. We can see quite a big variance in the size of bills as disposable income increases. The majority of Sydney Water customers spend 2% or less of their disposable income paying these bills. Low income households' bills were generally around \$200 to \$400 (see Figure F.1 to Figure F.3).

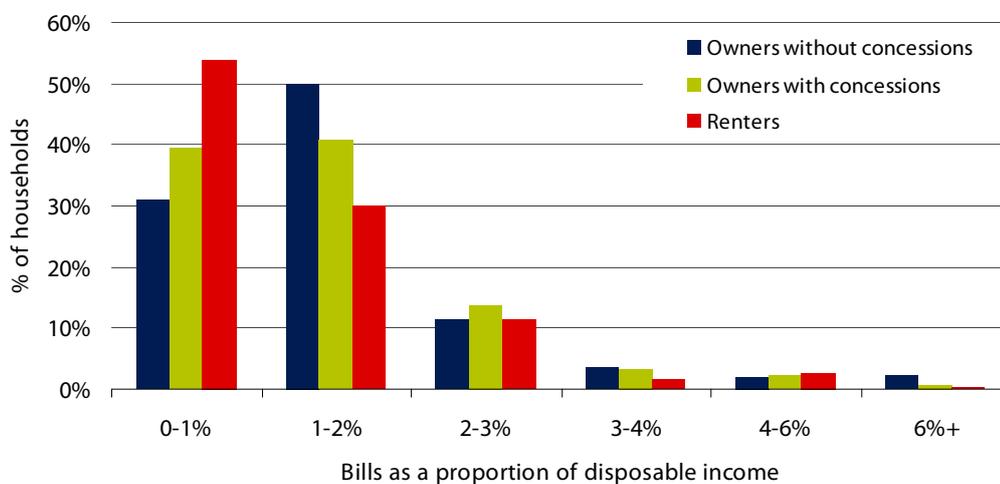
¹⁷⁷ We have indexed the income data received in the 2010 household survey using the increase in average weekly earnings for NSW to the financial year ending 2010/11. Source: Australian Bureau of Statistics, *Average weekly Earnings Australia*, 6302.0, November 2011.

Figure F.1 Distribution of water and sewerage bills against income – Sydney Water



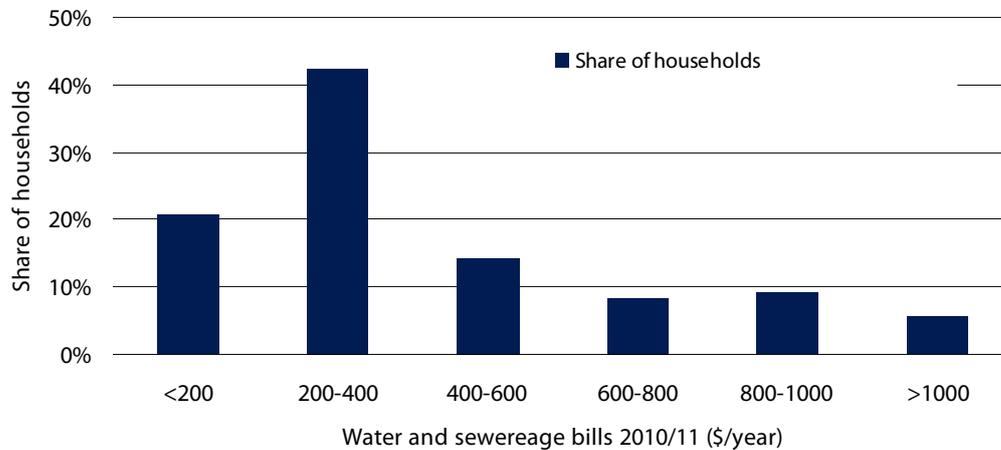
Data source: IPART's household survey, 2010.

Figure F.2 Water and sewerage bills as a proportion of disposable income – Sydney Water



Data source: IPART's household survey, 2010.

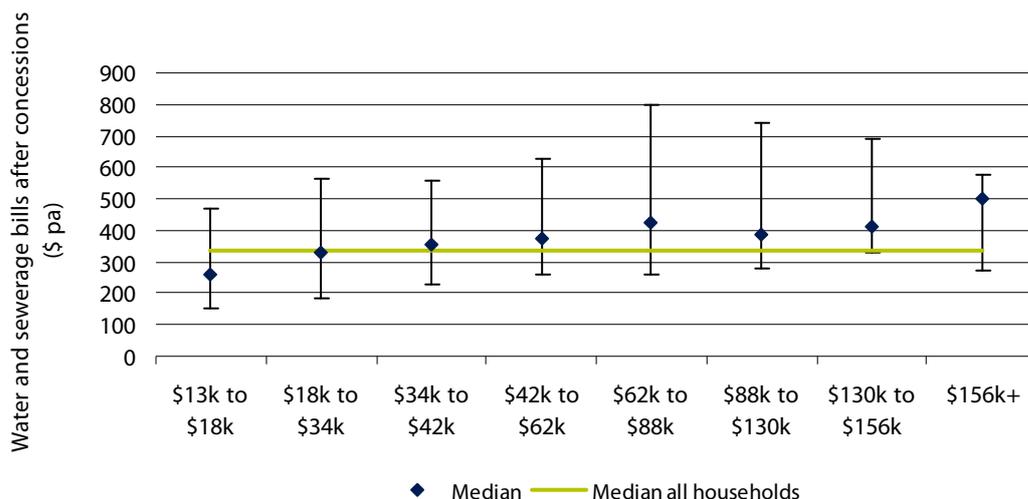
Figure F.3 Distribution of bills- Low income households – Sydney Water



Data source: IPART’s household survey, 2010.

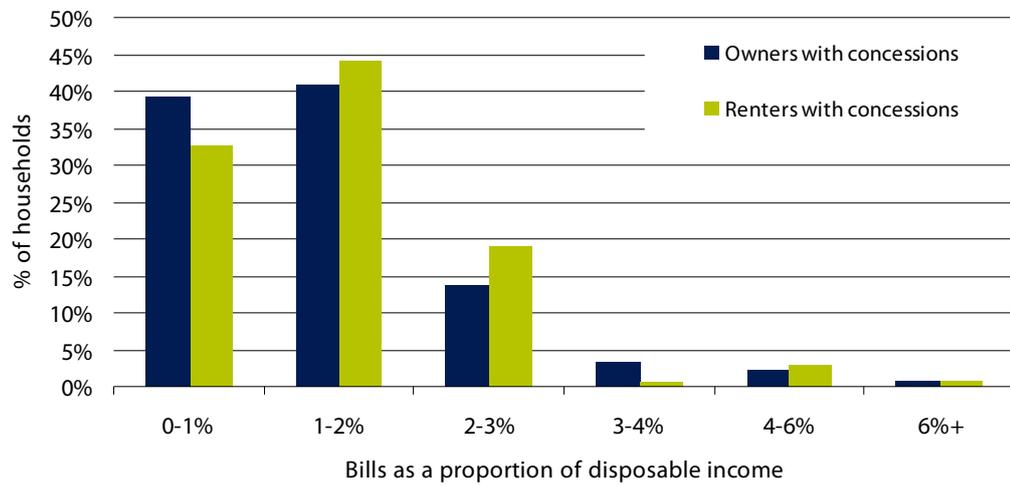
Concession holders receive significantly smaller bills, with a median of \$334 (after concessions) in 2010/11. The median bills amongst different incomes levels did not show a great variance from this amount, with the exception of those earning \$156k+. Most concession holders also spend less than 2% of their income on their water and sewerage bills (Figure F.4 and Figure F.5).

Figure F.4 Water and sewerage bills for households with concessions (amount after concession) - Sydney Water



Data source: IPART’s household survey, 2010.

Figure F.5 Distribution of households by spending on water and sewerage bills as a proportion of disposable income – owners and renters with concessions only - Sydney Water



Data source: IPART's household survey, 2010.

G List of draft decisions

1	IPART's draft decision is to adopt a 4-year determination period from 1 July 2012 to 30 June 2016.	28
2	IPART's draft decision is to determine the target revenue using an adjusted glide path approach.	33
3	IPART's draft decision is to introduce a demand volatility adjustment to mitigate possible revenue over/under recovery due to 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, and to:	36
	– define material variation as more than 10% (+ or -) over the whole determination period	36
	– indicate that only the impact of variation outside of this 10% variation level will be adjusted for	36
	– decide how best to make the revenue adjustment in our next price review, if a material variation eventuates.	36
4	IPART's draft decision is to set prices on the basis that SDP is in water security shutdown mode for the whole 2012 determination period, and pass through the annual actual extra costs Sydney Water incurs due to it being in a different operational mode in the subsequent year, using the mechanism described in Box 3.1.	38
5	IPART's draft decision is to require Sydney Water to report annually on progress against the output measures described in Appendix B.	39
6	IPART's draft findings and draft decision on Sydney Water's notional revenue requirement and target revenue are shown in Table 4.1.	42
7	IPART's draft finding is that Sydney Water's notional revenue requirement is as shown in Table 4.3.	43
8	IPART's draft decision is that Sydney Water's target revenue is as shown in Table 4.4.	44
9	IPART's draft finding on the revenue to be deducted from Sydney Water's revenue requirement to reflect the revenue it will raise through 'other fees and charges' is as shown in Table 4.5.	45

10	IPART's draft finding is that the efficient level of Sydney Water's operating expenditure is as shown in Table 5.1.	48
11	IPART's draft decisions on the allowances for a return on assets and depreciation, and the key inputs that gave rise to these findings are as shown in Table 6.1 and Table 6.2.	63
12	IPART's draft decision is that past capital expenditure shown in Table 6.4 was prudent and efficient and should be incorporated in the opening value of Sydney Water's RAB.	67
13	IPART's draft decision is that the forecast capital expenditure shown in Table 6.7 is efficient and should be included when rolling forward the RAB in this determination period.	73
14	IPART's draft decision is that for the purposes of calculating the allowance for a return on assets, a real post-tax WACC of 5.5% is appropriate.	77
15	IPART's draft decision is to calculate regulatory depreciation using straight-line depreciation and the asset lives Sydney Water proposed in their submission, as shown in Table 6.11.	79
16	IPART's draft decision is to use Sydney Water's proposed approach to forecast water demand for the 2012 Draft Determination. This results in the levels of forecast demand shown in Table 7.2.	83
17	IPART's draft decision is to introduce a demand volatility adjustment to mitigate possible revenue over/under recovery.	83
18	IPART's draft decision is that Sydney Water can charge the maximum water charges as set out in Table 9.1.	100
19	IPART's draft decision is that residential premises with a common meter will no longer pay a single meter based charge (shared by the number of properties in the premises) but will each individually pay a water service charge equal to that paid by a property with an individual meter. This mirrors the current pricing regime for residential sewerage charges.	104
20	IPART's draft decision is to maintain the current approach to setting charges for unfiltered water. This means that the fixed service charge for unfiltered water will be the same as the fixed service charge for drinking water and the usage charge for unfiltered water will be \$0.30 less than the usage charge for drinking water.	106
21	IPART's draft decision is that Sydney Water can charge the maximum sewerage charges as set out in Table 9.11.	108
22	IPART's draft decision is to phase-in a decrease in the usage charge for sewerage from the current \$1.49 per kL to \$1.10 (in nominal terms) per kL by 2015/16.	111

23	IPART’s draft decision is to phase-in a reduction to the free allowance threshold from the current 500 kL per year to 300 kL per year by the end of the determination period.	111
24	IPART’s draft decision is that stormwater drainage charges will transition to area based charges, with a low impact discount for large non-residential customers who have minimal stormwater runoff, as shown in Table 9.17.	114
25	IPART’s draft decision is that Sydney Water is to maintain the existing River Management Charge (in real terms) over the determination period.	117
26	IPART’s recommendation is that Sydney Water report on its activities and operating expenditures associated with its trunk drainage assets to its Rouse Hill customers.	119
27	IPART’s draft decision is that, commencing on 1 July 2012, Sydney Water can charge the owner of a new property in the Rouse Hill Development Area that is served by Sydney Water’s trunk drainage system, a Rouse Hill Stormwater Drainage Charge of \$877 per year for 5 years following the date of occupation of a new property.	119
28	IPART’s draft decision is that Sydney Water can charge customers of the Rouse Hill recycled water scheme a usage charge of 80% of the potable water price and remove the service charge.	122
29	IPART’s draft decision is that Sydney Water is to set the prices for all other mandated recycled water schemes in accordance to IPART’s 2006 Guidelines “Pricing arrangements for recycled water and sewer mining – SWC, HWC, GSC, WSC”.	122
30	IPART’s draft decision is that Sydney Water will not be able to include any avoided costs for the expansion of the Rouse Hill recycled water network in the RAB and therefore in prices, until it can provide further evidence that robust ring-fencing arrangements are in place.	122
31	IPART’s draft decision is that the maximum prices Sydney Water can charge for Miscellaneous Charges are as proposed in its pricing submission to IPART.	133
32	IPART’s draft decision is that Miscellaneous Charges will be maintained in real terms over the remainder of the determination period.	133
33	IPART’s draft decision is that the existing minor service extensions methodology is robust and should remain in place.	136
34	IPART’s draft decision is that the existing urinal closet and water closet based sewerage charges for exempt land be removed and replaced with the non-residential sewerage usage charge and discharge allowance.	137

- 35 IPART's draft decision is to set a standard residential water charge and a standard residential sewerage service charge for all mixed development dwellings and occupancies and all dwellings and occupancies in combination strata properties. 138
- 36 IPART's draft decision is to hold the water usage price constant in real terms at \$2.10/kL. 205
- 37 IPART's draft decision is to investigate the appropriate use of discount rates after the completion of this review in preparation for the next review. 205

Glossary

2005 determination	<i>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).</i>
2005 determination period	The period from 1 October 2005 to 30 June 2009, as set in the 2005 Determination.
2008 determination	<i>Review of prices for Sydney Water Corporation’s water, sewerage, stormwater and other services from 1 July 2008, June 2008 (Determination No 1, 2008).</i>
2008 determination period	The period commencing 1 July 2008.
2012 determination	<i>Review of prices for Sydney Water Corporation’s water, sewerage, stormwater and other services from 1 July 2012, June 2012 (Determination No 1, 2012).</i>
2012 determination period	The period commencing 1 July 2012.
Annual revenue requirement	The notional revenue requirement in each year of the determination
ASP	Accelerated Sewerage Program
BWSA	Bulk Water Supply Agreement
Catchment	Sydney drinking water catchment
COAG	Council of Australian Governments
current determination period	The period from 1 July 2008 to 30 June 2012, as set in the 2008 Determination.
CPI	Consumer Price Index
DECC	NSW Department of Environment and Climate Change

determination	Price limits (maximum prices) set by IPART for a given period (determination period)
DWE	NSW Department of Water and Energy
GL	gigalitre
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act 1992</i>
kL	kilolitre
LRMC	Long Run Marginal Cost of supply
Minister	Minister for Water
ML	megalitre
NPV	Net Present Value
P-nought adjustment	P-nought is the price at time nought, which is for the first year of the determination period. A p-nought adjustment allows prices to increase more sharply in the first year of the determination period than subsequent years, to reflect a step up in revenue requirement.
RAB	Regulatory Asset Base
REP	Regional Environmental Plan
RHDA	Rouse Hill Development Area
SASPoM	Special Areas Strategic Plan of Management
SCA	Sydney Catchment Authority
SDP	Sydney Desalination Plant Pty Ltd.
SRMC	Short Run Marginal Cost of supply
Sydney Water	Sydney Water Corporation
upcoming determination period	the period commencing 1 July 2012
WICA	<i>Water Industry Competition Act 2006</i>
WACC	Weighted Average Cost of Capital

X-factor

The rate by which prices can rise or fall over a determination period to account for efficiency gains and/or significant changes in the operating environment (such as new environmental standards or customer service standards).