IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Review of prices for the Sydney Catchment Authority

From 1 July 2009 to 30 June 2012

Water — Determination and Final Report
June 2009

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The Tribunal members for this review are:

Dr Michael Keating, AC, Chairman

Mr James Cox, Chief Executive Officer and Full Time Member

Ms Sibylle Krieger, Part Time Member

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

Amanda Chadwick (02) 9290 8453

Matthew Edgerton (02) 9290 8488

Independent Pricing and Regulatory Tribunal of New South Wales
PO Box Q290, QVB Post Office NSW 1230
Level 8, 1 Market Street, Sydney NSW 2000

T (02) 9290 8400 F (02) 9290 2061

www.ipart.nsw.gov.au

IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Sydney Catchment Authority

Determination No. 3, 2009

Contents

Preliminary

1 Background

(a) Section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) permits IPART 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 specified in Schedule 1 of the IPART Act.

(b) Sydney Catchment Authority (**Authority**) is listed as a government agency for the purposes of Schedule 1 of the IPART Act. The services of the Authority declared as monopoly services under the *Independent Pricing and Regulatory Tribunal (Water Supply Services) Order 2000* (**Order**) are:

(1) water supply services; and

(2) ancillary and miscellaneous services for which no alternative supply exists and which relate to the supply of those water services,

(together the **Monopoly Services**).

Accordingly, IPART may determine the prices for the Monopoly Services.

(c) In investigating and reporting on the pricing of the Monopoly Services, IPART has had regard to a broad range of matters, including the criteria set out in section 15(1) of the IPART Act.

(d) In accordance with section 13A of the IPART Act, IPART has fixed the maximum price for the Monopoly Services or has established a methodology for fixing the maximum price.

(e) Under section 18(2) of the IPART Act, the Authority may not fix a price below that determined by IPART without the approval of the Treasurer.

2 Application of this determination

(a) This determination fixes the maximum prices (or sets a methodology for fixing the maximum prices) that the Authority may charge for the Monopoly Services.

(b) This determination commences on the later of 1 July 2009 and the date that it is published in the NSW Government Gazette (**Commencement Date**).

(c) The maximum prices in this determination apply from the Commencement Date to 30 June 2012. The maximum prices in this determination prevailing at 30 June 2012 continue to apply beyond 30 June 2012 until this determination is replaced.

3 Replacement of Determination No. 7 of 2005

This determination replaces Determination No. 7 of 2005 from the Commencement Date. The replacement does not affect anything done or omitted to be done, or rights or obligations accrued, under Determination No. 7 of 2005 prior to its replacement.

4 Monitoring

IPART may monitor the performance of the Authority for the purposes of:

(a) establishing and reporting on the level of compliance by the Authority with this determination; and

(b) preparing a periodic review of pricing policies in respect of the Monopoly Services supplied by the Authority.

5 Schedules

(a) Schedules 1-3 (inclusive) and the Tables in those schedules set out the maximum prices that the Authority may charge for the Monopoly Services specified in the schedules.

(b) Schedule 4 sets out the definitions and interpretation provisions.

Schedule 1 Water supply services

1 Application

This schedule sets the maximum prices that the Authority may charge for services to a person (other than a Customer) under paragraph (a) of the Order (water supply services).

2 Water supply services to the Corporation

The maximum charge for water supplied by the Authority to the Corporation is the sum of:

(a) the Fixed Availability Charge in Table 1, corresponding to the applicable Period in that table; and

(b) the Volumetric Charge (per ML) in Table 2, corresponding to the applicable Period in that table.

3 Water supply services to Wingecarribee Shire Council

The maximum charge for water supplied by the Authority to Wingecarribee Shire Council is the Volumetric Charge (per ML) in Table 3, corresponding to the applicable Period in that table.

4 Water supply services to Shoalhaven City Council

The maximum charge for water supplied by the Authority to Shoalhaven City Council is the Volumetric Charge (per ML) in Table 4, corresponding to the applicable Period in that table.

5 Water supply services to Goulburn Mulwaree Council

The maximum charge for water supplied by the Authority to Goulburn Mulwaree Council is the Volumetric Charge (per ML) in Table 5, corresponding to the applicable Period in that table.

Tables 1, 2, 3, 4 and 5

Table 1 Fixed Availability Charges for the Corporation

Charge	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
Fixed Availability Charge ($ per month)	6,301,913	6,562,810 x $(1+\Delta CPI_1)$	6,833,854 x $(1+\Delta CPI_2)$

Table 2 Volumetric Charges for the Corporation

Charge	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
Volumetric Charge ($ per ML)	249.99	260.34 x $(1+\Delta CPI_1)$	271.10 x $(1+\Delta CPI_2)$

Table 3 Volumetric Charges for Wingecarribee Shire Council

Charge	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
Volumetric Charge ($ per ML)	236.36	246.14 x $(1+\Delta CPI_1)$	256.31 x $(1+\Delta CPI_2)$

Table 4 Volumetric Charges for Shoalhaven City Council

Charge	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
Volumetric Charge ($ per ML)	236.36	246.14 x $(1+\Delta CPI_1)$	256.31 x $(1+\Delta CPI_2)$

Table 5 Volumetric Charges for Goulburn Mulwaree Council

Charge	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
Volumetric Charge ($ per ML)	236.36	246.14 x $(1+\Delta CPI_1)$	256.31 x $(1+\Delta CPI_2)$

Schedule 2 Water supply services – Bulk Raw Water

1 Application

This schedule sets the maximum prices that the Authority may charge for services of Bulk Raw Water to a Customer under paragraph (a) of the Order (water supply services).

2 Bulk Raw Water

The maximum charge for Bulk Raw Water supplied by the Authority to a Customer is the Volumetric Charge (per kL) in Table 6, corresponding to the applicable Period in that table.

Table 6

Table 6 Volumetric Charges for Bulk Raw Water

Charge	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
Volumetric Charge ($ per kL)	0.55	0.58 x $(1+\Delta CPI_1)$	0.60 x $(1+\Delta CPI_2)$

Schedule 3 Water supply services – Unfiltered Water

1 Application

This schedule sets the maximum prices that the Authority may charge for services of Unfiltered Water to a Customer under paragraph (a) of the Order (water supply services).

2 Unfiltered Water

The maximum charge for Unfiltered Water supplied by the Authority to a Customer is the sum of:

(a) the Fixed Availability Charge in Table 7, corresponding to the service connection size and the applicable Period in that table; and

(b) the Volumetric Charge (per kL) in Table 8, corresponding to the applicable Period in that table.

Tables 7 and 8

Table 7 Fixed Availability Charges for Unfiltered Water

Charge ($ per Period) Service connection size	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
20mm	84.39	87.89 x $(1+\Delta CPI_1)$	91.52 x $(1+\Delta CPI_2)$
25mm	131.86	137.32 x $(1+\Delta CPI_1)$	142.99 x $(1+\Delta CPI_2)$
30mm	189.88	197.75 x $(1+\Delta CPI_1)$	205.91 x $(1+\Delta CPI_2)$
32mm	216.05	224.99 x $(1+\Delta CPI_1)$	234.28 x $(1+\Delta CPI_2)$
40mm	337.57	351.55 x $(1+\Delta CPI_1)$	366.07 x $(1+\Delta CPI_2)$
50mm	527.46	549.29 x $(1+\Delta CPI_1)$	571.98 x $(1+\Delta CPI_2)$
80mm	1,350.29	1,406.19 x $(1+\Delta CPI_1)$	1,464.27 x $(1+\Delta CPI_2)$
100mm	2,109.83	2,197.17 x $(1+\Delta CPI_1)$	2,287.92 x $(1+\Delta CPI_2)$
150mm	4,747.11	4,943.64 x $(1+\Delta CPI_1)$	5,147.81 x $(1+\Delta CPI_2)$
200mm	8,439.31	8,788.69 x $(1+\Delta CPI_1)$	9,151.67 x $(1+\Delta CPI_2)$
>200mm	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400

Table 8 Volumetric Charges for Unfiltered Water

Charge	Commencement Date to 30 June 2010	1 July 2010 to 30 June 2011	1 July 2011 to 30 June 2012
Volumetric Charge ($ per kL)	0.95	0.99 x $(1+\Delta CPI_1)$	1.03 x $(1+\Delta CPI_2)$

Schedule 4 Definitions and Interpretation

1 Definitions

1.1 General definitions

In this determination:

Authority means the Authority as defined in clause 1(b) of the *Preliminary* section of this determination, constituted under the *Sydney Water Catchment Management Act 1998* (NSW).

Bulk Raw Water means water that has not been managed in any way.

Commencement Date means the Commencement Date as defined in clause 2(b) of the *Preliminary* section of this determination.

Corporation means the Sydney Water Corporation constituted under the *Sydney Water Corporation Act 1994* (NSW).

Customer means a person to whom the Authority supplies water, other than:

(a) the Corporation; or

(b) a water supply authority, a local council or a county council each as defined in the *Sydney Water Catchment Management Act 1998* (NSW).

Fixed Availability Charge means a fixed charge imposed by the Authority for making water available for supply to a person, irrespective of the amount of water consumed by that person.

Goulburn Mulwaree Council means the Goulburn Mulwaree Council as constituted under the *Local Government Act 1993* (NSW).

GST means the Goods and Services Tax as defined in *A New Tax System (Goods and Services Tax) Act 1999* (Cth).

IPART means the Independent Pricing and Regulatory Tribunal of New South Wales established under the IPART Act.

IPART Act means the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW).

kL means kilolitre or one thousand litres.

ML means megalitre or one million litres.

Monopoly Services means the Monopoly Services as defined in clause 1(b) of the *Preliminary* section of this determination.

Order means the Order defined in clause 1(b) of the *Preliminary* section of this determination and published in Gazette No. 22 dated 11 February 2000.

Period means the Commencement Date to 30 June 2010, 1 July 2010 to 30 June 2011 or 1 July 2011 to 30 June 2012 (as the case may be).

Shoalhaven City Council means the Shoalhaven City Council as constituted under the *Local Government Act 1993* (NSW).

Unfiltered Water means Bulk Raw Water that has been managed for quality, whether by chemical treatment or otherwise but not treated at a water filtration plant.

Volumetric Charge means a charge imposed by the Authority for water supplied by the Authority to a person where the charge is based on the amount of water consumed by that person.

Wingecarribee Shire Council means the Wingecarribee Shire Council as constituted under the *Local Government Act 1993* (NSW).

1.2 Consumer Price Index

(a) CPI means the consumer price index, All Groups index number for the weighted average of eight capital cities as published by the Australian Bureau of Statistics, or if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index determined by IPART.

(b) $$\Delta CPI_1 = \left(\frac{CPI_{Jun2009} + CPI_{Sep2009} + CPI_{Dec2009} + CPI_{Mar2010}}{CPI_{Jun2008} + CPI_{Sep2008} + CPI_{Dec2008} + CPI_{Mar2009}} \right) - 1$$

$$\Delta CPI_2 = \left(\frac{CPI_{Jun2010} + CPI_{Sep2010} + CPI_{Dec2010} + CPI_{Mar2011}}{CPI_{Jun2008} + CPI_{Sep2008} + CPI_{Dec2008} + CPI_{Mar2009}} \right) - 1$$

each as calculated by IPART and notified in writing by IPART to the Authority.

(c) The subtext (for example $_{\text{Jun 2008}}$) when used in relation to paragraph (b) above means the CPI for the quarter and year indicated (in the example the June quarter for 2008).

2 Interpretation

2.1 General provisions

In this determination:

(a) headings are for convenience only and do not affect the interpretation of this determination;

(b) a reference to a schedule, annexure, clause or table is a reference to a schedule, annexure, clause or table to this determination;

(c) words importing the singular include the plural and vice versa;

(d) a reference to a law or statute includes all amendments or replacements of that law or statute;

(e) a reference to a person includes any company, partnership, joint venture, association, corporation, other body corporate or government agency;

(f) a reference to an officer includes a reference to the officer which replaces him or her or which substantially succeeds to his or her powers or functions;

(g) a reference to a body, whether statutory or not:

(1) which ceases to exist; or

(2) whose powers or functions are transferred to another body,

is a reference to the body which replaces it or which substantially succeeds to its powers or functions.

2.2 Explanatory notes and clarification notice

(a) Explanatory notes do not form part of this determination, but in the case of uncertainty may be relied on for interpretation purposes.

(b) IPART may publish a clarification notice in the NSW Government Gazette to correct any manifest error in this determination as if that clarification note formed part of this determination.

2.3 Prices exclusive of GST

Prices or charges specified in this determination do not include GST.

2.4 Billing cycle of the Authority

For the avoidance of doubt nothing in this determination affects when the Authority may issue a bill to a customer for prices or charges under this determination.

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Contents

1 Introduction and executive summary

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) has conducted a review of the prices that the Sydney Catchment Authority (SCA) can charge for providing water services. The purpose of the review is to determine the maximum prices for these services from 1 July 2009 to 30 June 2012 (the 2009 determination period). This report explains IPART's determination of SCA's prices, including the rationale and analysis that underpin IPART's decisions.

IPART released a draft determination and report in March 2009. Six submissions in response to this draft determination and report were received.[1] This followed IPART's release of an issues paper in July 2008; its receipt of ten submissions in response to this issues paper; and the holding of a public hearing at IPART's offices in November 2008. IPART has considered all of the issues raised in submissions to this review and has now determined final prices.

As outlined in the draft report, IPART is seeking stakeholder views on the potential introduction of a form of 'scarcity pricing' at the next determination of SCA's prices (in 2012). Under this pricing approach, SCA's price to Sydney Water would vary inversely with dam levels (available SCA water supply). IPART will be considering this option further over the course of the 2009 determination period. Its preliminary thoughts on this pricing approach are outlined in Appendix F.

1.1 Summary of price outcomes

Under the determination, the prices that SCA can charge its customers increase by about 17.4 per cent in real terms from 2008/09 to 2011/12. The largest increase occurs in 2009/10, then prices increase steadily to 2011/12. Table 1.1 shows the prices for each SCA service and the percentage increase compared to current (2008/09) prices.

Final prices under this determination are marginally higher than those of the draft determination. This is because IPART has set SCA's prices so that the present value of its expected revenue from tariffs equates with the present value of its notional revenue requirement over the determination period (see section 3.5)[2]; and SCA's

1 An additional letter from Sydney Water was also received, which confirmed its updated sales forecasts and its latest estimates of supply from its desalination plant over 2009/10 to 2011/12.

2 Therefore, this is a 'Net Present Value (NPV) neutral' approach.

sales forecasts to Sydney Water have been revised down (see section 7.2). These effects have been offset to some extent as a result of IPART's decision to use a lower Weighted Average Cost of Capital (WACC) of 6.5 per cent in response to changed market parameters (see section 6.3 and Appendix E).[3] To enable comparison, final prices and prices listed in the draft determination are included in Table 1.8 at the end of this chapter.

Table 1.3 and Table 1.4 (in section 1.1.2) show how this determination impacts on Sydney Water's service charges to its customers and typical residential and non-residential customer water and sewerage bills.

Table 1.1 Final decisions on prices for SCA services from 2009/10 to 2011/12 ($, real 2008/09)

	Current price (2008/09)	2009/10	2010/11	2011/12
Volumetric price to Sydney Water ($/ML)	222.17	240.61	250.57	260.92
Year on year increase in price		8.3%	4.1%	4.1%
Increase 2008/09 to 2011/12				17.4%
Fixed charge to Sydney Water ($M)	67.21	72.78	75.80	78.93
Year on year increase in price		8.3%	4.1%	4.1%
Increase 2008/09 to 2011/12				17.4%
Volumetric price to Local Councils ($/ML)	210.05	227.48	236.90	246.69
Year on year increase in price		8.3%	4.1%	4.1%
Increase 2008/09 to 2011/12				17.4%
Volumetric price for unfiltered water ($/kL)[a]	0.84	0.91	0.95	0.99
Year on year increase in price		8.3%	4.4%	4.2%
Increase 2008/09 to 2011/12				17.9%
Volumetric price for raw water ($/kL)[a]	0.49	0.53	0.55	0.58
Year on year increase in price		8.2%	3.8%	5.5%
Increase 2008/09 to 2011/12				18.4%
Fixed charge to unfiltered water customers – for 20 mm meters ($)	75.00	81.23	84.59	88.08
Year on year increase in price		8.3%	4.1%	4.1%
Increase 2008/09 to 2011/12				17.4%
Fixed charge to unfiltered water customers – for meter size > 20 mm ($)	(Meter size)^2 x 20mm charge/400	(Meter size)^2 x 20mm charge/400	(Meter size)^2 x 20mm charge/400	(Meter size)^2 x 20mm charge/400
Year on year increase in price		8.3%	4.1%	4.1%
Increase 2008/09 to 2011/12				17.4%

a These volumetric charges to unfiltered and raw water customers do not increase by the exact same proportions as SCA's other prices, due to rounding (to the nearest cent per kL).

3 The WACC of 6.5 per cent is a real pre-tax WACC. IPART used a WACC of 7.0 per cent for the draft determination.

IPART considers these price increases necessary to enable SCA to operate, maintain and renew the assets needed to effectively carry out its catchment management and bulk water supply functions. In reaching its decisions, it has considered the potential impact of these price increases on water customers, SCA's financial viability, SCA's service standards, and the environment. It considers that the determination appropriately balances the needs and interests of each.

The sections below summarise the reasons for these prices increases, the impact of IPART's determination on water customers and SCA, and IPART's decisions in relation to the structure of SCA's prices. Please note that all figures in this report are presented in 2008/09 dollars (unless stated otherwise), while figures in the determination (at the front of this document, preceding this report) are in 2009/10 dollars. For comparative purposes, prices and costs are often presented for 2008/09, in addition to the 2009 determination period (2009/10 to 2011/12).

1.1.1 Reasons for price increases

Table 1.2 shows IPART's decision on SCA's annual notional revenue requirements over the 2009 determination period, and its decisions on the components of these revenue requirements. This table, along with Figure 1.1, indicates that the increase in SCA's notional revenue requirement relative to current levels – and therefore the increases in prices under this determination – are driven by an increase in SCA's efficient operating expenditure in 2009/10 (due to SCA's contribution to the Accelerated Sewerage Program), and increases in the allowances for a return on assets and a return of assets (or regulatory depreciation) over the determination period. However, the allowance for a return on assets is less than in the draft determination, due to IPART's decision to use a lower WACC of 6.5 per cent.

Table 1.2 also shows that IPART has set prices so that the present value of SCA's target revenue (ie, the revenue IPART expects SCA to generate from charges, given its decisions on prices and SCA's forecast water sales) will be equal to the present value of its notional revenue requirement over the determination period. IPART has adopted this approach after considering stakeholder views, the financial position of SCA, impacts on customers and the principles of economic efficiency. This approach enables SCA to fully recover its efficient building block costs, with minimal impact on water customers via price (and bill) rises.

Table 1.2 Decisions on SCA's annual notional revenue requirement, and annual target revenue ($million, real 2008/09)

	Current (2008/09)	2009/10	2010/11	2011/12
Operating expenditure	87.0[a]	80.0	80.0	80.0
Contribution to ASP (operating expenditure)[b]		17.3		
Allowance for a return on assets	76.3	82.7	84.3	84.9
Allowance for regulatory depreciation	18.9	21.2	22.0	22.5
Allowance for working capital	0.5	0.8	1.2	1.2
Other (unregulated) revenue[c]	(0.4)	(0.4)	(0.3)	(0.4)
Notional revenue requirement[d]	182.3	201.6	187.1	188.2
Present value of notional revenue requirement	532.9			
Target revenue	182.3	193.7	189.5	194.6
Present value of target revenue	532.9			
Present value of notional revenue requirement less present value of target revenue	0.0			

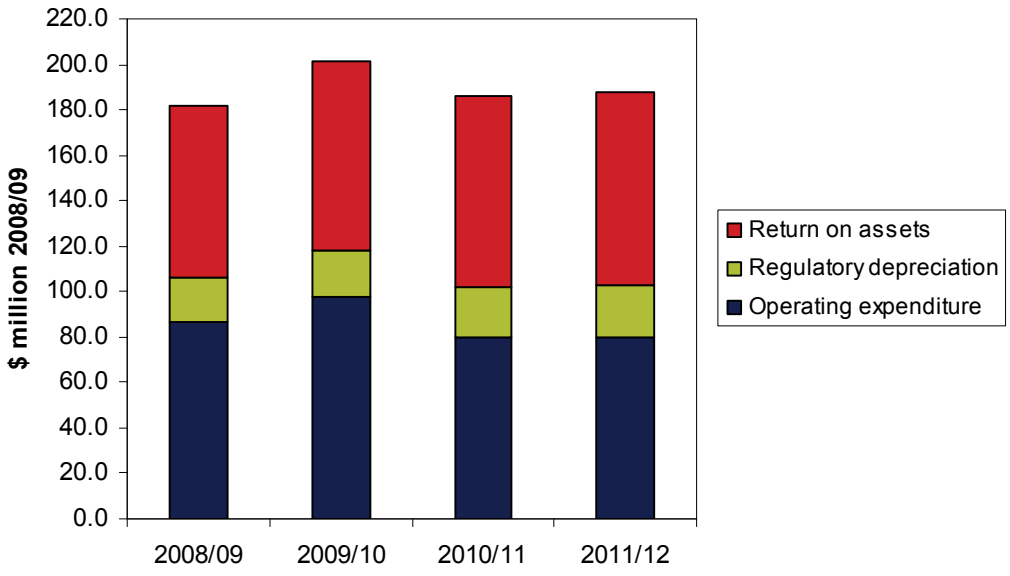
a Includes $4 million in Shoalhaven pumping costs.

b SCA's contribution to the Accelerated Sewerage Program (ASP). This is classed as operating expenditure.

c SCA earns some unregulated income (eg, from renting out some of its facilities, such as its conference centre). In line with IPART's 2008 determination of Sydney Water's prices, 50 per cent of this unregulated income has been deducted from SCA's notional revenue requirement. IPART's 2008 report (p 37) on its determination of Sydney Water's prices noted this approach achieves an appropriate balance between passing benefits of other income onto customers (via lower prices) and providing the utility with an incentive to pursue these opportunities.

d Totals may not add due to rounding.

Figure 1.1 Decisions on SCA's annual notional revenue requirement for 2009/10 to 2011/12 ($million, real 2008/09)



Efficient operating expenditure

SCA's total operating expenditure in 2009/10 is forecast to be significantly higher than operating expenditure in 2008/09. This is due to the NSW Government's requirement for SCA to make a one-off contribution of $17.7 million ($2009/10) to the Accelerated Sewerage Program (ASP), which will fund the upgrade of sewage treatment plants needed to enhance and protect Sydney's water quality. Pursuant to section 16A of the IPART Act, the Minister for Water has directed IPART to include in its 2009 determination the efficient costs of SCA complying with this Government direction.

When this contribution to the ASP is excluded (along with SCA's costs of pumping water from the Shoalhaven in 2008/09), SCA's forecast efficient operating costs in each year of the determination period are around 3.6 per cent less than in 2008/09. This is due to SCA's forecast cost savings and efficiency measures over the determination period.

Allowances for a return on assets and regulatory depreciation

The allowance for a return on capital compensates SCA for the opportunity cost of the capital it has invested in assets, and thus ensures that prices are cost reflective and provide SCA with an incentive for it to make further investments when new infrastructure is needed. The allowance for regulatory depreciation recognises that an efficiently operating business will allow for the cost of maintaining its assets within its revenue requirements. Both these allowances increase over the 2009 determination period, to incorporate SCA's forecast capital expenditure and to reflect IPART's decisions on an appropriate rate of return for SCA (for calculating the return on assets) and average asset lives (for the purposes of calculating depreciation).

SCA's efficient forecast capital expenditure, which is incorporated into the Regulatory Asset Base (RAB) and therefore increases the allowances for return on assets and regulatory depreciation, includes provision for upgrading dams to provide environmental flows and to improve dam safety. It also allows for upgrading or replacing aging infrastructure and assets (including electrical wiring, fencing, roads and support assets) to ensure the safety of SCA's workforce and the community and the efficient functioning of its systems.

1.1.2 Impact of IPART's determination on water customers

SCA is primarily a bulk water supplier. Its main customer is Sydney Water (which purchases about 99 per cent of its supply). It also supplies three Local Councils[4] (which purchase approximately 1 per cent of SCA's supply). In addition, SCA acts as a water retailer to a small number of 'raw' and 'unfiltered' water customers, which account for less than 0.1 per cent of its total sales.

[4] Over the 2009 determination period, SCA will supply Wingecarribee Shire Council, Shoalhaven City Council and Goulburn Mulwaree Council.

Increases in SCA's prices largely affect the customers of Sydney Water and the Local Councils rather than these businesses themselves, because the businesses can generally pass on SCA price increases to their customers. In this regard, IPART's 2008 determination of Sydney Water's retail prices included a mechanism to allow Sydney Water to adjust its water service charges for the period 2009/10 to 2011/12 to reflect any changes to SCA's prices that occur as a result of the 2009 SCA determination. The expected impacts of the price increases under the determination on Sydney Water's customers, the Local Councils' customers, and SCA's raw and unfiltered water customers are summarised below.

Sydney Water's customers

Table 1.3 shows increases in Sydney Water's water service charges as a result of this determination. These increases are relative to the schedule of charges set at the 2008 determination of Sydney Water's prices. For Sydney Water customers with a 20mm meter connection, which generally includes all residential customers, this determination will increase the water service charge by $16.45 per year by 2011/12. The table shows that this determination will increase all water service charges, regardless of meter size, by approximately 14 per cent by 2011/12.

Table 1.3 Increase in Sydney Water's water service charges as a result of the determination ($, real 2008/09)

Meter size (mm)	2009/10	2010/11	2011/12
20	6.77	12.40	16.45
25	10.57	19.37	25.70
30	15.23	27.89	37.00
32	17.32	31.74	42.10
40	27.07	49.59	65.79
50	42.30	77.48	102.79
65	71.48	130.94	173.72
80	108.28	198.35	263.14
100	169.18	309.92	411.16
150	380.66	697.32	925.11
200	676.74	1,239.69	1,644.64
% increase to all service charges	7.4%	11.7%	14.1%

Note: These increases are relative to Sydney Water's schedule of prices for 2008/09 to 2011/12, as set by IPART at the 2008 Determination of Sydney Water's prices.

Table 1.4 shows the increases in average water and sewerage bills for customers of Sydney Water as result of IPART's 2008 determination of Sydney Water's prices and this determination of SCA's prices. This table indicates that while the 2008 determination of Sydney Water's prices results in substantial increases in average bills over 2007/08 to 2011/12, this determination of SCA's prices will further increase these bills by only a relatively small amount. For example, the table shows that the 2008 Sydney Water determination will increase average water and sewerage bills for

a household consuming 200kL per annum by $245 (or 33 per cent) over the four-year determination period (from $752 in 2007/08 to $997 in 2011/12). In comparison, this SCA determination would increase these bills by a further $16 or 1.6 per cent.

Table 1.4 Increase in typical water and sewerage bills for customers of Sydney Water as a result of the 2008 Sydney Water determination and the 2009 SCA determination ($, real 2008/09)

Typical water & sewerage bills	2007/08	2008/09	2009/10	2010/11	2011/12
Res: 20mm meter & 100 kL pa					
Bill - 2008 SWC Det.[a]	615	717	753	784	804
Year on year increase		16.6%	5.0%	4.1%	2.6%
Bill – 2009 SCA Det.			760	796	820
Increase to bill from 2009 SCA Det.			0.9%	1.6%	2.0%
Res: 20mm meter & 200 kL pa					
Bill - 2008 SWC Det.[a]	752	878	933	974	997
Year on year increase		16.8%	6.3%	4.4%	2.4%
Bill – 2009 SCA Det.			940	986	1,013
Increase to bill from 2009 SCA Det.			0.7%	1.3%	1.6%
Non-Res: 20mm meter & 300 kL pa					
Bill - 2008 SWC Det.[a]	890	1,039	1,113	1,164	1,190
Year on year increase		16.7%	7.1%	4.6%	2.2%
Bill – 2009 SCA Det.			1,120	1,176	1,206
Increase to bill from 2009 SCA Det.			0.6%	1.1%	1.4%
Non-Res: 32mm meter & 1,000 kL pa					
Bill - 2008 SWC Det.[a]	3,130	3,581	3,816	3,969	4,043
Year on year increase		14.4%	6.6%	4.0%	1.9%
Bill – 2009 SCA Det.			3,833	4,001	4,085
Increase to bill from 2009 SCA Det.			0.4%	0.8%	1.0%
Non-Res: 80mm meter &10,000 kL pa					
Bill - 2008 SWC Det.[a]	31,519	35,408	37,584	38,920	39,494
Year on year increase		12.3%	6.1%	3.6%	1.5%
Bill – 2009 SCA Det.			37,692	39,118	39,757
Increase to bill from 2009 SCA Det.			0.3%	0.5%	0.7%

[a] Sourced from IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, From 1 July 2008, Determination and Final Report*, June 2008, pp 131-133.

Local Councils' customers

IPART's indicative analysis suggests that this determination will also result in a moderate increase in the water bills of customers of the three Local Councils supplied by SCA. For instance, Table 1.5 shows that typical household water bills in the Wingecarribee Shire Council area (the largest of SCA's three Local Council customers) are expected to increase by about 2.2 per cent from 2008/09 to 2011/12 as

a result of the determination. Typical combined water and sewerage bills for these customers are likely to rise by about 0.9 per cent over the same period.

Table 1.5 Impact of determination on Wingecarribee Shire Council water bills ($, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Typical household water bill[a]	380[b]	384	386	388
Increase relative to 2008/09		1.0%	1.6%	2.2%
Typical household water and sewerage bill[a]	900[c]	904	906	908
Increase relative to 2008/09		0.4%	0.7%	0.9%

a Assumes that (apart from the cost of purchasing bulk water from SCA) all other costs of servicing customers (ie, all other components of bills) remain unchanged.

b According to Wingecarribee Shire Council, a typical water bill is currently about $380 per annum, and the cost of purchasing bulk water from SCA accounts for approximately 12.5 per cent ($47.50) of this bill (email to IPART, 5 December 2008).

c Wingecarribee Shire Council's April 2009 submission advised that residents are currently paying approximately $520 per annum in sewerage charges. Therefore, assuming a typical water bill is $380 per annum, a typical household water and sewerage bill is $900 per annum.

As evident from Table 1.6, under this determination Local Councils will still be paying a price that is approximately 43 per cent less than SCA's average cost of water supply. This is considered further in section 8.3.

Table 1.6 SCA prices to Local Councils compared to SCA's average cost of supply ($, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Volumetric price to Local Councils ($/ML)	210.05	227.48	236.90	246.69
SCA's average cost of supply ($/ML)[a]	371.83	401.46	412.67	424.94
Difference: discount to Local Councils' price relative to SCA's average cost of supply	44%	43%	43%	42%

a Average cost of supply is calculated as: SCA's notional revenue requirement/SCA's total water sales.

SCA's unfiltered and raw water customers

SCA has a total of approximately 65 'raw' and 'unfiltered' water customers, comprising industry, government departments and agencies, religious orders, schools, agricultural producers and domestic users.

IPART's determination will increase SCA's prices to these retail customers (and therefore their water bills) by approximately 17 to 18 per cent over 2008/09 to 2011/12. Table 1.1 shows that the largest increase in these prices occurs in 2009/10, followed by further but more gradual increases in 2010/11 and 2011/12.

IPART considers that these price rises are reasonable and justified, particularly considering SCA's raw and unfiltered water charges have remained essentially unchanged from 2000/01 to 2008/09. It considers that the determination achieves an appropriate balance between ensuring that raw and unfiltered water customers

adequately contribute to the recovery of SCA's costs, while protecting them from a significant price shock.

IPART also notes that SCA undertakes a limited range of social programs designed to assist its vulnerable retail customers, including rebates for eligible pensioners equal to the unfiltered water service charge.

1.1.3 Impact of IPART's determination on SCA

In making its decisions on SCA's prices, IPART analysed a range of financial indicators that are commonly used by credit rating agencies to assess an entity's financial capacity and ability to service and repay debt. The NSW Government believes that a BBB rating (generally considered investment grade) is the minimum target rating to ensure financial viability.

As shown in Table 1.7, IPART's analysis and financial modelling indicate that the maximum prices under the determination will enable SCA to achieve an overall credit rating of at least BBB+ throughout the determination period. This is above the minimum requirement of a BBB rating and should enable SCA to continue to operate its business to a high standard.

Table 1.7 SCA's expected overall investment category rating under the determination

NSW Treasury total score	2008/09	2009/10	2010/11	2011/12
Assuming SCA has a 'well above average' risk profile	A+	A+	A+	AA
Assuming SCA has a 'above average' risk profile	BBB+	BBB+	BBB+	BBB+

a In terms of business risk, NSW Treasury classes Sydney Water as 'well above average' (which is the lowest level of risk); whereas it classifies SCA as 'above average'. For the draft determination and report, IPART assumed that SCA had the same risk profile as Sydney Water (ie, 'well above average'). For this final determination and report, IPART has presented results for both of these business risk profiles.

1.1.4 Decisions on SCA price structure

As part of its price review, IPART considered the structure of SCA's prices, including stakeholder comments on this structure made in submissions to the issues paper and draft report and at the public hearing. SCA proposed that the current balance between the volumetric (per kL) charge and the fixed service charge to Sydney Water be changed, so that it generates more revenue from the fixed charge. Other stakeholders argued that the volumetric charge should be relatively higher, to more accurately signal the longer-term costs imposed (or avoided) if SCA's customers increase (or reduce) the amount of water they purchase. In turn, this can help to ensure that the amount of water consumed from SCA's storages is efficient, and that water conservation or supply augmentation measures are implemented where appropriate.

IPART's has decided not to change SCA's current price structure, including the balance between the volumetric and fixed charges. IPART considers that this approach is a reasonable 'holding' option for the 2009 determination period, given that there is some uncertainty about SCA's operating environment over this period, due to the scheduled release of the updated Metropolitan Water Plan, the review of the water restrictions regime, the development of the operating regime for the desalination plant and the commissioning of this plant in 2010.

Once these matters have been resolved by Government, and IPART is able to determine SCA and Sydney Water's prices concurrently, IPART is interested in exploring the potential to introduce a form of scarcity pricing as part of its 2012 price reviews. Under such a pricing approach, IPART would set the price of water from SCA's dams to vary inversely with dam levels, reflecting the value of SCA water under prevailing conditions. This would have the potential benefits of: signalling to Sydney Water when it might be more appropriate to draw on alternative sources of water in preference to SCA supply (ie, when dam levels are low, and SCA's price is relatively high); providing incentives to Sydney Water to invest in additional water conservation and demand management measures, where efficient; and providing signals to potential new suppliers of bulk water. IPART envisages that this form of pricing would complement, rather than replace, the water restriction regime. IPART also favours a scarcity pricing model that protects non-discretionary levels of water consumption from large price rises – if variations in SCA's prices are passed through to Sydney Water's retail customers. IPART's preliminary thoughts on this pricing option are outlined further in Appendix F.

In making its decisions on the level of SCA's volumetric charge to Sydney Water over the 2009 determination period, IPART has used forecasts of SCA's sales to Sydney Water. These forecasts are based on Sydney Water demand projections (which have been updated since IPART's 2008 determination of Sydney Water's prices) less forecast supplies from Sydney Water's desalination plant and its North Richmond supply facility. In estimating supply from Sydney Water's desalination plant, IPART (and SCA) has relied on information provided by Sydney Water. According to Sydney Water, the desalination plant will operate at close to full capacity for its first two years of operation, as this is needed to assure the performance and reliability of the plant.[5]

1.1.5 IPART's use of output measures

For this determination, SCA's performance against a set of output measures set by IPART at its 2005 determination formed part of the assessment of the prudency of SCA's capital expenditure over 2005/06 to 2008/09 (see Chapter 6).

IPART has decided to develop output measures for the 2009 determination, as a starting point for the assessment of prudent expenditure at the next determination of SCA's prices. These output measures are listed in section 3.9 and Appendix H.

5 Letter from Sydney Water to IPART, 5 May 2009 (available at: www.ipart.nsw.gov.au).

1.1.6 Comparison with IPART's draft determination

Table 1.8 compares SCA's prices under IPART's draft determination with prices under this final determination, while Table 1.9 and Table 1.10 list impacts on Sydney Water and Wingecarribee Shire Council customers under the draft and final determinations. These tables show that, relative to the draft determination, the final determination increases SCA's prices by a relatively small amount and that its impact on the bills of water customers is very minor.

As mentioned above, differences between the draft and final determinations are due to:

- IPART's decision to set prices so that the present value of SCA's target revenue is equal to the present value of its notional revenue requirement over the determination period (see section 3.5), which has the effect of increasing prices
- a reduction in forecast SCA water sales (see Chapter 7), which also increases prices (as SCA's per unit prices have to rise to cover its costs – which are predominately fixed) and
- IPART's decision to use a lower WACC of 6.5 per cent in response to changed market parameters (see section 6.3 and Appendix E)[6], which lowers SCA's revenue requirement and therefore offsets to a large extent the price rising effects of the previous two factors.

Table 1.8 Final decisions compared to draft decisions on prices for SCA services from 2009/10 to 2011/12 ($, real 2008/09)

	Current price (2008/09)	2009/10	2010/11	2011/12
Volumetric price to Sydney Water ($/ML)				
Draft determination	222.17	237.43	245.43	253.71
Final determination	222.17	240.61	250.57	260.92
Difference between final and draft		1.3%	2.1%	2.8%
Fixed charge to Sydney Water ($M)				
Draft Determination	67.21	71.82	74.24	76.75
Final Determination	67.21	72.78	75.80	78.93
Difference between final and draft		1.3%	2.1%	2.8%
Volumetric price to Local Councils ($/ML)				
Draft Determination	210.05	224.48	232.04	239.87
Final Determination	210.05	227.48	236.90	246.69
Difference between final and draft		1.3%	2.1%	2.8%
Volumetric price for unfiltered water ($/kL)[a]				
Draft Determination	0.84	0.90	0.93	0.96

6 The WACC of 6.5 per cent is a real pre-tax WACC. IPART used a WACC of 7.0 per cent for the draft determination.

	Current price (2008/09)	2009/10	2010/11	2011/12
Final Determination	0.84	0.91	0.95	0.99
Difference between final and draft		1.1%	2.2%	3.1%
Volumetric price for raw water ($/kL)[a]				
Draft Determination	0.49	0.53	0.54	0.56
Final Determination	0.49	0.53	0.55	0.58
Difference between final and draft		0.0%	1.9%	3.6%
Fixed charge to unfiltered water customers – for 20 mm meters ($)				
Draft Determination	75.00	80.15	82.85	85.65
Final Determination	75.00	81.23	84.59	88.08
Difference between final and draft		1.3%	2.1%	2.8%

a These volumetric charges to unfiltered and raw water customers do not increase by the exact same proportions as SCA's other prices, due to rounding (to the nearest cent per kL).

Table 1.9 Impact on Sydney Water customers: final determination compared to draft determination of SCA prices ($, real 2008/09)

	2009/10	2010/11	2011/12
Increase in Sydney Water water service charge for typical households as a result of this determination[a]			
Draft determination	6.59	9.56	16.41
Final determination	6.77	12.40	16.45
Increase in typical water and sewerage bills for Sydney Water's customers as a result of determination[b]			
Draft Determination	0.7%	1.0%	1.6%
Final Determination	0.7%	1.3%	1.6%

a Assumes a 20mm meter connection (as is the case for most residential premises).

b Assumes 20mm meter connection and water consumption of 200kL per annum.

Table 1.10 Impact on Wingecarribee Shire Council customers: final determination compared to draft determination of SCA prices ($, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Typical household water bill ($)				
Draft Determination	380[a]	383	385	387
Final Determination	380[a]	384	386	388
Typical household water bill: increase relative to 2008/09 (%)				
Draft Determination		0.9%	1.3%	1.8%
Final Determination		1.0%	1.6%	2.2%
Typical household water & sewerage bill ($)				

	2008/09	2009/10	2010/11	2011/12
Draft Determination	900[b]	903	905	907
Final Determination	900[b]	904	906	908
Typical household water & sewerage bill: increase relative to 2008/09 (%)				
Draft Determination		0.4%	0.6%	0.7%
Final Determination		0.4%	0.7%	0.9%

a According to Wingecarribee Shire Council, a typical water bill is currently about $380 per annum, and the cost of purchasing bulk water from SCA accounts for approximately 12.5 per cent ($47.50) of this bill (email to IPART, 5 December 2008).

b Wingecarribee Shire Council's April 2009 submission advised that residents are currently paying approximately $520 per annum in sewerage charges. Therefore, assuming a typical water bill is $380 per annum, a typical household water and sewerage bill is $900 per annum.

1.2 Structure of this report

This report explains IPART's decisions for the determination in detail, including analysis supporting each decision. The report is structured as follows:

- Chapter 2 outlines the scope and context for the review, including IPART's review process, SCA's operating and regulatory environment, and SCA's submissions to IPART
- Chapter 3 outlines IPART's price setting approach and its decisions related to the regulatory framework
- Chapter 4 explains the 'building block' approach used to establish SCA's notional revenue requirement, and provides an overview of IPART's decisions on this revenue requirement and its individual components
- Chapters 5 and 6 discuss IPART's decisions on these individual components in more detail:
  - Chapter 5 explains the decisions on SCA's efficient operating expenditure
  - Chapter 6 explains the decisions on the allowances for a return on assets and regulatory depreciation.
- Chapter 7 sets out the decisions on SCA's forecast water sales
- Chapter 8 discusses the decisions on SCA's price structure and price levels
- Chapter 9 outlines the implications of IPART's pricing decisions, including the impacts on SCA, its customers and the environment.

2 Context for this review

As Chapter 1 noted, the purpose of IPART's review is to determine the maximum prices SCA can charge for the water services it provides to its customers. The following sections outline the context for the review, including IPART's review process, the matters it has considered, SCA's operations and regulatory environment and SCA's submissions to the review.

2.1 IPART's review process

For this review, IPART undertook an extensive investigation and public consultation process, including:

- releasing an issues paper in July 2008 to assist in identifying and understanding the key issues for review
- inviting SCA 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 demands[7]
- inviting other interested parties to make submissions on the issues paper and SCA's submission[8]
- holding a public hearing on 19 November 2008 to discuss a wide range of issues raised by SCA and other stakeholders
- engaging an independent consultant, WorleyParsons Services Pty Ltd (WorleyParsons), to review SCA's capital expenditure, asset planning, asset lives and operating expenditure proposals
- releasing a draft report and draft determination, and inviting stakeholders to make submissions in response to these drafts.

IPART's draft report and determination, IPART's issues paper, stakeholder submissions, the transcript from the public hearing and WorleyParsons' reports are available on IPART's website (www.ipart.nsw.gov.au).

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7 SCA's submission was received on 12 September, 2008. SCA also submitted a supplementary submission on 4 December 2008, in response to IPART seeking clarification and elaboration from SCA on several aspects of its proposal.

8 A total of 8 written submissions were received from other interested parties.

Having considered all matters raised in stakeholder submissions, IPART has now completed its investigation and made its final determination. The new charges will apply from 1 July 2009.

2.2 Matters considered

IPART is empowered to review and make determinations on the prices that SCA can charge for its water services, under the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act). Section 15 of this Act requires IPART to consider a broad range of matters when making determinations. These matters include:[9]

- **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
- **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, IPART aimed to balance the diverse needs and interests of stakeholders, while also ensuring that SCA is adequately recompensed for the services it provides.

IPART also takes into account the principles issued by the Council of Australian Governments (COAG) and contained in the National Water Initiative.[10]

In addition, for this determination, the Minister for Water (Minister) directed IPART (under section 16A of the IPART Act)[11] to take account of the efficient costs of SCA's contribution to the Accelerated Sewerage Program, and set prices to recover these costs. (The effect of the Minister's direction on prices is discussed in Chapter 9, and the Minister's direction is provided in Appendix G.)

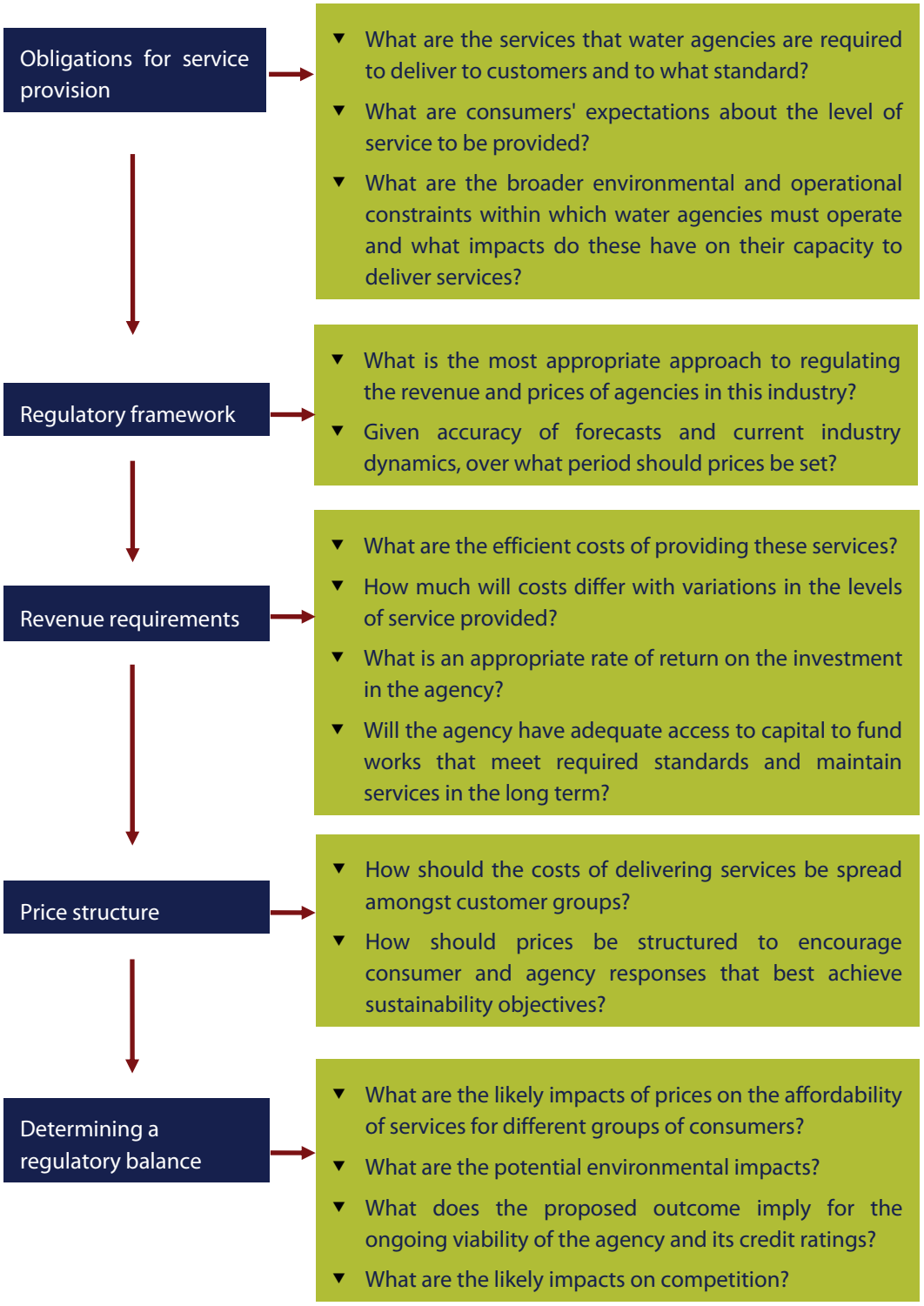
IPART's general approach to determining monopoly prices for water agencies is set out in Figure 2.1 below.

9 The section 15 requirements are listed in full in Appendix A.

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

11 Section 16A of the IPART Act states that the "portfolio Minister for a government agency may direct the Tribunal …. to include in the maximum price an amount representing the efficient cost of complying with a specified requirement imposed on the agency".

Figure 2.1 IPART's determination process



2.3 SCA's operations

SCA was established under the *Sydney Water Catchment Management Act 1998* (the Act). Its purpose is to manage and protect the water catchment areas and infrastructure under its control, and to supply bulk water of sufficient quality to Sydney Water and several smaller customers. Box 2.1 outlines its statutory objectives. The sections below discuss its customers, water supply system and regulatory and policy framework.

Box 2.1 SCA's statutory objectives

The *Sydney Water Catchment Management Act 1998* lists SCA's objectives as:[a]

- to ensure that the Catchment Areas and the Catchment Infrastructure Works are managed and protected so as to promote water quality, the protection of public health and safety, and the protection of the environment
- to ensure that water supplied by it complies with appropriate standards of quality
- where its activities affect the environment, to conduct its operation in compliance with the principles of ecologically sustainable development contained in section 6(2) of the *Protection of the Environment Administration Act 1991*; and
- to manage the SCA's Catchment Infrastructure Works efficiently and economically and in accordance with sound commercial principles.

a *Sydney Water Catchment Management Act 1998*; Section 14(1).

2.3.1 SCA's customers

SCA's bulk water supply system is the source of drinking water for approximately 4.5 million people, or about 60 per cent of NSW's population.[12] Sydney Water currently purchases about 99 per cent of SCA's bulk water supply. SCA's other 'bulk' or 'wholesale' customers include Wingecarribee Shire Council and Shoalhaven City Council. SCA also supplies about 65 smaller 'unfiltered' and 'raw' water retail customers, who have direct offtakes from pipelines, canals and storages.

In addition, there are plans to build a pipeline from SCA's Wingecarribee Reservoir to Goulburn, to supply Goulburn Mulwaree Local Council with up to 7.4 ML of water per day in times of drought.[13] The total cost of constructing the 88 kilometre pipeline is estimated to be approximately $50 million, with the NSW Government and the Federal Government's Water Fund each contributing $20 million and the Goulburn Mulwaree Council liable for the remaining $10 million.[14] Construction of

12 SCA submission, September 2008, p 8.
13 Goulburn Mulwaree Council submission, April 2009.
14 http://www.environment.gov.au/water/programs/wsa/projects/nsw19.html, accessed 12 February 2009.

the pipeline is scheduled to commence in 2009, and it is expected to be completed by June 2011.[15]

As well as supplying these water customers, SCA is required to release water to the environment in accordance with the conditions of its water management licence.

2.3.2 SCA's water supply system

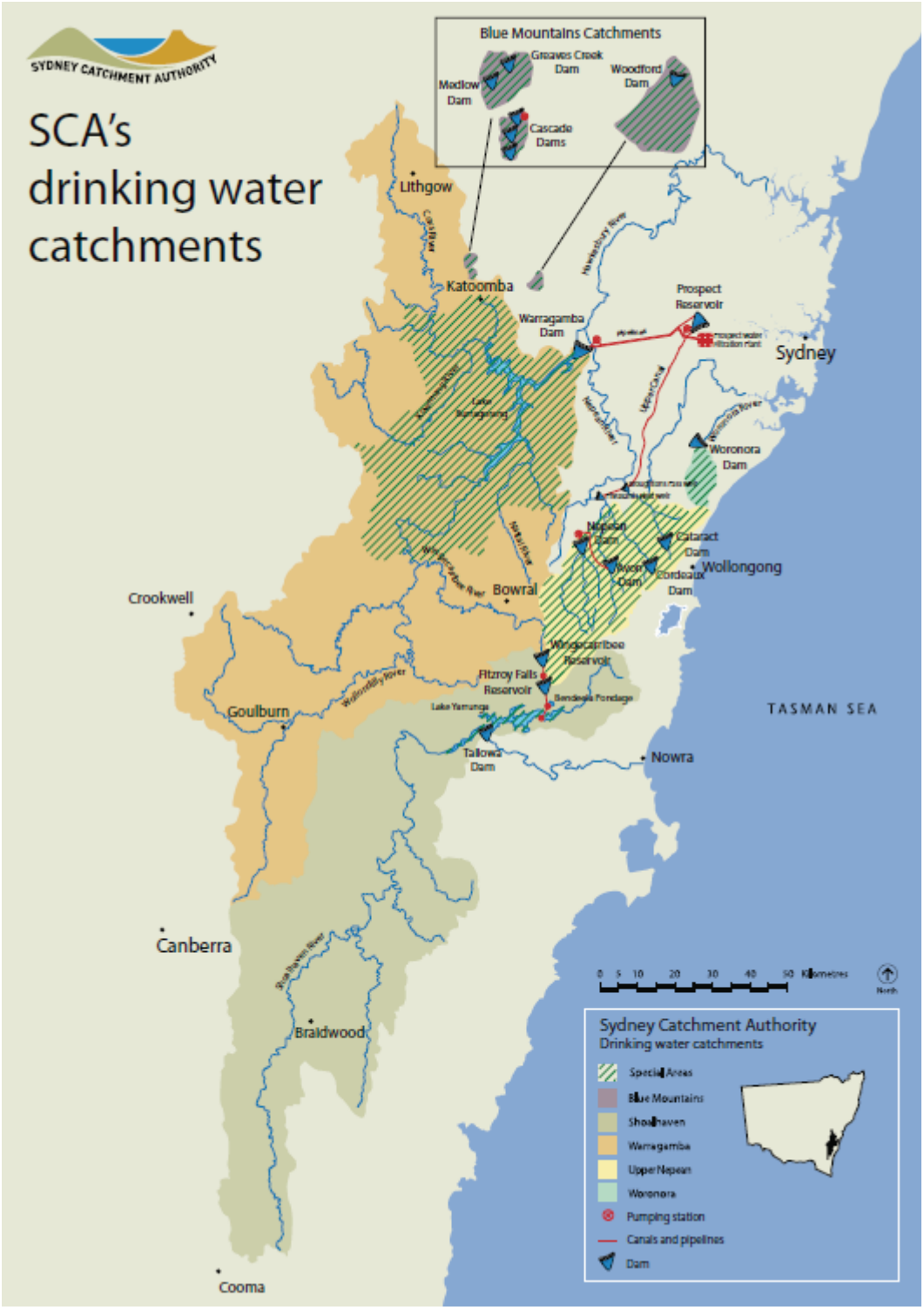
SCA's bulk water supply system has a total operating storage capacity of 2.6 million ML, and comprises a number of water storages and several water transfer conduits. SCA draws bulk water from five primary catchments: Blue Mountains, Shoalhaven, Warragamba, Woronora, and Upper Nepean.[16]

As Figure 2.2 shows, these catchments extend from the headwaters of the Coxs River north of Lithgow to the Shoalhaven River south of Braidwood. They (and therefore SCA's area of operations) cover more than 16,000 square kilometres, and include 3,700 square kilometres of Special Areas. These areas of bushland surround SCA's storages, and act as a buffer zone by stopping potentially harmful substances from entering the storages and restricting or prohibiting public access.

The water storages and infrastructure currently under SCA's control are shown in Figure 2.3. SCA's water balance, which lists its inflows and outflows, is provided in Appendix B.

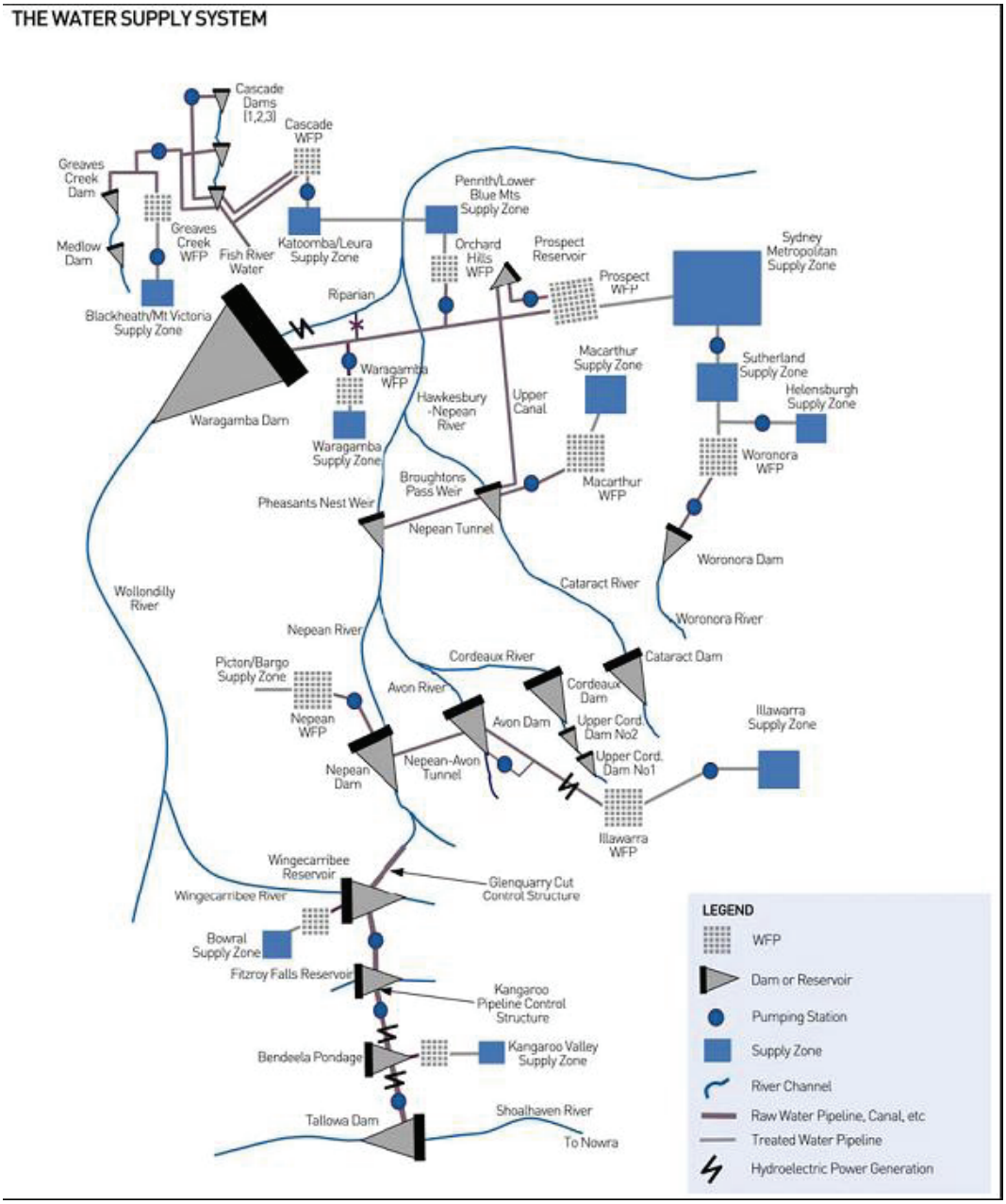
15 Goulburn Mulwaree Council submission, April 2009.
16 SCA submission, September 2008, p 8 & Appendix A.

Figure 2.2 SCA's catchments and special areas



Source: www.sca.nsw.gov.au, accessed May 2009.

Figure 2.3 Water storages and infrastructure under SCA's control



Note: SCA infrastructure only includes infrastructure upstream of water filtration plants (WFP). Other infrastructure is controlled by organisations other than SCA.

Source: www.sca.nsw.gov.au, accessed 12 May 2009.

2.3.3 SCA's regulatory and policy framework

Because of the important environmental, social, health and economic issues associated with catchment management and bulk water supply, SCA's operations are closely regulated by a number of agencies, through a range of regulatory and planning instruments. The requirements and obligations imposed by these instruments are an important driver of the organisation's costs, and therefore its prices.

The sections below outline the key regulatory instruments and requirements, including SCA's operating licence and water management licence, its Memoranda of Understanding in relation to environmental protection, water quality and public health, requirements related to dam safety and fisheries management, the state of the catchment audit, environmental planning instruments, bulk water supply agreements, and the Metropolitan Water Plan.

The operating licence

SCA's operating licence, which is issued under section 25 of the Act, sets out the terms and conditions under which SCA must meet its objectives and other requirements under the Act, and its performance standards, indicators and reporting requirements.[17] The operating licence contains provisions relating to bulk water quality, catchment management and protection, an environment plan and environmental performance indicators, management of catchment infrastructure works and water conservation, asset management, customer service and licence audits.

IPART is responsible for monitoring and reporting on SCA's compliance with the operating licence (in addition to setting the maximum prices SCA can charge). The current operating licence is for 2006-2010, and is available via SCA's website (www.sca.nsw.gov.au).

The water management licence

SCA's water management licence authorises it to take and use water from water sources and water management works as specified in this licence. The water management licence also specifies the amount of water SCA must release as environmental flows.[18]

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17 See section 1.1 of SCA's operating licence.

18 SCA's water management licence was granted in April 2001, pursuant to Part 9 of the *Water Act 1912*, by the Water Administration Ministerial Corporation (DWE undertakes water resource management activities on behalf of the Water Administration Ministerial Corporation). The licence is for a term of 20 years, but must be reviewed before the end of each five year period for the term of the licence. (See: http://www.sca.nsw.gov.au/about-sca/legislative-framework/water-management-licence, accessed 24 February 2009.)

SCA began releasing environmental flows from Avon Dam in 2008, and work is underway to modify the nearby Cataract, Cordeaux and Nepean dams and downstream weirs to allow new environmental flow releases to pass down the river.[19] The NSW Government has also announced new flow rules from Tallowa Dam, which will commence once all water restrictions in Sydney are lifted.[20] Further, the NSW Government has been preparing water sharing plans for the river and groundwater systems of the greater Sydney region, which will specify environmental flow requirements. These plans are expected to be gazetted in 2009.[21]

The NSW Department of Water and Energy (DWE), which has primary responsibility for the management of water resources throughout NSW, is responsible for administering SCA's water management licence and the water sharing plans.

Memoranda of Understanding

SCA has established Memoranda of Understanding (MoU) with NSW Health, the NSW Department of Environment and Climate Change (DECC), and the Water Administration Ministerial Corporation (part of DWE), as required by section 36 of the Act. SCA's operating licence sets out requirements in relation to each of these MoU, which relate to environmental protection, water quality standards and public health.[22]

Requirements in relation to dam safety and fisheries management

The dams SCA manages are deemed to be 'prescribed dams', and therefore must meet the requirements set by the NSW Dams Safety Committee. Under the *Dams Safety Act 1978* and the *Mining Act 1992*, this committee's main objective is to ensure that all 'prescribed dams' in NSW are in such a condition as to not pose an unacceptable danger to downstream residents and property, or to adversely affect the public welfare and environment. This is achieved by requiring all dam owners to arrange for regular monitoring and surveillance of their dams, ongoing assessment of their behaviour on the basis of monitoring and surveillance information, regular review of the compliance of their dams with current standards and review of all such information and assessments by experienced personnel.[23]

In addition, SCA is required to meet requirements set by the NSW Department of Fisheries (under the *Fisheries Management Act 1994*) to install infrastructure enabling fish to migrate along river systems within the catchment area.

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19 NSW Government, *Metropolitan Water Plan 2008 Progress Report*, January 2009, p 30 and 32.
20 Ibid, p 31.
21 Ibid, p 32.
22 See:www.sca.nsw.gov.au/about-sca/legislative-framework/memoranda-of-understanding, accessed 24 February 2009; and section 2.3 of SCA's operating licence.
23 Dams Safety Committee, *DSC1 – General Information*, April 2005, www.damsafety.nsw.gov.au/DSC/Download/Info_Sheets_PDF/General/DSC01.pdf, accessed 28 May 2009.

The state of the Catchment audit

The Act requires that SCA's performance is monitored via an audit of the state of Sydney's drinking water catchment. This audit is to be undertaken every two years, and a report on its finding is to be submitted to the Minister responsible for SCA.

DECC undertook the most recent audit, which covered the period from 1 July 2005 to 30 June 2007. The audit report is available on DECC's website (www.environment.nsw.gov.au), and its recommendations are summarised in Appendix C.

Environmental planning instruments

The Sydney Drinking Water Catchments Regional Environmental Plan No 1 (REP) is intended to assist SCA in fulfilling its catchment protection function, and also imposes requirements and responsibilities on SCA. It replaces State Environmental Planning Policy No 58 (SEPP 58)[24] and:

- sets water quality objectives for the Catchment
- requires SCA to develop Rectification Actions Plans (RAPs)
- requires councils to prepare and review local environmental plans (LEPs), which include consideration of strategic land and water capability assessments
- requires councils to assess and approve new developments and activities in the catchments, and that proposals have a neutral or beneficial effect on water quality.[25]

Bulk water supply agreements

Section 22 of the Act requires SCA to enter into agreements with Sydney Water regarding the supply of bulk water. The agreements are to deal with water quality, continuity of water supply, the maintenance of adequate reserves of water by SCA and the cost paid by Sydney Water. In addition, SCA's operating licence requires it to enter into agreement with other customers to define the terms and conditions of bulk water supply by SCA.

SCA's Bulk Water Supply Agreement (BWSA) with Sydney Water commenced in September 1999 for a term expiring on 30 June 2004. This term was subsequently extended to the end of 2005. A new BWSA commenced in April 2006 for an unspecified period.[26]

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24 SEPP 58 required councils to only grant approval to developments that demonstrated a neutral or beneficial effect on drinking water quality, and to seek agreement from SCA for certain developments.

25 Sydney Catchment Authority and NSW Department of Planning, *Sustaining the Catchments – The Regional Plan for the drinking water catchments of Sydney and adjacent regional centres, Summary Brochure*, 1 January 2007.

26 Halcrow Pacific Pty Ltd, *2007 Operational Audit of Sydney Catchment Authority, Audit Report*, Report to IPART, December 2007, p 3-5.

SCA has also finalised a BWSA with Shoalhaven City Council and is working towards finalising a BWSA with Wingecarribee Shire Council.[27] IPART expects that SCA will also develop a BWSA with Goulburn Mulwaree Council, in light of the planned Wingecarribee to Goulburn pipeline.

The Metropolitan Water Plans

Although not a regulatory instrument per se, the Metropolitan Water Plan is a major driver of SCA's investment and operational requirements. The Metropolitan Water Plan was first developed in 2004, with an updated version released in 2006 and progress reports published in 2007 and 2008. This plan is the NSW Government's strategy for ensuring that Sydney's water supply matches demand over the next 25 years. It identified several projects to be carried out by SCA to augment Sydney's water supplies. These include:

- accessing previously inaccessible deep water in Warragamba and Nepean dams
- increasing transfers of water from the Shoalhaven to Sydney, involving increasing the capacity of Tallowa Dam (by raising the dam wall) and construction of new transfer conduits
- modifications to Tallowa Dam to allow fish passage and to improve the quality of water releases for the downstream environment, and new environmental flow operating rules from Tallowa Dam to the Shoalhaven River
- investigating potential groundwater resources in the catchments, including sites at Kangaloon, Leonay and Wallacia
- modifications to dam outlets at SCA's Upper Nepean dams to enable the release of flows in accordance with a new environmental flow regime.[28]

The 2008 Progress Report on the Metropolitan Water Plan[29] noted that:

- SCA has competed works at Warragamba and Nepean dams to enable it to access water at the bottom of these dams[30]
- Modifications at Tallowa Dam include works to allow fish to travel up and over the dam wall. These modifications will also improve the quality of environmental water released from the dam[31]
- SCA has completed its investigation of the potential for using groundwater from sites at Kangaloon, Leonay and Wallacia[32]

27 www.sca.nsw.gov.au/water-quality/bulk-water-supply-agreements, accessed 6 May 2009.
28 NSW Government, *2006 Metropolitan Water Plan*.
29 NSW Government, *Metropolitan Water Plan 2008 Progress Report*, January 2009.
30 Ibid, p 11.
31 Ibid, p 31.
32 Ibid, p 12.

- Avon Dam has been modified to allow environmental flow releases, which commenced in March 2008. Work is underway to modify the Cataract, Cordeaux and Nepean dams and thirteen downstream weirs to enable releases to flow down the river for environmental benefit.[33]

However, since the 2004 Metropolitan Water Plan, the Government has decided not to proceed with raising the dam wall at Tallowa. Instead, it is looking at alternative operational arrangements for the Shoalhaven Transfer Scheme and investigating pipeline and tunnel options should it proceed with transfers of more water from Tallowa Dam to Sydney and the Illawarra.[34]

2.4 Overview of SCA's submission to the Issues Paper

SCA provided its initial submission and its Information Returns to IPART in September 2008, and a supplementary submission in December 2008 that provided clarification and further information on a few elements of its initial submission. Since then, SCA has also advised IPART's consultants (WorleyParsons) of relatively minor adjustments to its actual capital expenditure in 2006/07 and 2007/08 and its estimated operating expenditure in 2008/09.[35]

In relation to operating expenditure, SCA spent approximately 9 per cent more over 2005/06 to 2008/09 than IPART allowed for in the 2005 determination. This was due to unforeseen costs associated with pumping water from the Shoalhaven to Sydney, to augment Sydney's water supply during the drought. When these pumping costs are excluded, SCA's operating costs over the 2005 determination period were about 1.5 per cent less than allowed for in the 2005 determination.[36]

SCA is forecasting an 11.8 per cent increase in operating expenditure from 2008/09 to 2009/10. This is due to the NSW Government's requirement for it to contribute $17.7 million ($2009/10) to the Accelerated Sewerage Program. When these costs are excluded (and the costs of pumping water from the Shoalhaven are excluded from its past operating costs),[37] SCA's forecast operating expenditure over the 2009 determination period is about 3.6 per cent less than 2008/09 levels.

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33 Ibid, p 30.

34 NSW Government, *2006 Metropolitan Water Plan*, pp 83-85; and NSW Government, "Water for Life, frequently asked questions", www.waterforlife.nsw.gov.au/about/frequently_asked_questions, accessed 12 February 2009.

35 SCA has advised WorleyParsons that its expected operating expenditure for 2008/09 has been revised from $86 million to $87 million (including $4 million in Shoalhaven pumping costs). SCA's financial audit (which was finalised after its submission) identified $6.3 million in capital expenditure that was not included in its 2008 Information Returns (and submission) to IPART. This is comprised of $6.6 million that was incorrectly excluded from SCA's capital costs for 2007/08, less $0.3 million that was incorrectly included in SCA's capital costs for 2006/07. (WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 5 and p 71.)

36 See: WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, pp 22-23.

37 Estimated at $4 million in 2008/09.

In relation capital investment, SCA spent significantly less over the 2005 determination period (about 34 per cent) than IPART allowed for in the 2005 determination. This is primarily due to the NSW Government's decision not to proceed with raising the Tallowa Dam wall, which meant that the Shoalhaven Transfers Scheme did not proceed. Excluding the forecast costs of Shoalhaven Transfer Scheme, SCA's capital expenditure over the 2005 determination period was about 28 per cent more than allowed for in the 2005 determination.

For the 2009 determination period, SCA's forecast capital expenditure program is modest compared to its program for 2005/06 to 2008/09. Its submission indicates it proposes to spend an average of $42.8 million per year over the 2009 determination period, compared to an average of $101.4 million per year over the 2005 period.

Other key elements of SCA's pricing proposal include:

- a three year price path, to enable alignment with Sydney Water at the next price review
- a 7.5 per cent return on assets, to be achieved in each year of the price path
- a mechanism to enable SCA to pass through Shoalhaven pumping costs to Sydney Water throughout the determination period
- a mechanism to make price adjustments in the subsequent determination (2012), where the variation between SCA's actual and forecast water demand is more than +/- 5 per cent over the 2009 determination period
- a change in the balance between revenue generated through fixed charges and volumetric charges to Sydney Water, so that more revenue is generated through the fixed charge (around 80 per cent in 2009/10 compared to about 38 per cent in 2008/09) and less revenue is generated through the volumetric charge (around 20 per cent in 2009/10 compared to around 62 per cent in 2008/09)
- the maintenance of prices to Local Councils at their 2008/09 levels, in real terms
- increases to unfiltered water prices so they are aligned with Sydney Water's unfiltered water charges, and increases to raw water prices so they are aligned with unfiltered water prices by the end of the determination period (this would affect approximately 65 retail customers[38]).

SCA's submission expressed concern that IPART may have underestimated SCA sales volumes in the 2008 Sydney Water determination, and that a "shortfall of eight gigalitres per annum in SCA's sales is equivalent to a loss of revenue of approximately $1.8 million per annum to SCA."[39] IPART notes, however, that its determination of SCA's volumetric price to Sydney Water is based on the sales forecasts outlined in Chapter 7 of this report. It also notes that the cost pass through

[38] SCA's 65 retail customers are comprised of 7 raw water customers and 58 unfiltered water customers. (SCA's 2008 Information Return to IPART forecasts 7 raw water customers over the 2009 determination period, and recent information provided by SCA shows that it now services 58 unfiltered water customers.)

[39] SCA submission, September 2008, p 44.

mechanism established at the 2008 Sydney Water determination adjusts Sydney Water's retail prices to account for any difference between:

1. SCA's prices set at this determination and the forecast sales volumes used to set these prices (ie, the estimated cost of Sydney Water's purchases of bulk water from SCA over 2009/10 to 2011/12 as a result of this determination), and
2. SCA's prices and forecast sales volumes used to set Sydney Water's prices at its 2008 determination (ie, the cost of Sydney Water's purchases of bulk water from SCA over 2009/10 to 2011/12 – as assumed when setting Sydney Water's prices at its 2008 determination).[40]

SCA also expressed concern that the meter numbers used in the denominator of the pass through formula from IPART's 2008 Sydney Water determination may not be the number of 20mm equivalent connections, but rather the residential portion of 20mm connections only.[41] However, IPART confirms that the forecast 20mm equivalent connection numbers in the cost pass through mechanism in IPART's 2008 Sydney Water determination include both residential and non-residential connections.

Table 2.1 shows SCA's proposed annual notional revenue requirement at the time of its September 2008 submission, which equates with its proposed annual target revenue from charges in each year of the determination period. Tables 2.2 and 2.3 list SCA's proposed prices and the implications of these proposed prices for Sydney Water's customers. Table 2.3 shows that SCA's proposed charges to Sydney Water would result in increases in typical residential water service charges of about $18 per annum, relative to the schedule of charges set at the 2008 determination of Sydney Water's prices. According to SCA, in 2009/10 this is comprised of $7 per customer for the increase in return on assets and $11 per customer for SCA's contribution to the Accelerated Sewerage Program (ASP).

40 As noted in Chapter 1, IPART's 2008 Sydney Water determination included a pass through mechanism that allows Sydney Water to adjust its water service charges to reflect changes in its bulk water cost as a result of the 2009 determination of SCA's prices. (See: IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, From 1 July 2008, Determination*, June 2008, pp 64-68.)

41 SCA submission, September 2008, p 44.

Table 2.1 SCA's proposed revenue requirement ($ million, real 2008/2009)

	2008/09	2009/10	2010/11	2011/12
Operating expenditure	87.0[a]	97.3[b]	80.0	80.0
Depreciation[c]	19.6	21.1	21.8	21.9
Return on assets[c]	78.1	95.1	97.5	98.6
Revenue requirement	**184.7**	**213.5**	**199.3**	**200.5**

a Adjusted up from SCA's submission – see pages 22 to 23 of WorleyParsons' *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination).*

b Includes SCA's $17.7 million ($2009/10) contribution to the Accelerated Sewerage Program (ASP).

c WorleyParsons notes that SCA's financial audit identified $6.258 million that has not been included in its 2008 Information Returns to IPART. This would affect SCA's opening RAB value for the 2009 determination period and hence its allowance for depreciation and return on assets. The figures in Table 2.1 are from SCA's September 2008 submission.

Source: SCA submission, September 2008, p 36.

Table 2.2 SCA's proposed prices ($, real 2008/09)

	Current price (2008/09)	2009/10	2010/11	2011/12
Volumetric price to Sydney Water ($/ML)	222.17	75.59	78.69	78.76
Fixed charge to Sydney Water ($M)	67.21	172.43	161.52	161.67
Volumetric price to Local Councils ($/ML)	210.05	210.05	210.05	210.05
Volumetric price for unfiltered water ($/kL)[a]	0.84	1.50	1.60	1.63
Volumetric price for raw water ($/kL)[a]	0.49	0.87	1.25	1.63
Fixed charge to unfiltered water customers – for 20 mm meters ($)[a]	75.00	90.96	105.86	116.39
Fixed charge to unfiltered water customers – for meter size > 20 mm ($)	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400

a SCA does not specifically list unfiltered and raw water prices in its submission. The prices listed in this table are based on its proposal on p 43 of its submission that "unfiltered water prices be fully aligned with Sydney Water unfiltered water prices" and that "over the next price path, raw water customers' usage charge be glide pathed up, to align with that of unfiltered water customers."

Source: SCA submission, September 2008, pp 41-43, and SCA 2008 Information Returns.

Table 2.3 Impact of SCA's proposed prices on Sydney Water customers ($, real 2008/09)

Typical water & sewerage bill: Household (20mm meter), consuming 200 kL pa	2009/10	2010/11	2011/12
Bill - 2008 Sydney Water determination	$933	$974	$997
Increase to bill from 2009 SCA determination	$18	$17	$19
Increase to bill from 2009 SCA determination	1.9%	1.8%	1.9%

Source: SCA submission, September 2008, p 45.

2.5 Overview of SCA's submission in response to the draft determination and draft report

In response to IPART's draft determination and draft report, SCA's April 2009 submission stated that elements of IPART's approach to setting prices in the draft determination may expose it to financial risk. To reduce this risk, it reiterated its arguments for the following measures:

- A substantially higher fixed revenue component from charges to Sydney Water. SCA believes that its charges should be set so that it recovers approximately 80 per cent of its revenue via its fixed charge to Sydney Water.
- A pass through mechanism for SCA's costs of pumping water from the Shoalhaven River.
- Setting prices so that SCA is able to recover its full notional revenue requirement over the price path. SCA suggested that a 'Net Present Value (NPV) smoothing approach' should be adopted.[42]
- Determining an appropriate weighted average cost of capital (WACC).

SCA estimated that these measures would have a minimal impact on Sydney Water and its customers.

Further, SCA provided an update on its forecast sales to Sydney Water over the next three years. Over the determination period, the revised forecast is 26 gigalitres (GL) lower than allowed by IPART in the draft determination.[43]

IPART's considerations of SCA's proposals are outlined further at relevant sections throughout this report.

42 Under this approach, prices are set so that: i) prices increase smoothly over the regulatory period; and ii) the present value of a utility's expected revenue from tariffs equates with the present value of its notional revenue requirement over the regulatory period.

43 SCA submission, April 2009, p 15.

3 IPART's approach to setting prices

The approach to price setting can be defined as the rules and methodologies a regulator uses to determine, monitor and change prices for regulated services over a determination period. For this review, IPART used the same broad approach it has used in past determinations of SCA's prices to calculate SCA's notional revenue requirement, and convert this revenue requirement into prices. It also reviewed and made decisions on several aspects of its price setting approach, including:

- the length of the determination period
- the aggregate pricing approach
- whether to adjust SCA's notional revenue requirement to account for SCA's lower than forecast water sales and lower than expected capital expenditure over the 2005 determination period
- whether to introduce a regulatory mechanism to address the risk that there is significant variation between SCA's forecast water sales and actual water sales over the 2009 determination period
- whether to introduce a regulatory mechanism to allow SCA to pass through unforeseen costs associated with pumping water from the Shoalhaven to Sydney over the 2009 determination period
- whether to require SCA to report on its progress against output measures, and if so, what these measures should be.

The section below summarises IPART's approach and decisions in relation to price setting. The following sections discuss the price setting approach and decisions in more detail.

3.1 Overview of price setting approach and decisions

As for previous determinations, IPART used the building block approach to calculate SCA's notional revenue requirement. To convert this amount into prices, it maintained the current price structure, which includes volumetric (per ML or kL) charges and fixed (per month and per annum) charges. It also maintained the relative proportions of revenue to be generated through each type of charge, and increased all of SCA's charges (to all of its customers) by the same percentage over the determination period. It set the level of charges after considering a range of matters. In particular, it aimed to balance several objectives including ensuring

SCA's financial viability, encouraging economic efficiency and protecting water consumers from price shocks.

IPART has decided to adopt a three-year determination period, from 1 July 2009 to 30 June 2012. This will enable future price determinations for SCA to occur at the same time as those for Sydney Water and increase certainty and clarity for all stakeholders.

After considering the views of stakeholders, economic efficiency and the need to balance SCA's financial viability and customer impacts, IPART decided to set final price levels so that the present value of SCA's target revenue equates with the present value of its notional revenue requirement over the determination period.[44] In doing so, IPART also decided to adopt a similar price path to the draft determination. This means that prices will increase by a significant but reasonable amount in 2009/10, then increase smoothly and more gradually in the remaining two years of the determination period.

In addition, IPART decided not to adjust SCA's notional revenue requirement to account for lower than forecast water sales and lower than expected capital expenditure in the 2005 period. It considers an adjustment is unnecessary, as the effects of these variations have approximately offset each other. It also decided not to include a regulatory mechanism to address the risk of variations between forecast water sales and actual water sales in the 2009 determination, or to allow SCA to pass through costs associated with pumping water from the Shoalhaven. Finally, IPART decided to require SCA to report on progress against six output measures.

3.2 Approach for determining the notional revenue requirement

As for previous determinations, IPART used the building block approach to calculate SCA's notional revenue requirement in each year of the determination period. To apply this approach, it made decisions on the revenue SCA will require for efficient operating expenditure and capital investment over the determination period.

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 also enables IPART to create incentives for the regulated business to improve its economic efficiency over the determination period. In addition, it is consistent with the approach IPART uses in regulating other water businesses and industries in NSW.

Chapter 4 provides a fuller explanation of the building block approach and summarises IPART's decisions on each building block.

44 This is sometimes referred to as an 'NPV neutral' approach.

3.3 Broad approach for converting the notional revenue requirement into prices

To convert the notional revenue requirement into prices, IPART considered a range of matters, including:

- SCA's forecast water sales over the determination period
- the structure of SCA's prices, and the ratio of the revenue to be generated from each type of charge
- the level of prices.

3.3.1 Forecast water sales

SCA's forecast water sales over the determination period are an important input for setting the level of charges that vary with customer usage (ie, SCA's volumetric charges). The less accurate these forecasts are, the greater the risk that the prices IPART sets will result in SCA either over- or under-recovering its required revenue over the determination period. IPART's considerations and decisions on forecast water sales are discussed in Chapter 7.

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

The structure of prices and the ratio of revenue to be generated from each type of charge are important, as they have implications for the price signals sent to customers and the revenue risk for SCA.

After considering the views of SCA and other stakeholders, IPART maintained the current price structure, which includes a variable volumetric (or usage) charge and a fixed service charge to Sydney Water. It also maintained the current volumetric/fixed ratio of charges to Sydney Water, whereby SCA generates around two-thirds of its required revenue through the volumetric charge and about one-third through the fixed charge. In addition, IPART decided to increase all charges, to all customers, by the same percentage over the determination period.

IPART's considerations and decisions on these issues are discussed in detail in Chapter 8.

3.3.3 Price levels

IPART does not simply set prices to generate the annual notional revenue requirement. Rather, in line with the requirements of the IPART Act, it considers a range of matters, including:

- the magnitude of the price increases required to generate the annual notional revenue requirement, and impacts of these increases on water customers with varying levels of water consumption

- the implications of these and smaller price increases for SCA and its shareholders – including the implications for SCA's short and long-term financial viability, likely rate of return over the determination period, ability to pay dividends, and credit rating.

It then sets price levels to achieve a balance between potentially competing objectives, such as ensuring that price increases do not have unacceptable impacts on customers and society in general, and allow SCA to generate sufficient revenue to operate, maintain and renew its assets, and carry out its functions in a way that meets its service standards and other obligations. Achieving this balance can mean that it sets price levels so that SCA's target revenue (ie, the revenue it is expected to generate through charges) is less that its notional revenue requirement in some or all years of the determination period.

For this determination, IPART decided to set prices so that the present value of SCA's target revenue equals the present value of its notional revenue requirement over the determination period. This decision, along with IPART's decision on the pattern of price increases over the determination period, is discussed in section 3.5 below.

3.4 Length of the determination period

Decision

1 IPART's decision is to adopt a three-year determination period (from 1 July 2009 to 30 June 2012).

3.4.1 SCA's proposal

SCA proposed a three-year determination period, as it considers there would be risks associated with setting prices for longer than three years.[45] These risks arise from uncertainty about several issues with major implications for SCA's expenditure requirements, which should be resolved in the coming years. For example, the NSW Government is expected to release its next Metropolitan Water Plan in 2010. SCA expects this plan will include decisions on the Shoalhaven Transfer Scheme, the Upper Canal project, the timing of environmental flow releases from Warragamba Dam, the water restriction regime and the desalination plant's operating rules.

SCA also notes that a three-year determination period would ensure that IPART's next price determination for SCA will coincide with its determination for Sydney Water (in 2012).

45 SCA submission, September 2008, p 25.

3.4.2 Stakeholder views

In their submissions to this price review, both Jemena Limited and Total Environment Centre (TEC) supported a three-year determination period to align IPART's price reviews for SCA and Sydney Water.

Jemena Limited considered that a three-year determination period recognises the interdependence of SCA and Sydney Water, and reduces SCA's exposure to uncertainty about the operating strategy for Sydney Water's desalination plant beyond its initial two years of operation.[46]

TEC submitted that there is value in aligning the price paths of SCA and Sydney Water, as SCA's prices have a major bearing on Sydney Water's prices and are crucial in providing a conservation signal to encourage Sydney Water to invest in demand management.[47]

3.4.3 IPART's considerations

On balance, IPART considers that a three year determination period (1 July 2009 to 30 June 2012) is appropriate. This will enable future price determinations of SCA and Sydney Water to be aligned, which will enhance certainty and clarity for all stakeholders.

3.5 Aggregate pricing approach

Decision

2 IPART's decision is to set prices so that the present value of SCA's target revenue equates to the present value of its notional revenue requirement over the determination period.

In the 2005 determination, IPART used a 'p-nought adjustment' and then 'glide path' aggregate pricing approach. Under this approach, price increases in the first year of the determination period were higher than subsequent years (ie, a 'p-nought adjustment'). Then, in the remaining years of the period, prices increased smoothly by amounts sufficient for SCA's target revenue to equal to its notional revenue requirement in the final year only.

For the draft determination, IPART decided to use the same pricing approach as the 2005 determination. In present value terms, this resulted in SCA's expected revenue from tariffs being $21.9 million less than its notional revenue requirement over the determination period.

46 Jemena Limited submissions: October 2008, p 2; and April 2009, p 1.
47 Total Environment Centre submission, October 2008, p 3.

3.5.1 Stakeholder views

SCA opposed the pricing approach in the draft determination. It argued that IPART should set prices so that the present value of its expected revenue from tariffs equates with the present value of its notional revenue requirement over the determination period. SCA states that an 'NPV smoothed' approach[48] can be used to manage price impacts, while also allowing for full cost recovery over the regulatory period. It estimates that using an 'NPV smoothed' price path, rather than the price path of the draft determination, would result in only very minor additional price increases to Sydney Water and its customers.[49]

Sydney Water did not support IPART's approach in the draft determination of setting prices to recover "less than efficiently determined costs." It also believes that IPART should set prices so that the present value of expected revenues equals the present value of efficient costs. Sydney Water also contends that the price increase necessary for full cost recovery is small.[50]

Jemena also expressed its concern that the price path of the draft determination would result in revenue that, in present value terms, is $21.9 million below SCA's expected costs over the determination period.[51]

3.5.2 IPART's considerations

For this final determination, IPART has decided to set prices so that the present value of SCA's target revenue equates to the present value of its notional revenue requirement over the determination period. In doing so, it has also set prices so that price increases in the first year of the determination period are higher than in subsequent years. Table 3.1 shows that, in present value terms, the difference between SCA's notional revenue requirement and its target revenue is zero, and that SCA's prices to Sydney Water and Local Councils will increase by approximately 8.3 per cent in 2009/10 and then by about 4.1 per cent in each of 2010/11 and 2011/12.

48 Under this approach, prices increase relatively smoothly over the determination period, but in a manner that ensures that the present value of a utility's expected revenue from prices equates with the present value of its notional revenue requirement.

49 SCA submission, April 2009, p 10.

50 Sydney Water Corporation submission, April 2009, p 1.

51 Jemena submission, April 2009, p 1.

Table 3.1 Decision on aggregate pricing approach ($ million, real 2008/2009)

	Current (2008/09)	2009/10	2010/11	2011/12
Notional revenue requirement	182.3	201.6	187.1	188.2
Present value of notional revenue requirement	532.9			
Target revenue (expected revenue from tariffs)	182.3	193.7	189.5	194.6
Present value of target revenue	532.9			
Difference between present value of notional revenue requirement and present value of target revenue	0.0			
Year on year increase in charges (%)[a]		8.3%	4.1%	4.1%
Expected rate of return (real pre-tax) (%)	6.3%	5.9%	6.7%	7.0%

a Volumetric charges to unfiltered and raw water customers (which account for less than 0.05 per cent of SCA's total sales) do not increase by the exact same proportions as SCA's other prices, due to rounding (to the nearest cent per kL).

In reaching this decision, IPART considered the views of stakeholders and matters under section 15 of the IPART Act, including potential impacts on customers arising from this review, financial implications for SCA and economic efficiency.

In particular, IPART considered how prices would increase under an 'NPV neutral approach'[52] compared to the pricing approach used in the draft determination. It calculated that, relative to the approach used for the draft determination, an NPV neutral approach would add only a small amount to the bills of water customers.[53] This is due to the offsetting effect on prices of IPART's decision to use a lower WACC of 6.5 per cent.[54]

In setting the price path, IPART also took into account SCA's operating and capital expenditure needs, which are higher in the first year of the determination period.

3.6 Adjustment to account for lower than forecast water sales and lower than expected capital expenditure over the 2005 determination

Decision

3 IPART's decision is to not adjust the notional revenue requirement for the 2009 determination period to account for SCA's lower than forecast water sales and unspent monies associated with the Shoalhaven Transfers Scheme over the 2005 determination period.

52 Under this approach, the difference between the present value of SCA's target revenue (or expected revenue from tariffs) and the present value of its notional revenue requirement is zero.

53 The NPV neutral approach adds between 0.2 per cent (approximately $2 per annum in 2009/10) and 0.4 per cent (about $4 per annum in 2011/12) to a typical Sydney Water customer's annual water and sewerage bill (assuming a 'typical' customer has a 20mm meter connection and consumes 200kL per annum).

54 In comparison, the draft determination used a WACC of 7.0 per cent.

As section 3.3.1 discussed, IPART uses forecasts of water sales over a determination period in setting SCA's volumetric charges. If SCA's actual water sales over that period are greater than forecast, it will over-recover revenue relative to its revenue requirement. But if actual sales are less than forecast, it will under-recover revenue.

In its 2005 determinations on prices for Sydney Water and SCA, IPART introduced the option of adjusting the notional revenue requirements in the subsequent determination period where variations between forecast and actual sales were outside a deadband of +/- 10 per cent.

In addition, in making its 2005 determination on SCA's prices, IPART noted that there was significant uncertainty about the timing and level of SCA's forecast capital expenditure on the Shoalhaven Transfer Scheme.[55] Therefore, it indicated that it would adjust SCA's revenue requirement in the 2009 determination to account for any unspent monies allowed for in the 2005 determination for the Shoalhaven Transfers Scheme.

3.6.1 SCA's proposal

SCA reported that, at the time of its September 2008 submission, its water sales for the 2005 determination period were 12[56] per cent less than the forecasts IPART used to set prices in 2005.[57] SCA estimated that this will result in a total shortfall in revenue of approximately $57 million (some $14 million of which relates to variations greater than the – 10 per cent deadband).[58]

SCA also reported that the NSW Government's decision not to proceed with the raising of Tallowa Dam led to changes in the form and timing of the Shoalhaven Transfers Scheme outlined in SCA's 2005 determination expenditure program. As a result, its capital expenditure was less than forecast. It estimates that it has generated around $30 million in return on assets and depreciation associated with this unrealised capital investment.[59]

SCA submitted that the revenue effects of not proceeding with the raising of Tallowa Dam have been offset by the revenue effects of its lower than forecast water sales, and therefore it would be inequitable for IPART to adjust its revenue requirements of the 2009 determination period to account for lower than forecast capital expenditure associated with the Shoalhaven Transfers Scheme.[60]

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55 The Shoalhaven Transfers Scheme involved increasing the capacity of Tallowa Dam (through the installation of radial gates) and construction of new transfer conduits, to increase the yield from the Shoalhaven to Sydney (NSW Government, *2006 Metropolitan Water Plan*, p 84).

56 The latest estimate of SCA's actual sales for 2008/09 (approximately 486 GL), as provided in SCA's April 2009 submission (p 15), suggests that this figure will now be 13 per cent. See Table 7.2, in section 7.2, of this report.

57 SCA submission, September 2008, p 18.

58 Ibid, p 24.

59 Ibid, p 25.

60 Ibid.

3.6.2 IPART's considerations

IPART accepts SCA's view that the $30 million in revenue generated as a return on assets and depreciation for capital expenditure on the Shoalhaven Transfers Scheme that it did not actually incur has been more than offset by a shortfall of approximately $57 million in water sales revenue. Therefore, it decided not to reduce the revenue requirement for 'unspent' monies associated with the Shoalhaven Transfer Scheme (raising Tallowa Dam), or to increase SCA's revenue requirement for the 2009 determination period to account for sales below forecasts over the 2005 determination period.

IPART notes that the revenue associated with a return on assets and depreciation for the unrealised capital expenditure on the Shoalhaven Transfers Scheme will be generated in the 2005 determination period only. This is because only capital expenditure that is actually incurred and deemed prudent will be included in calculating the value of SCA's Regulatory Asset Base (RAB) over the 2009 determination period. This value is used to determine SCA's allowance for return on assets and depreciation over this determination period. (This is discussed in detail in Chapter 6.)

IPART also notes that decisions on the Shoalhaven Transfers Scheme were beyond SCA's control. The NSW Government made the decision not to proceed with the raising of Tallowa Dam and the Shoalhaven Transfers Scheme, after IPART's 2005 determination of SCA's prices.[61]

3.7 Mechanism to address risk of significant variation between forecast water sales and actual water sales over the 2009 determination period

Decision

4 IPART's decision is not to include a mechanism to adjust the notional revenue requirement in the next determination period to account for differences between the forecast water consumption used to set prices in the 2009 determination period and the actual water consumption in this period.

3.7.1 SCA's proposal

SCA submitted that there is considerable potential for continuing revenue volatility associated with consumption forecasting and medium-term price setting, due to uncertainty over future dam levels (and hence water restrictions) and the operating regime of the desalination plant. It proposed that IPART include in the 2009 determination a mechanism to make price adjustments in the subsequent

61 See: NSW Government, *2006 Metropolitan Water Plan*, p 85, available at: www.waterforlife.nsw.gov.au/about/plan.

determination, where the variation between actual and forecast water demand is more than +/- 5 per cent.[62]

3.7.2 IPART's considerations

Uncertainty about water availability due to drought has lessened because of rising dam levels (which are currently around 60 per cent[63]) and an improved seasonal outlook. IPART acknowledges that there is some future uncertainty about water demand from Sydney Water, until the operating rules for the desalination plant have been released by Government. However, IPART notes that supply from the plant is relatively certain for its two-year commissioning period (January 2010 to 31 December 2011)[64], which comprises much of the upcoming determination period. For these reasons, IPART considers that a consumption adjustment mechanism is not necessary.

3.8 Mechanism to allow SCA to pass through unforeseen costs associated with pumping water from the Shoalhaven

Decision

5 IPART's decision is not to introduce a mechanism to allow SCA to pass through to Sydney Water unforeseen costs associated with water transfers from the Shoalhaven.

3.8.1 SCA's proposal

To augment Sydney's water supply in times of drought, SCA has pumped water from the Shoalhaven. SCA estimates that unforeseen costs of pumping water from the Shoalhaven over the 2005 determination period amounted to $31 million to the end of 2007/08.[65]

Due to uncertainty associated with the volume and cost of water that may have to be pumped from the Shoalhaven over the 2009 determination period, SCA proposed that a mechanism be included in the determination to allow it to pass through to Sydney Water the cost of Shoalhaven pumping. It submitted that:

> The SCA believes that in order to provide greater regulatory certainty and ensure that risks are appropriately managed, a well-defined and systematic process should be put in

62 SCA submission, September 2008, p 24.

63 www.sca.nsw.gov.au, as at 18 May 2009.

64 Sydney Water's 5 May 2009 letter to IPART (which is available at www.ipart.nsw.gov.au, along with other submissions to this review) advises forecast supply volumes from the desalination plant over 2009/10 to 2011/12 (which are incorporated into SCA's sales forecasts, as outlined in Chapter 7 of this report). This letter states that the plant "will operate at full capacity, or close to full capacity, for the first two years of operation, regardless of dam levels", as this proving period is needed to assure the performance and reliability of the plant.

65 SCA submission, September 2008, p 23.

place for responding to unforeseen events, that enables prices to be adjusted within the period.

It is noted that IPART has put in place a sophisticated methodology to pass through the SCA's prices to Sydney Water over the next price path. Similarly the SCA proposes that the cost of pumping water from the Shoalhaven should also be immediately passed on to Sydney Water. As pumping occurs in times of water shortage, if the cost is in turn passed through to Sydney Water's customers in their next available bill, it would have the effect of sending a water conservation signal to consumers.[66]

IPART notes that on 7 November 2008, the Minister for Water announced a three-year moratorium on pumping from the Shoalhaven.[67] This is based on current water storage levels, the impacts of recycling projects underway by Sydney Water, and the commissioning of the desalination plant in 2009/10.

Nevertheless, SCA has since maintained its view that it is prudent to establish a pass-through mechanism for Shoalhaven pumping costs.[68] In arguing for an annual, ex-post pass through of Shoalhaven pumping costs, SCA's submission to the draft determination notes the following:

- Such a pass through is consistent with scarcity pricing – ie, SCA is more likely to pump water from the Shoalhaven when dam levels are low and these additional costs could then be passed through to Sydney Water and its customers.
- It is not possible for SCA to accurately predict when pumping will be needed. System modelling can determine, on average, the volume to be pumped from Shoalhaven, but in practice this volume will fluctuate considerably. Including forecast average pumping costs in prices would have the effect of overcharging customers unnecessarily, and lead to excess returns when pumping is not needed.
- Sydney Water has indicated that it has no difficulty with Shoalhaven pumping costs being passed through to it and its customers on a periodic basis.
- Over the last eight months, SCA's dam levels have dropped from above 65 per cent to about 58 per cent. Notwithstanding the current moratorium on pumping water from the Shoalhaven, "it is possible the SCA may need to pump during the next price path."[69]

66 Ibid.

67 "Sydney cuts reliance on Shoalhaven for drinking water", http://www.sca.nsw.gov.au/news/ministerial-media-releases/sydney-cuts-reliance-on-shoalhaven-for-drinking-water---minister-phillip-costa-mp, accessed 28 May 2009.

68 SCA submission, December 2008, p 5; and SCA submission, April 2009, p 8.

69 SCA submission, April 2009, p 8.

3.8.2 Stakeholder views

The Total Environment Centre (TEC) supported SCA's proposal for a pass-through mechanism for Shoalhaven pumping costs. However, it argued that Sydney Water should not be able to pass through these costs to its customers, in order to provide a strong resource conservation signal to Sydney Water.[70]

Sydney Water submitted that it would be concerned if Shoalhaven pumping costs were to be passed through to its customers *immediately* after they were incurred (ie, at the next bill). It opposed this approach as it could involve up to four price changes to its customers in a year, and result in high administrative costs to reconfigure billing systems and inform customers. However, Sydney Water indicated that if IPART assesses that SCA is not able to absorb Shoalhaven pumping costs in between determinations, the pass-through mechanism in Sydney Water's determination could be used to pass through these costs on an *annual* basis.[71]

IPART notes that, in response to Sydney Water's concern, SCA indicated at the Public Hearing that it envisages that the pass through of Shoalhaven pumping costs could occur on an annual basis.[72]

3.8.3 WorleyParsons' review

After reviewing SCA's expenditure, WorleyParsons found that no Shoalhaven pumping costs should be allowed for in calculating SCA's efficient operating expenditure for the 2009 determination period.[73] It considered that pumping from the Shoalhaven is unlikely over the determination period, as the NSW Government has recently declared a moratorium on transfers from the Shoalhaven system for the next three years. This reflects current water storage levels in SCA's system, forecast climatic conditions and expected water production from Sydney Water's desalination plant.

3.8.4 IPART's considerations

After considering the views of SCA and other stakeholders and WorleyParsons' finding, IPART has decided not to include a pass-through for Shoalhaven pumping costs in this determination. The Government's recent announcement of a three-year moratorium on pumping from the Shoalhaven suggests that SCA will incur little or no such pumping costs over the 2009 determination period. IPART considers that a cost pass-though mechanism would add unnecessary complexity to the regulatory

70 Total Environment Centre submission, October 2008, p 2.
71 Sydney Water submission, October 2008, pp 1-2.
72 Transcript of Public Hearing for IPART's Review of Water Prices for the Sydney Catchment Authority, 19 November 2008, p 17.
73 WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 82.

regime, given it appears the probability that it will be needed or justified over the next three years is low.

IPART also notes that it is likely that the conservation or 'scarcity' signalling effects of a pass through of Shoalhaven costs would be weak over the 2009 determination period. Under the cost pass through formula established as part of the 2008 determination of Sydney Water's prices, any change in SCA's prices as a result of a pass through of Shoalhaven pumping costs would automatically be passed through to Sydney Water's customers. As a result, Sydney Water would be in the same financial position regardless of whether or not it takes water from the Shoalhaven. The pass through of Shoalhaven pumping costs is therefore unlikely to influence Sydney Water's sourcing decisions. Also, much of the 2009 determination period coincides with the initial two year proving period of the desalination plant – where Sydney Water intends to run the plant at close to full capacity to test its operation (regardless of dam levels or the incremental cost of supply from SCA compared to the desalination plant).

A pass through of Shoalhaven pumping costs would also provide a weak signalling effect to Sydney Water's customers over the 2009 determination period. This is because, under the aforementioned cost pass through formula established at the last Sydney Water determination, any change in SCA's prices would be passed through to water customers' fixed (rather than usage) charge. Furthermore, to be administratively feasible, pumping costs would have to be added to SCA's prices and passed through to Sydney Water's customers sometime after they are incurred (eg, pumping costs incurred in 2009/10 could be added to 2010/11 prices), meaning that there could be a mismatch between the actual scarcity of water and the change in customers' water bills.

However, in line with a scarcity pricing option (see Appendix F), IPART acknowledges that a pass through of Shoalhaven pumping costs could potentially provide an effective price signal to Sydney Water beyond the 2009 determination period, and thus help to signal to Sydney Water when it should obtain water from other sources in preference to SCA (and vice-versa).

Nevertheless, for future price determinations IPART considers that SCA should outline any forecast Shoalhaven pumping costs, and explain and justify these forecasts. While IPART recognises that there is some inherent uncertainty associated with such forecasts, developing and refining them over time is likely to be an important element of SCA's business planning and its pricing proposals.

3.9 Requirement to report on progress against output measures

Decision

6 IPART's decision is to require SCA to monitor and report annually on progress against the output measures described in Box 3.2 below throughout the 2009 determination period.

In the 2005 determination, independent consultants engaged by IPART to assess each metropolitan water agency's operating and capital expenditure (WS Atkins International Ltd/Cardno MBK) recommended that IPART specify outputs for each agency against which to measure the prudency of capital and operating expenditure in price determinations. Accordingly, in the 2005 determination, IPART specified a set of output measures based on each agency's proposed expenditure program. SCA's output measures are set out in Box 3.1.

Box 3.1 2005 determination output measures for SCA

1. Substantial completion of the Deep Storage scheme and provision of an additional 30GL per annum resource yield by July 2006.
2. Substantial completion of the Prospect Pumping Station and associated Dam remedial works by March 2007.
3. Substantial completion of the Warragamba Spillway and associated works by June 2007.
4. Completion of phase 1 of the Shoalhaven scheme and provision of an additional 50GL per annum resource yield by July 2010.
5. Completion of works to allow the release of environmental flows into the Upper Nepean River by July 2010.

For the 2009 determination, IPART asked WorleyParsons to review SCA's progress against these measures as part of its assessment of the prudency of SCA's capital expenditure over 2005/06 to 2008/09 (discussed in Chapter 6).

IPART has decided to maintain the use of output measures as a starting point for the assessment of prudent expenditure and the basis for reporting on any deviation from targets established. After considering WorleyParsons' advice on "the criticality of various projects",[74] IPART has developed output measures for the 2009 determination to reflect SCA's current operating environment and forecast capital expenditure program. This list of output measures is presented in Box 3.2 below, with further information on each measure provided in Appendix H.

In its draft report, IPART sought stakeholder comment on these output measures. In response, the Total Environment Centre (TEC) stated that IPART's proposed output measures provide a useful means of assessing SCA's performance in relation to capital and operating expenditure. However, TEC also asserted that these measures are too narrowly focused and do not allow measurement of SCA's performance in relation to catchment protection.[75] IPART's view, however, is that indicators of SCA's performance in catchment protection are best addressed through SCA's operating licence, and notes that Schedule 2 of this licence provides a number of catchment protection and environmental performance indicators. In 2010, IPART

74 WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 78.

75 Total Environment Centre submission, April 2009, p 3.

will be conducting an end of term review of SCA's operating licence and encourages stakeholders to provide feedback on these performance indicators.

Box 3.2 2009 determination output measures for SCA

1. Deliver a strategy for the future of the Upper Canal by June 2013.
2. Complete the Prospect Reservoir upstream embankment stabilisation upgrade by April 2013.
3. Complete the Warragamba Dam crest gates construction project by 30 June 2011.
4. Complete the Wingecarribee Dam safety upgrade project by June 2013.
5. Complete the Upper Nepean environmental flows works project by April 2010.
6. Complete the Metropolitan Dams electrical systems upgrade project by April 2013.

4 Overview of SCA's revenue requirement

As Chapter 3 discussed, IPART used the building block approach to determine SCA's notional revenue requirement over the determination period. To apply the building block approach, IPART made decisions on:

- The revenue required for operating expenditure over the determination period. This amount represents IPART's estimate of SCA's forecast efficient operating, maintenance and administration costs, plus an allowance for working capital.
- The revenue required for capital investment over the determination period, including:
  - an allowance for a return on assets, which represents IPART's assessment of the opportunity cost of capital invested in SCA by its owner, and ensures that efficient investment in capital continues into the future
  - an allowance for a return of assets (regulatory depreciation), which recognises that through the provision of services to customers, a water utility's capital infrastructure will wear out over time and that an allowance is therefore required for the cost of maintaining the capital base.

The sum of these amounts represents IPART's view of SCA's total efficient costs over the determination period, or its notional revenue requirement.

Next, as Chapter 3 also discussed, IPART considered the price levels required to generate the notional revenue requirement and the implications of these price levels for customers, SCA's financial viability and economic efficiency. After considering these interests, IPART decided to set prices so that the present value of SCA's expected revenue from prices (ie, its 'target revenue') equates with the present value of its notional revenue requirement over the determination period.

The sections below set out SCA's proposed revenue requirement, and provide an overview of IPART's decisions on SCA's notional revenue requirement and target revenue. Chapters 5 and 6 discuss these decisions in detail.

4.1 SCA's proposed revenue requirement

SCA's original submission identified a need to increase its revenue requirement by approximately 8.6 per cent in real terms from 2008/09 (the last year of the current determination period) to 2011/12 ($ 2008/09). This is shown in Table 4.1 below.

Table 4.1 SCA's proposed revenue requirement ($ million, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Operating expenditure	87.0[a]	97.3[b]	80.0	80.0
Allowance for a return on assets[c]	78.1	95.1	97.5	98.6
Allowance for regulatory depreciation	19.6	21.1	21.8	21.9
Notional revenue requirement	**184.7**	**213.5**	**199.3**	**200.5**

a Adjusted up from SCA's submission – see pages 22 to 23 of WorleyParsons' *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination).*

b Includes SCA's $17.7 million ($2009/10) contribution to the Accelerated Sewerage Program (ASP).

c Assumes a real pre-tax WACC of 7.5 per cent.

Source: SCA submission, September 2008, p 36.

SCA's proposed efficient operating expenditure did not include any costs for pumping water from the Shoalhaven to Sydney. Rather, as Chapter 3 discussed, SCA proposed that any costs incurred in pumping water from the Shoalhaven be passed through to Sydney Water and its customers.

4.2 Overview of decisions on SCA's revenue requirement

IPART's application of the building block approach resulted in a lower notional revenue requirement than SCA proposed, due to differences in the components related to capital investment. IPART's allowances for a return on assets and regulatory depreciation are lower than those proposed by SCA, due to differences in capital expenditure incorporated into the RAB and the rate of return on SCA's RAB (discussed in Chapter 6). Overall, IPART's decision on the total notional revenue requirement over the determination period is around 6 per cent lower than SCA's proposed revenue requirement.

IPART's decisions on the notional revenue requirement and target revenue are shown in Table 4.2. Chapters 5 and 6 explain how IPART made its decisions on the revenue SCA requires for operating expenditure and for capital investment (including the allowances for a return on assets and regulatory depreciation). Please note that working capital and 'other revenue' are not discussed further in this report, as these relatively small amounts do not have a significant impact on prices.

Table 4.2 Decisions on SCA's annual notional revenue requirement and annual target revenue ($million, real 2008/09)

	Current (2008/09)	2009/10	2010/11	2011/12
Operating expenditure	87.0[a]	80.0	80.0	80.0
Contribution to ASP (operating expenditure)[b]		17.3		
Allowance for a return on assets	76.3	82.7	84.3	84.9
Allowance for regulatory depreciation	18.9	21.2	22.0	22.5
Allowance for working capital	0.5	0.8	1.2	1.2
Other (unregulated) revenue[c]	(0.4)	(0.4)	(0.3)	(0.4)
Notional revenue requirement[d]	182.3	201.6	187.1	188.2
Target revenue	182.3	193.7	189.5	194.6
Difference between present value of notional revenue requirement and present value of target revenue	0.0			
Expected rate of return	6.3%	5.9%	6.7%	7.0%

a Includes $4 million in Shoalhaven pumping costs.

b SCA's contribution to the Accelerated Sewerage Program (ASP). This is classed as operating expenditure.

c SCA earns income from renting out some of its facilities (eg, its conference centre). In line with its 2008 determination of Sydney Water's prices, 50 per cent of this unregulated income has been deducted from SCA's notional revenue requirement. IPART's 2008 report (p 37) of its determination of Sydney Water's prices noted that this approach achieves an appropriate balance between passing benefits of other income onto customers (via lower prices) and providing the utility with an incentive to pursue these opportunities.

d Totals may not add due to rounding.

5 Revenue required for operating expenditure

To determine SCA's notional revenue requirement for operating expenditure, IPART assessed SCA's proposed operating expenditure and assessed the efficient level of operating costs it will incur in providing services over the determination period.

As part of this assessment, IPART engaged WorleyParsons, an independent engineering consultant, to review SCA's forecast operating expenditure. IPART also invited submissions from stakeholders on:

- the efficiency of the projected operating expenditure outlined in SCA's submission
- whether there was scope for SCA to achieve further efficiency gains over the determination period.

The section below summarises IPART's decision on the revenue required for operating expenditure. The following sections discuss IPART's considerations in reaching this decision, including SCA's submission on its past and forecast operating expenditure, WorleyParsons' review and recommendations on these expenditures, stakeholders' comments, and IPART's own analysis and findings on SCA's operating expenditure.

5.1 Summary of IPART's decision

Decision

7 IPART's decision on the efficient level of operating expenditure SCA requires to provide its services over the period 2009/10 to 2011/12 is shown in Table 5.1 below.

Table 5.1 Decision on revenue required for operating expenditure ($ million, real 2008/09)

	2009/10[a]	2010/11	2011/12	Total
SCA proposed[b]	97.3	80.0	80.0	257.3
WorleyParsons recommended[c]	97.8	80.0	80.0	257.8
IPART decision	97.3	80.0	80.0	257.3

a Includes SCA's $17.7 million ($2009/10) contribution to the Accelerated Sewerage Program (ASP).

b SCA submission, September 2008, p 7.

c WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 7.

IPART has accepted SCA's proposed operating expenditure over 2009/10 to 2011/12. It considers that these forecasts represent a reasonable estimate of SCA's efficient operating costs over this period, particularly given some of SCA's proposed efficiency measures.

5.2 SCA's submission

SCA's September 2008 submission outlined its past operating expenditure over the 2005 determination period and its forecast operating expenditure for the 2009 determination period, and explained the drivers of this expenditure.

5.2.1 Past operating expenditure

SCA's submission indicated that, excluding the costs associated with pumping water from the Shoalhaven to Sydney, SCA's operating expenditure over the 2005 determination period was close to the operating expenditure IPART allowed for in making the 2005 determination.

SCA's submission noted that it did not include Shoalhaven pumping costs in its pricing proposal for the 2005 determination, partly due to uncertainty regarding the ongoing need for this pumping. It also noted that the adaptive management approach to implementing the Metropolitan Water Plan resulted in considerable volatility in SCA's operating and capital expenditure over the 2005 determination period. For example, the NSW Government's decision to not proceed with the raising of Tallowa Dam meant that a portion of expenditure on this project, which was previously classified as capital expenditure, had to be 'expensed' (ie, classed as operating expenditure), in accord with Australian Accounting Standards.[76]

5.2.2 Forecast operating expenditure

SCA's submission indicated that, excluding the costs of its contribution to the Accelerated Sewerage Program (ASP) in 2009/10 ($17.7 million in $2009/10[77]), its forecast operating expenditure is $80 million in each year of the 2009 determination period.[78]

The ASP includes a number of sewerage projects designed to significantly reduce the loads of pathogens and nutrients discharged to catchment waterways. SCA reports that when complete, the ASP will reduce the loads of nitrogen by 25 tonnes per annum and the loads of phosphorus by 15 tonnes per annum.[79] In October 2007, the Government approved an additional $17.7 million funding for the ASP. In July 2008, the Minister for Water directed SCA to pay the Department of Water and Energy this

76 SCA submission, September 2008, pp 19-20.
77 This equates to $17.3 million in $2008/09.
78 Ibid, p 32.
79 Ibid, p 26.

$17.7 million.[80] As Chapter 2 noted, the Minister for Water also directed IPART to include the efficient cost of SCA complying with the direction to contribute these funds to the ASP in making its 2009 determination.

IPART notes that SCA's operating expenditure for 2008/09 was $83 million (excluding $4 million in costs associated with Shoalhaven pumping).[81] Relative to this expenditure, SCA's forecast expenditure of $80 million per annum includes an efficiency saving of approximately 3.6 per cent. SCA's submission noted this efficiency saving is possible due to a number of initiatives, including:

- moving dam safety survey work in-house
- renegotiating the Special Area Strategic Plan of Management (SASPoM) Service Contract with the Department of Environment and Climate Change (DECC)
- reviewing and redeveloping the Dam Safety Management Program, leading to better risk identification and cost savings
- improving the efficiency of its catchment program through better targeting of activity as a result of the Catchment Decision Support System
- developing an evaluation and monitoring process for all catchment activities.[82]

5.3 WorleyParsons' review

5.3.1 WorleyParsons' findings on past operating expenditure

In assessing SCA's past operating expenditure, WorleyParsons examined a number of cost categories – including labour, hire and contract services, bulk water purchases, materials, energy, licence fees, administration, grants and sponsorships, property, maintenance of assets, insurance, employee provisions, and other provisions. WorleyParsons used trend analysis to examine reasons for movement in costs over time.[83] It noted that trend analysis can be valuable in reviewing SCA's costs, given that its functions and the scale of its operations are relatively stable over time.

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80 SCA's contribution includes $13.4 million for four sewage treatment plant (STP) upgrades (Bowral, Bundanoon, Robertson and Kangaroo Valley), a contribution of $1 million to build Taralga's sewage treatment plant and $3.3 million to upgrade Braidwood's STP. (SCA submission, September 2008, p 26.)

81 See: WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, pp 5-6.

82 SCA submission, September 2008, p 32.

83 According to WorleyParsons, where changes in costs over time exceed a threshold (10 per cent movement for operational expenditure) and where the overall cost is material (>$200,000), a rationale for the movement was sought. (WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)* January 2009, p 16.)

WorleyParsons found that:

- SCA undertook minimal activity that falls outside its regulated activities, and confirmed that the cost of this unregulated activity is separated from its regulated costs.
- SCA achieved operating cost savings via lower insurance costs and some operating efficiency gains associated with capital projects.
- SCA's total actual operating expenditure was 9.0 per cent greater than IPART allowed for in the 2005 determination. However, when Shoalhaven pumping costs are excluded, SCA's actual operating expenditure was only 1.5 per cent greater than that allowed for in the 2005 determination (see Table 5.2).
- In addition to Shoalhaven pumping costs, SCA incurred other unforeseen operating costs including 'expenses' associated with the raising of Tallowa Dam and the development of groundwater sources. A portion of expenditure on these projects, previously classified as capital expenditure, has been expensed following the Government's decision not to proceed with their completion.

Based on these findings, WorleyParsons concluded that SCA's operating expenditure over the 2005 determination period was efficient.

Table 5.2 SCA's actual operating expenditure over 2005/06 to 2008/09 compared to expenditure allowed for in 2005 determination ($ million, real 2008/09)

	2005/06	2006/07	2007/08	2008/09[a]	Total
Expenditure allowed for in 2005 determination	89.0	88.8	87.2	85.4	350.4
Actual expenditure including Shoalhaven pumping costs	91.7	98.7	104.4	87.0	381.8
% variation	3.0%	11.1%	19.7%	1.9%	9.0%
Actual expenditure excluding Shoalhaven pumping costs	82.4	88.6	91.2	83.0	345.2
% variation	-7.4%	-0.2%	4.6%	-2.8%	1.5%

a SCA's expenditure for 2008/09 is forecast rather than actual expenditure.

Source: WorleyParsons' *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, pp 22-23.

5.3.2 WorleyParsons' findings on forecast operating expenditure

In reviewing forecast operating expenditure, WorleyParsons used SCA's current expenditure levels as the starting point, then tried to identify exactly where cost savings could be achieved to realise SCA's proposed efficiency saving of 3.6 per cent.[84] WorleyParsons noted that:

> SCA has not determined its forecast operating expenditure by reviewing line items or specific cost categories and then summing to calculate a total expenditure figure. It is presently establishing plans to enable it to achieve the forecast efficiency target.[85]

WorleyParsons was largely able to reconcile SCA's forecast operating expenditure with identified sources of efficiency savings. It identified likely cost reductions associated with labour, bulk water purchases, management of the Special Areas by the Department and Environment and Climate Change (DECC) and flow related licence fees. The only difference between WorleyParsons' recommended level of forecast operating expenditure and SCA's forecasts is $0.5 million in 2009/10 (Table 5.3). This difference reflects WorleyParsons' view that not all of SCA's forecast labour cost reductions will be achieved in 2009/10, due to the time taken to implement these cost saving measures.[86]

Table 5.3 SCA's forecast operating expenditure compared to WorleyParsons' findings on efficient forecast operating expenditure ($ million, real 2008/09)

	2009/10[a]	2010/11	2011/12	Total
SCA forecast	97.3	80.0	80.0	257.3
WorleyParsons efficient forecast	97.8	80.0	80.0	257.8

a Includes SCA's ($17.3 million) contribution to the Accelerated Sewerage Program (ASP).

Source: SCA submission, September 2008, p 7; and WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 7.

5.4 Stakeholder comments

Several stakeholders commented on SCA's forecast operating expenditure. The Total Environment Centre (TEC) urged IPART to ensure that SCA is provided with sufficient revenue to enable it to properly fulfil its catchment protection functions. It stressed that SCA's proposed efficiencies in its catchment program should not diminish the quality of catchment management and water quality protection. TEC also submitted that catchment protection should include measures to prevent long-

84 This saving of 3.6 per cent is relative to 2008/09 expenditure levels excluding Shoalhaven pumping costs (ie, a 3.6 per cent saving relative to 2008/09 operating expenditure of $83 million).

85 WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 5.

86 Ibid, pp 40-47.

wall mining from occurring in areas where water quality and quantity may be affected.[87]

The NSW Department of Environment and Climate Change (DECC) noted that while it is currently in discussions with SCA about the possibility of reviewing the SASPoM Service Contract:

> …these discussions are in the initial stages and are not yet sufficiently progressed to confirm any cost-savings for the coming price period.[88]

5.5 IPART's analysis

In relation to the forecast operating costs for SCA's contribution to the ASP, IPART notes that the Minister's section 16A direction that IPART include these costs in the 2009 determination means that it is limited to assessing whether SCA has complied with the Minister's direction in the most cost-effective way possible. Therefore, in line with the Minister's direction, IPART has included the full $17.7 million ($2009/10) SCA was directed to contribute to the ASP in its calculation of SCA's notional revenue requirement for 2009/10 for the purpose of setting prices. (The impacts of this on customer prices are discussed in Chapter 9.)

In relation to the rest of SCA's forecast operating costs, IPART is conscious of the need to ensure that any efficiency savings do not come at the expense of service quality (in terms of catchment management, water quality and reliability and security of supply). However, it notes that SCA's submission and statements at the public hearing identify a number of initiatives that are aimed at maintaining and even enhancing its water supply and catchment management performance, at potentially lower cost.

WorleyParsons' review has essentially validated SCA's forecast operating expenditure, aside from the small difference between SCA's forecast expenditure in 2009/10 and WorleyParsons calculated figure for that year. Furthermore, IPART considers that an operating efficiency savings target of about 3.6 per cent[89] is reasonable, regardless of whether or not SCA is in a position to quantify specific sources of efficiency gains at this stage. Therefore, IPART has accepted SCA's forecast operating expenditure for the determination.

87 Total Environment Centre submission, October 2008, pp 1-2.

88 DECC submission, October 2008, p 1.

89 This saving of 3.6 per cent is relative to 2008/09 expenditure levels excluding Shoalhaven pumping costs (ie, a 3.6 per cent saving relative to 2008/09 operating expenditure of $83 million).

6 Revenue required for capital investment

As Chapter 4 discussed, the revenue required for capital investment comprises two cost blocks: an allowance for a return **on** capital, and an allowance for a return **of** capital (or regulatory depreciation). Together, these allowances make up around 55 per cent of SCA's total notional revenue requirement over the 2009 determination period, and so have a significant impact on prices. IPART determined a value for each of these allowances by taking four steps:

- assessing SCA's past capital expenditure over the 2005 determination period to decide whether it was prudent and should therefore be incorporated into the opening value of SCA's Regulatory Asset Base (RAB), and assessing SCA'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 its 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 SCA, 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 SCA's existing and new assets.

The sections below discuss each of the above steps, and outline and explain IPART's decisions on key inputs used to calculate the allowances for a return on capital and regulatory depreciation.

6.1 Assessing SCA's past and forecast capital expenditure

Decision

8 IPART's decisions are that past capital expenditure shown in Table 6.1 was prudent, and that the forecast capital expenditure shown in Table 6.2 is efficient.

Table 6.1 Decision on past capital expenditure that was prudent ($ million, real 2008/09)

	2005/06	2006/07	2007/08	2008/09	Total
SCA actual [a]	151.8	91.3	70.6	92.0	405.7
WorleyParsons recommended [b]	150.0	87.5	67.2	92.0	396.7
IPART decision	150.0	87.5	67.2	92.0	396.7

a Source: SCA's 2008 Information Return to IPART, increased by approximately $6.5 million ($2008/09) to correct errors identified by SCA's financial audit (see p 71 of WorleyParson's report), and indexed to $2008/09.

b Source: WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 9, indexed to $2008/09.

Table 6.2 Decision on forecast capital expenditure that is efficient ($million, real 2008/09)

	2009/10	2010/11	2011/12	Totalc
SCA forecast[a]	61.8	34.1	32.5	128.5
WorleyParsons recommended[b]	61.6	33.4	31.8	126.8
IPART decision	61.6	33.4	31.8	126.8

a Source: SCA submission, September 2008, p 28; and SCA 2008 Information Return to IPART.

b Source: *WorleyParsons' Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 10, converted to $2008/09.

c Totals may not add due to rounding.

6.1.1 Past capital expenditure, 2005/06 to 2008/09

SCA's submission on past capital expenditure

Table 6.3 compares SCA's actual capital expenditure over the 2005 determination period with the capital expenditure IPART allowed for in making the 2005 determination. It shows that SCA's actual expenditure level over the current determination period was substantially less than allowed for in the determination.

Table 6.3 SCA's actual capital expenditure compared to the expenditure allowed for in the 2005 determination ($ million, real 2008/09)

	2005/06	2006/07	2007/08	2008/09	Total
2005 determination[a]	207.3	133.7	157.3	120.1	618.5
SCA actual expenditure[b]	151.8	91.3	70.6	92.0	405.7
Variation to 2005 determination	55.6	42.4	86.7	28.1	212.7
Variation to 2005 determination %	-26.8%	-31.7%	-55.1%	-23.4%	-34.4%

a Source: SCA submission, September 2008, p 20, indexed to $2008/09.

b Source: SCA's 2008 Information Return to IPART, increased by approximately $6.5 million ($2008/09) to correct errors identified by SCA's financial audit (see p 71 of WorleyParson's report), and indexed to $2008/09.

SCA submitted that the primary reason for this large 'underspend' was the NSW Government's decision to not proceed with raising the Tallowa Dam wall as part of the Shoalhaven Transfers Scheme. This scheme was planned and approved at the time of the 2005 price review, and costs associated with it comprised around 47 per cent of SCA's forecast capital expenditure for the 2005 determination period.[90] However, the NSW Government subsequently decided not to raise Tallowa Dam and the scheme did not proceed as originally planned.

When the costs associated with the Shoalhaven Transfers Scheme are excluded, SCA's actual capital expenditure over the determination period was around 28 per cent higher than allowed for in the 2005 determination. This is shown in Table 6.4 below.

Table 6.4 SCA's actual capital expenditure compared to that allowed for in the 2005 determination – excluding the impact of the Shoalhaven Transfers Scheme ($ million, real 2008/09)

	2005/06	2006/07	2007/08	2008/09	Total[c]
2005 determination[a]	196.4	80.4	22.3	19.1	318.3
SCA actual expenditure[b]	151.8	91.3	70.6	92.0	405.7
Variation to 2005 determination	-44.7	10.9	48.3	72.9	87.5
Variation to 2005 determination %	-22.7%	13.6%	216.3%	381.8%	27.5%

a Source: Worley Parsons, *Review of Capital and Operating Expenditure - Sydney Catchment Authority (2009 Determination)*, January 2009, p 8, indexed to $2008/09.

b Source: SCA's 2008 Information Return to IPART, increased by approximately $6.5 million ($2008/09) to correct errors identified by SCA's financial audit (see p 71 of WorleyParson's report), and indexed to $2008/09.

c Totals may not add due to rounding.

SCA submitted that it delivered the following significant projects that were forecast at the 2005 price review over the determination period:

- deep storage pumping capacity at both Warragamba and Nepean Dams
- upgrades to Warragamba Dam's electrical systems
- a raw water pumping station at Prospect Reservoir
- significant upgrades to Warragamba precinct, operations and visitor buildings (scheduled to be completed in 2008/09).[91]

It also delivered the following programs that were not forecast at the 2005 review:

- development of the potential for extraction of groundwater at Leonay, Wallacia and Kangaloon
- investigation, design and commencement of construction of a fish way passage and delivery structures for environmental flows at Tallowa Dam

90 SCA submission, September 2008, p 20.
91 Ibid, p 21.

- upgrades to the SCADA (supervisory control and data acquisition) system in the Shoalhaven to improve the management of water delivery.[92]

WorleyParsons' review of the prudency of SCA's past capital expenditure

In assessing the prudency of SCA's capital expenditure over the 2005 determination period, WorleyParsons:

- reviewed differences between SCA's actual capital expenditure and the level of expenditure IPART allowed for in making the 2005 determination
- conducted detailed analysis of a sample of capital expenditure projects (including assessing SCA's performance against its output measures for the 2005 determination period)[93]
- reviewed SCA's processes for the identification, selection and development of capital projects.

Excluding the expenditure allowed for the Shoalhaven Transfers Scheme, WorleyParsons found that SCA's actual expenditure over the 2005 determination period was $89.3 million[94] greater than allowed for in the 2005 determination. WorleyParsons identified that $66.9 million of this $89.3 million was invested in the following projects:

- investigations and development of the potential for extraction of groundwater at Wallacia, Leonay and Kangaloon ($28.3 million) – this project was initiated by Government under the Metropolitan Water Plan
- investigations, design and commencement of construction of a fish way passage and delivery structures for environmental flows at Tallowa Dam ($26.5 million) – this project was also initiated by Government under the Metropolitan Water Plan
- upgrading the SCADA (supervisory control and data acquisition) system into the Shoalhaven to improve the management of water delivery ($1.7 million) – WorleyParsons considers this project critical to the effective operation of SCA's assets

92 Ibid.

93 This step involved carrying out analysis of 17 capital expenditure projects, selected at random but each having more than $1 million in cost in the 2005/06 to 2012/13 period and together making up more than 10% of the total number of projects and 10% of the total capital program value over this period. WorleyParsons' assessment of the drivers, justification and efficiency of these sampled projects (with a combined budget of approximately $350 million) is listed in Appendix 2 of its report.

94 Nominal $.

- investigations and development of options for the Shoalhaven Transfers Scheme ($10.4 million).[95]

With the exception of a portion of groundwater expenditure (discussed below), WorleyParsons found that this expenditure was prudent, as it was incurred in response to Government direction and/or is considered critical to the effective operation of SCA's supply system.

WorleyParsons also found that the remaining $22.5 million of the $89.3 million is likely to be efficient and prudent, given its detailed review of a sample of capital expenditure projects and its finding that SCA's processes and performance in project identification, selection and development are generally of a high quality.[96]

The only item of SCA's capital expenditure that WorleyParsons did not find to be prudent was $8.5 million[97] of groundwater expenditure. This finding is based on the NSW Audit Office's direction to SCA that it must write off this expenditure as it failed to deliver an asset. Of all of SCA's groundwater expenditure over the current determination period ($28.3 million[98]), the Audit Office allowed SCA to capitalise only its expenditure on the Kangaloon groundwater project ($19.8 million[99]). This is because Kangaloon is the only site to be taken to the 'readiness' stage – meaning that it is probable that future economic benefits would flow to SCA from this site.[100] In contrast, following the NSW Government's 2008 decision to halt construction of SCA's groundwater borefields[101], it is uncertain whether the SCA will yield any future economic benefits from its other groundwater sites. In regard to the groundwater project at Kangaloon, a NSW Government press release notes that:

> Development of Kangaloon will be halted at the point where land acquisitions, planning approval and tender design are complete, to enable reactivation without delay in future emergencies.[102]

WorleyParsons' finding on SCA's prudent expenditure over 2005/06 to 2008/09 is shown in Table 6.5 below.

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95 While this $10.4 million is classed as capital expenditure, WorleyParsons (p 35) reports that a further $4.5 million of costs associated with raising the Tallowa Dam wall (as part of the original Shoalhaven Transfers Scheme) have been 'expensed' to operating expenditure. As noted in this chapter and in section 2.3.3, since the 2004 Metropolitan Water Plan, the NSW Government has decided to not proceed with raising the dam wall at Tallowa. Instead, it is looking at alternative operational arrangements for the Shoalhaven Transfer Scheme and investigating pipeline and tunnel options should it proceed with transfers of more water from Tallowa Dam to Sydney.

96 See: WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 54.

97 $8.5 million in nominal $, which equates to $9 million in $2008/09.

98 Nominal $.

99 Nominal $.

100 The Kangaloon site will be taken to the stage where it gains planning approval and can be activated to supply water at relatively short notice. This enhances SCA's security of supply and its yield.

101 Rees, N (Minister for Water), *News Release - Groundwater Borefields off the Agenda*, 18 June 2008.

102 Ibid.

Table 6.5 WorleyParsons' findings on SCA's prudent capital expenditure ($ million, real 2008/09)

	2005/06	2006/07	2007/08	2008/09b	Total
SCA's actual expenditure[a]	151.8	91.3	70.6	92.0	405.7
Groundwater project write down[b]	1.8	3.8	3.4	0.0	9.0
WorleyParsons' finding on prudent expenditure[c]	150.0	87.5	67.2	92.0	396.7

a Source: SCA's 2008 Information Return to IPART, increased by approximately $6.5 million ($2008/09) to correct errors identified by SCA's financial audit (see p 71 of WorleyParson's report), and indexed to $2008/09.

b Source: WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination),* January 2009, p 9, indexed to $2008/09.

c May not add due to rounding.

In relation to SCA's performance against its output measures for the 2005 determination period, WorleyParsons found that:

> …overall, SCA has been effective in delivering against the nominated output measures. The Prospect WPS was delivered behind schedule and over budget, however it is considered by WorleyParsons to be a technically challenging project and has been assessed as being very well managed.[103]

WorleyParsons' assessment of SCA's performance against its output measures is summarised in Table 6.6 below.

[103] WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, pp 63-64.

Table 6.6 WorleyParsons' assessment of SCA's performance against output measures

IPART output measure	Planning	Deliverables	Managing scope change / implementation
Substantial completion of the Deep Storage Scheme and provision of additional 30GL pa yield by July 2006	Efficient	Within budget, two months late, functionality met.	One scope change. Scope efficiently managed.
Substantial completion of the Prospect Water Pumping Station (WPS) and associated Dam remedial works by March 2007	WPS component – efficient. Dam remedial works – not assessed as in future program.	WPS component: Budget within approved SCA budget, 3 months late, functionality met. Dam remedial works: Construction not commenced (April 2013 completion).	WPS component: One cost variation, efficiency managed. Dam remedial works: Estimated cost exceeds initial budget approval.
Substantial completion of the Warragamba Spillway and associated works by June 2007	Efficient	In progress, to be delivered by June 2011.	One cost variation to date ($9M). Project scope efficiently managed to date.
Completion of phase 1 of the Shoalhaven Scheme and provision of an additional 50GL pa yield by July 2010	Project discontinued after Government decided not to raise Tallowa Dam.	Not assessed.	Not assessed.
Completion of works to allow the release of environmental flows into the Upper Nepean River by July 2010	Efficient	Forecast to be completed within budget, by April 2009.	Project management efficient to date. No scope of works change or price variations to date.

Source: WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, January 2009, p 63.

IPART's analysis of SCA's past capital expenditure

After considering SCA's submission, stakeholder comments and its consultant's report, IPART has accepted WorleyParsons' finding on the prudency of SCA's capital expenditure over 2005/06 to 2008/09, for the purposes of calculating the opening value of the RAB and calculating SCA's prices for the determination.

6.1.2 Forecast capital expenditure, 2009/10 to 2011/12

SCA's submission on forecast capital expenditure

SCA's forecast capital expenditure for the 2009 determination period is shown in Table 6.7 below.

Table 6.7 SCA's forecast capital expenditure ($million, real 2008/09)

	2009/10	2010/11	2011/12	Total
SCA forecast expenditure	61.8	34.1	32.5	128.5[a]

a Total may not add due to rounding.
Source: SCA submission, September 2008, p 28.

SCA submitted that its forecast capital expenditure is driven by the need to:

- Comply with the NSW Government's Metropolitan Water Plan – including upgrading of the Upper Nepean Dams to provide environmental flows.
- Comply with the requirements of the NSW Dams Safety Committee – including upgrading the crest gates at Warragamba Dam and upgrading Wingecarribee Dam for "probable maximum flood" criteria.
- Meet OH&S requirements – including a number of projects to upgrade ageing electrical, civil and mechanical systems to provide improved protection to SCA's workforce and the general public (including electrical wiring, fencing, access arrangements, roads and security).
- Renew/refurbish aging infrastructure assets – including roads and bridges.
- Refurbish the Upper Nepean transfer system[104] – SCA is reviewing the most appropriate way to augment and maintain this system. It has undertaken early investigations to identify feasible engineering options and broad design parameters, including staging and order of cost estimates. Expenditure has been flagged from 2008/09 to 2010/11 to undertake more detailed investigations, costing and preliminary designs, leading to a business case decision regarding replacement.[105]

[104] According to SCA (p 29 of its September 2008 submission), "The Upper Canal, which currently transfers approximately 20 per cent of Sydney's water, consists of a series of tunnels, open canals and aqueducts [approximately 64 km] built over 100 years ago. The canal design and age introduces risks to water quality and limits the volume of water that can be transferred. In order to ensure both reliability and quality of water supplied, the SCA will need to undertake major refurbishment works or replace the canal structure. Replacement options can be staged, with the final stage including removal of run of river transfers that are currently an integral part of the transfer of water from the Upper Nepean dams to Sydney." That is, SCA propose to construct infrastructure that *both* replaces the Upper Canal and increases Sydney's water supply from the Shoalhaven River.

[105] SCA's December 2008 submission notes that major expenditure on the Upper Canal that was previously planned for 2012/13 (in SCA's September 2008 submission) has been deferred to 2015/16 and beyond.

- Replace support assets – according to SCA, it has a range of support assets such as motor vehicles, IT equipment and office equipment that need regular renewal.[106]

SCA submitted that it has minimised its capital expenditure program over the 2009 determination period by, where possible, deferring major capital expenditure to beyond the next determination period.

Stakeholder submissions

TEC supported SCA's proposed capital expenditure on upgrading of the Upper Nepean Dams to provide environmental flows.[107] It also urged IPART to ensure that the SCA's expenditure on the Upper Nepean Transfer System (including the Upper Canal) includes expenditure to protect this asset from further long-wall mining damage. It noted that expenditure on refurbishment or replacement of the transfer system should seek to minimise transmission losses.[108]

Wingecarribee Shire Council noted that SCA is jointly funding network flow gauging and performance assessment studies for the five sewerage schemes in the Shire. These studies will identify the potential for overflows from the sewerage system and propose a capital works program to control, minimise or eliminate overflows. Wingecarribee Shire Council argued it is essential that SCA include a funding commitment in its expenditure forecasts towards physical works identified in these studies.[109]

WorleyParsons' review of the efficiency of SCA's forecast capital expenditure

To assess the efficiency of SCA's forecast capital expenditure, WorleyParsons:

- conducted detailed analysis of a sample of SCA's capital projects (as noted above)
- reviewed the forward program expenditure profile and any changes in SCA's operational drivers over time
- reviewed the drivers and nature of the projects making up the forward capital program
- considered potential efficiencies in the delivery of the forecast capital program.

As shown in Table 6.8 below, WorleyParsons found that most of SCA's proposed capital expenditure over 2009/10 to 2011/12 of $128.5 million is efficient. It identified efficiency savings of approximately $1.7 million (or about 1.4 per cent), which it considered can be achieved by bundling like projects to take advantage of economies of scale and reduced management costs. For example, WorleyParsons

106 SCA submission, September 2008, pp 27-28.
107 Total Environment Centre submission, October 2008, p 1.
108 Ibid.
109 Wingecarribee Shire Council submission, October 2008, p 8.

noted that efficiencies gained by grouping small IT projects together "would be likely in the order of 10% and may extend to 20%."[110]

Table 6.8 WorleyParsons' findings on SCA's forecast capital expenditure that is efficient ($million, real 2008/09)

	2009/10	2010/11	2011/12	Total[a]
SCA's forecast expenditure	61.8	34.1	32.5	128.5
WorleyParsons' findings on efficient expenditure	61.6	33.4	31.8	126.8

a Totals may not add due to rounding.
Source: SCA submission, p 28; and WorleyParsons' *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, p 10, converted to $2008/09.

WorleyParsons' findings reflect its positive assessment of SCA's asset management and project evaluation and management processes. For example, it noted that:

> SCA's capital project management processes include business case development steps. WorleyParsons has reviewed the business cases for a number of future projects, and on the basis of the SCA capital project management process and evidence of SCA following this process, WorleyParsons has confidence that SCA is developing business cases for its projects which ensure that they are efficient projects.[111]

IPART's analysis

IPART has accepted WorleyParsons' finding on the efficiency of SCA's capital expenditure over 2009/10 to 2011/12.

6.2 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, IPART must calculate the value of SCA's RAB in each year of the determination period. It 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. Then it applied these methodologies.

110 WorleyParsons, *Review of Capital and Operating Expenditure – Sydney Catchment Authority (2009 Determination)*, 15 January 2009, pp 75-77.
111 Ibid, p 76.

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

To establish the opening value of SCA's RAB (ie, as at 1 June 2009), IPART:

- Rolled forward the 1 July 2005 RAB to 30 June 2009 by including the actual capital expenditure over this period that it found to be prudent[112] (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 2005 determination[113]
  - deducting actual asset disposals for 2005/06 to 2007/08 and estimated disposals for 2008/09.
- Indexed the annual closing RAB for actual/forecast inflation. In making this calculation, IPART 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 2009 determination period (ie, 30 June 2012), IPART:

- Added the forecast capital expenditure it 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 any forecast capital contributions
  - deducting regulatory depreciation
  - deducting forecast disposals of assets.
- Indexed for forecast inflation.[114]

Both methodologies are the same as those IPART used in making the 2005 determination.

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112 Given that actual expenditure for 2008/09 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 2008/09.

113 Regulatory depreciation refers to the depreciation amounts allowed for in the 2005 Determination. IPART uses 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.

114 Similar to the approach of establishing the opening RAB, IPART assumes that half the capital expenditure and disposals occur at the beginning of the year (receiving a full year of indexation), with the remainder occurring at the end of the year.

6.2.2 Applying these methodologies

To apply these methodologies, IPART rolled forward the opening value of SCA's RAB at the 2005 determination to reflect its findings on prudent actual capital expenditure over the 2005 determination period and efficient forecast capital expenditure for 2009/10 to 2011/12. As noted above, these expenditures are discussed in section 6.1. The sections below discuss the other adjustments IPART made 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.

Adjustments for capital contributions

For water utilities, 'capital contributions' generally refer to revenue received from developer charges or government grants. However, SCA does not receive revenue from developer charges, and its Information Returns to IPART indicated that it did not receive any capital contributions from government or other sources over the 2005 determination period, and does not forecast receipt of any such contributions over the 2009 determination period. Therefore, IPART did not make any adjustment to the RAB account for capital contributions.

Adjustments for disposal of assets

Table 6.9 shows the value of the assets SCA reported disposing of over the 2005 determination period, and expects to dispose of over the 2009 period. IPART has deducted these values from the value of RAB accordingly.

Table 6.9 SCA's past and forecast assets disposals ($million, real 2008/09)

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Asset disposals	0.0	5.2	11.6	0.0	0.0	0.0	0.0

Source: SCA 2008 Information Returns to IPART, indexed to $2008/09.

Adjustments for regulatory depreciation

The RAB is adjusted each year to account for regulatory depreciation. To determine the opening value of SCA's RAB at 1 July 2009, IPART deducted the allowance for regulatory depreciation it included in making the 2005 determination. To calculate future regulatory depreciation to be deducted from the RAB (to roll forward the RAB to the end of the 2009 determination period) IPART has used the straight-line depreciation method. The amounts deducted are shown in Table 6.10 below.

As discussed in Chapter 4, an allowance for depreciation (return of assets) is made within the revenue required for capital investment. IPART's considerations in calculating this allowance for the 2009 determination period are discussed in section 6.4 below.

Table 6.10 SCA's regulatory depreciation deducted from the RAB ($million, real 2008/09)

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Regulatory depreciation	-15.1	-16.9	-18.4	-19.8	-22.1	-22.9	-23.5

6.2.3 Resulting annual values for the RAB

Table 6.11 shows IPART's calculated annual values of SCA's RAB over the 2009 determination period after adding the past and forecast capital expenditure discussed in section 6.1, making the adjustments discussed in section 6.2.2, and indexing the closing RAB for forecast inflation.

Table 6.11 SCA's RAB ($million, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
SCA RAB	1,297	1,337	1,348	1,357

6.3 Calculating the allowance for a return on assets

Once it calculated the value of SCA's RAB over the determination period, IPART decided on an appropriate rate of return for SCA. It 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, IPART used the weighted average cost of capital (WACC) approach. It developed a range for a benchmark water utility's real pre-tax WACC, then made a judgement on the most appropriate rate of return for SCA within this range.

In exercising its judgement, IPART considered SCA's proposed rate of return and its own analysis of the implications of its chosen rate return for customers, SCA's financial viability and economic efficiency.

6.3.1 SCA's submissions

SCA's September 2008 submission proposed a real pre-tax WACC at least equal to that determined for Sydney Water, with market-based parameters updated at the time of the final decision. IPART determined a real pre-tax WACC of 7.5 per cent for Sydney Water in its 2008 price determination.

SCA's April 2009 submission to the draft determination provided detailed comments on IPART's draft decision on the rate of return.[115] In particular, this submission commented on IPART's approach to:

- estimating the WACC point estimate and the resulting value of the WACC
- estimating the debt margin and the resulting range of values of the debt margin.

SCA's positions in these submissions are considered further in Appendix E.

6.3.2 IPART's analysis and decision

Decision

9 IPART's decision is that for the purposes of calculating the allowance for a return on assets, a real pre-tax WACC of 6.5 per cent will be applied to the RAB.

IPART's decision on the rate of return reflects its view that an appropriate WACC for SCA is in the range of 5.7 per cent to 7.5 per cent, and it has selected the midpoint of this range.[116] Under IPART's approach of equating the present value of SCA's expected revenue from tariffs with the present value of its notional revenue requirement over the determination period, this translates into an overall rate of return over the determination period of 6.5 per cent. Table 6.12 shows that IPART's pricing approach will enable SCA to earn a rate of return of 7.0 per cent by 2011/12, to offset its lower rate of return of 5.9 per cent at the start of the determination period.

Table 6.12 Decision on allowance for a return on assets ($million, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Return on capital	76.3	82.7	84.3	84.9
Rate of return from charges	6.3%	5.9%	6.7%	7.0%

In making its decision on an appropriate rate of return for SCA, IPART considered the views of SCA, current regulatory and financial practice, its previous decisions, section 15 of the IPART Act and its own analysis. IPART also investigated the implications of its chosen rate of return on water customer bills, SCA's financial viability (estimated by changes in key financial ratios) and economic efficiency. IPART considers that a WACC of 6.5 per cent achieves an appropriate balance between these interests.

IPART calculated a range for the WACC using the parameters shown in Table 6.13 below. These parameters were based on market conditions averaged for the 20 days to 27 March 2009, where relevant.

[115] SCA, submission, April 2009, pp 11-14.

[116] The midpoint is calculated on the basis of the midpoint of the range for each parameter. Because the formula is non-linear, the calculated midpoint is not necessarily the midpoint of the range of the WACC.

Table 6.13 Draft and final decision on the rate of return and the parameters IPART used to calculate the WACC

WACC Parameters	Draft decision	Final decision
Nominal risk free rate [a]	4.2% [a]	4.3% [b]
Real risk free rate [a]	2.8% [a]	NA [c]
Inflation adjustment	1.3% [a]	2.5% [b]
Market risk premium	5.5% - 6.5%	5.5% - 6.5%
Debt margin [a]	1.2% – 3.6% [a]	2.8% – 3.5% [b]
Debt to total assets	60%	60%
Dividend imputation factor (gamma)	0.5 - 0.3	0.5 - 0.3
Tax rate	30%	30%
Equity beta	0.8 - 1.0	0.8 - 1.0
Cost of equity (nominal post-tax)	8.6% - 10.7%	8.7% - 10.8%
Cost of debt (nominal pre-tax)	5.4% - 7.7%	7.1% - 7.8%
WACC range (real pre-tax)	5.9% - 8.6%	5.7% - 7.5%
WACC (real pre-tax) point estimate	7.0%	6.5%

[a] Reflects market data averaged for the 20 days to 14 January 2009.

[b] Reflects market data averaged for the 20 days to 27 March 2009.

[c] The real risk free rate is not necessary in this calculation when using swap market data to derive the inflation adjustment.

A detailed discussion of IPART's considerations in relation to the appropriate rate of return is provided in Appendix E.

6.4 Calculating the allowance for regulatory depreciation

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

6.4.1 Depreciation method

As for previous determinations, IPART 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. IPART considers that this method is superior to alternatives in terms of simplicity, consistency and transparency.

6.4.2 Asset lives

For the 2005 determination, IPART used asset lives of 70 years for existing assets and 100 years for new assets in calculating the allowance for regulatory depreciation.[117] For the 2009 determination, it considered SCA's proposal and sought WorleyParsons' advice before making its decision.

SCA's proposal

SCA proposed using an average asset life of 60 years for both existing and new assets for the purposes of calculating the allowance for regulatory depreciation. It indicated that these asset lives are based on a review of its entire infrastructure assets, which it commissioned in 2007.[118]

Discussions with SCA – and WorleyParsons analysis (see below) – indicate that the lower asset life for new assets is due the nature of its forward capital program, which includes assets with shorter lives than in the previous determination.

WorleyParsons' advice

IPART asked WorleyParsons to review asset lives in the SCA's RAB and forward capital program. WorleyParsons reviewed the asset lives SCA proposed and compared them to asset lives applied by other Australian water agencies and the Australian Taxation Office. WorleyParsons concluded that:

- For existing assets, an asset life of 60 years is appropriate.
- For new assets, an asset life of 60 years can be justified. However, it considers it more appropriate to use an asset life of 50 years to calculate regulatory depreciation, based on its assessment of the type of assets that make up SCA's current forward capital program. For future price determinations, WorleyParsons recommended that the asset life of new assets be reviewed again, as the composition of the forward capital program may change over time.[119]

IPART's analysis and decision

Decision

10 IPART's decision is to calculate regulatory depreciation using asset lives of 60 years for both new and existing assets.

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117 IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report*, June 2005, p 77.

118 SCA submission, September 2008, 35.

119 WorleyParsons, *Review of Asset Life Determination – Sydney Catchment Authority (2009 Determination)*, January 2009, p 19.

IPART accepted SCA's proposal to calculate depreciation using asset lives of 60 years for both existing and new assets, given WorleyParsons' finding that these lives for existing and new assets were appropriate or could be justified.

In line with this decision and the straight-line depreciation method, SCA's existing and new assets were depreciated at a rate of approximately 1.67 per cent over the 2009 determination period. This means that, in general terms, IPART calculated the allowance for regulatory deprecation by multiplying the annual value of the RAB over the determination period by 1.67 per cent. This resulted in the annual allowances shown in Table 6.14 below.

Table 6.14 SCA allowance for depreciation ($million, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Allowance for regulatory depreciation	18.9	21.2	22.0	22.5

7 SCA's forecast water sales

Once IPART has decided on the revenue requirement for SCA, it sets SCA's prices taking into account this revenue requirement and forecast water sales and customer numbers.

Given SCA's role as primarily a water 'wholesaler' to Sydney Water and several Local Councils, forecasting its customer numbers is relatively straightforward. However, forecasting its water sales can be more difficult and requires significant analysis. This is due to the range of factors that can influence water demand and the unpredictability or volatility of some of these factors (eg, weather conditions).[120]

If IPART's decision on forecast water sales is not reasonable, there is a risk that the prices it sets will lead to SCA significantly over or under recovering its required revenue, particularly as a large proportion of SCA's costs are fixed. If the volumetric prices are based on forecasts that turn out to be less than SCA's actual water sales, SCA will generate more than its revenue requirement. Conversely, if these prices are based on forecasts that turn out to be more than SCA's actual water sales, SCA will not generate sufficient revenue to cover its revenue requirement.

The section below summarises IPART's decisions on SCA's forecast water sales to Sydney Water, Local Councils and unfiltered and raw water customers. The following sections discuss these decisions in more detail.

7.1 Summary of IPART's decisions

Decision

11 IPART's decision is to use the forecast water sales listed in Table 7.1 below, for the purposes of calculating prices.

[120] Factors that can influence demand for bulk water include population growth, the structure and level of retail water prices, demand management programs implemented by the NSW Government and Sydney Water, weather conditions, the impact of water restrictions, and supply augmentation projects both within and beyond SCA's operations, such as the operation of Sydney Water's desalination plant.

Table 7.1 Decision on SCA's forecast water sales for the 2009 determination period (ML)

Customer	2009/10	2010/11	2011/12
Sydney Water	497,700	449,000	438,000
Wingecarribee Shire Council	4,100	4,100	4,100
Shoalhaven City Council	80	80	80
Goulburn Mulwaree Council	0	42	577
Unfiltered water customers	185	185	185
Raw water customers	15	15	15
Total water sales	502,080	453,422	442,957

7.2 Forecast sales to Sydney Water

Table 7.2 compares SCA's actual sales to Sydney Water over the 2005 determination period to the forecast sales IPART used in making the 2005 determination. This shows that total SCA sales to Sydney Water over 2005/06 to 2008/09 have been about 13 per cent lower than forecast by IPART in 2005. SCA attributes this to the imposition of water restrictions as a result of the drought.

SCA sought the implementation of a consumption adjustment mechanism in this determination, on the grounds that there is considerable potential for continuing revenue volatility associated with consumption. As Chapter 3 discussed, IPART's decision is not to include such a mechanism. This is because uncertainty about water availability due to drought has lessened and, while there may be some future uncertainty about water demand from Sydney Water until the operating rules for the desalination plant have been released by Government, supply from the plant is relatively certain for its two-year proving period (from January 2010 to January 2012)[121], which comprises much of the 2009 determination period.

[121] In a letter dated 5 May 2009, Sydney Water has recently advised IPART that: "The desalination plant will operate at full capacity, or close to full capacity, for the first two years of operation, regardless of dam levels. This proving period is needed to assure the performance and reliability of the plant." In this letter, which is available with other submissions at IPART's website (www.ipart.nsw.gov.au), Sydney Water also provides estimated volumes of supply from its desalination plant over 2009/10 to 2011/12.

Table 7.2 Comparison of SCA's actual sales to Sydney Water to IPART's decision on these sales in making the 2005 determination (GL)

	2005/06	2006/07	2007/08	2008/09
IPART's decision: forecast water sales	557	567	587	578
SCA's actual sales to Sydney Water	522	503	475	486[a]
% variation with IPART's decision	-6	-11	-19	-16
IPART's decision: cumulative forecast water sales	557	1,123	1,710	2,288
SCA's cumulative actual water sales	522	1,025	1,500	1,986
% variation with IPART's decision	-6	-9	-12	-13

a Latest 2008/09 estimate, sourced from SCA's April 2009 submission, p 15.

Source: SCA submission, September 2008, p 18.

Table 7.3 shows SCA's latest forecast water sales to Sydney Water over the 2009 determination period. These forecasts are based on Sydney Water's projections of its total demand for water, less its forecast supply from its desalination plant and its North Richmond supply facility.

Table 7.3 SCA's forecasts sales to Sydney Water over the 2009 determination period (ML)

	2009/10	2010/11	2011/12
Total Sydney Water supply[a]	529,900	531,200	530,200
Sydney Water desalination plant supply[a]	25,000	75,000	85,000
Sydney Water North Richmond supply[a]	7,200	7,200	7,200
Forecast SCA supply to Sydney Water	497,700	449,000	438,000

a These forecasts have been confirmed by Sydney Water in a letter to IPART dated 5 May 2009 (which is available on IPART's website with other submissions to this review).

Source: SCA submission, April 2009; and email from SCA, 20 April 2009.

Notably, Sydney Water's projections of its total water demand have been updated since SCA's September 2008 submission (which formed the basis of IPART's draft determination) and IPART's 2008 determination of Sydney Water's prices. According to Sydney Water, the main differences between its earlier and latest forecasts are that:

- the earlier forecast did not include any residual effect on water demand of the prolonged period of restrictions, whereas the latest forecast does, and
- the assumed savings from water conservation measures in the latest forecast are lower than the earlier forecast, reflecting the most recent information available on Sydney Water's water conservation program.[122]

Since the draft determination, Sydney Water's forecast supply from its desalination plant over the determination period has also been adjusted down slightly. These changes reflect the fact that while the plant is expected to operate at close to full

[122] Letter from Sydney Water to IPART, 5 May 2009, available at IPART's website (www.ipart.nsw.gov.au) with other submissions to this review.

capacity during its initial two year proving period, there may be times when it is temporarily shut down or running at less than full capacity for operational reasons.[123]

SCA's latest forecast sales to Sydney Water compared to its original forecasts (and those used by IPART to set prices for the draft determination) are listed in Table 7.4. This shows that, over the determination period, the latest forecasts are 1.9 per cent lower than those submitted by SCA in its September 2008 submission.

Table 7.4 SCA's forecasts sales to Sydney Water: SCA's original estimates compared to its most recent estimates (ML)

	2009/10	2010/11	2011/12	Total
SCA submission April 2009	497,700	449,000	438,000	1,384,700
SCA submission September 2008 (as used in draft determination)	507,214	445,632	458,828	1,411,674
Difference	-9,514	3,368	-20,828	-26,974
Difference %	-1.9%	0.8%	-4.5%	-1.9%

7.3 SCA sales to Local Councils

Table 7.5 shows SCA's past and forecast sales to Wingecarribee and Shoalhaven Councils. It indicates that SCA expects a slight increase in average annual sales to these Councils over the 2009 determination period relative to the current determination period. Local Councils are forecast to account for about 0.8 per cent to 1.1 per cent of SCA's total sales over the determination period.

IPART notes that SCA has not provided forecast sales to Goulburn Mulwaree Council, even though there are plans to build a pipeline from SCA's Wingecarribee Reservoir to Goulburn to augment supply to the Goulburn community. SCA has indicated that the Wingecarribee to Goulburn pipeline will supply up to 1,800 ML of water per year and is due for completion in 2010/11.[124] However, in its submission to the draft report, Goulburn Mulwaree Council advises that the Wingecarribee to Goulburn pipeline is forecast to supply the Council an average of 505 ML per annum in 2010/11 and 577 ML in 2011/12. It also notes that the pipeline is not expected to be completed until May 2011, with 'normal operation' starting from June 2011.[125]

123 Ibid.

124 SCA submission, September 2008, p 43.

125 Goulburn Mulwaree Council submission, April 2009, p 2; and email from Goulburn Mulwaree Council to IPART, 4 May 2009.

Table 7.5 SCA's actual and forecast sales to Local Councils (ML)

Final year ending	2004	2005	2006	2007	2008	2009	2010	2011	2012
Wingecarribee actual	3,447	3,337	3,594	4,221	4,042	-	-	-	-
Wingecarribee forecast	-	-	-	-	-	4,100	4,100	4,100	4,100
Shoalhaven actual	80	74	78	77	76	-	-	-	-
Shoalhaven forecast	-	-	-	-	-	80	80	80	80

Source: SCA submission, September 2008, p 42; and SCA 2008 Information Returns to IPART.

7.4 SCA sales to unfiltered and raw water customers

Table 7.6 shows SCA's actual and forecast sales to its raw and unfiltered water customers. These customers comprise approximately 0.04 per cent of SCA's total sales.

Table 7.6 SCA's actual and forecast sales to other customers (ML)

Final year ending	2005	2006	2007	2008	2009	2010	2011	2012
Raw water actual	26	4	23	9	-	-	-	-
Raw water forecast	-	-	-	-	15	15	15	15
Unfiltered water actual	265	274	245	-	-	-	-	-
Unfiltered water forecast	-	-	-	147	185	185	185	185

Source: SCA 2008 Information Returns to IPART.

As SCA levies a fixed service charge on its unfiltered water customers, forecast customer connection numbers are required to model prices and revenue. SCA's 2008 Information Return to IPART forecast that it would have 56 unfiltered water customers throughout the 2009 determination period, in line with expected customer numbers in 2008/09. However, SCA has since advised that it had 57 unfiltered water customers at the start of 2008/09 and that it now has 58 customers, with an average service charge of $424 per customer.[126] SCA's current mix of unfiltered water customers is shown in Table 7.7 below.

[126] Email correspondence, SCA to IPART Secretariat, 22 January 2009.

Table 7.7 SCA's unfiltered water customers as at January 2009

Meter size (mm)	Number of customers
20	29
25	5
30	0
32	2
40	3
50	6
80	2
100	1
150	0
200	1
300	1
No charge[a]	8
Total customers	58
Average revenue per customer	$423.91

a No charge because pensioner or charity.

Source: Email from SCA to IPART, 22 January 2009.

7.5 IPART's analysis

SCA's forecast sales to Sydney Water are largely based on Sydney Water's own forecasts of its total demand, along with Sydney Water advice on the likely operating regime of the desalination plant over the 2009 determination period. For the 2008 Sydney Water determination, IPART accepted Sydney Water's forecast water sales. It did so after considering the advice of its consultant, McLennan Magasanik Associates (MMA).[127] Given this, the fact that Sydney Water's latest changes to these 2008 forecasts appear reasonable and Sydney Water's recent advice on the likely operating regime of the desalination plant over the determination period, IPART has accepted SCA's latest forecast water sales to Sydney Water.

IPART has also accepted SCA's forecast sales to Wingecarribee Shire Council, Shoalhaven City Council and its raw and unfiltered water customers. While SCA has not provided detailed rationale for these forecasts, they appear reasonable in light of historical consumption levels.

[127] MMA reviewed Sydney Water's forecasting methodology and its assumptions relating to the key drivers behind forecast water sales (eg, property numbers, water restrictions, demand management measures). MMA then recommended alternative forecast water sales based on its assessments. However, the difference between Sydney Water's and MMA's forecasts was not significant.

For modelling purposes, IPART has also assumed that SCA will have 58 unfiltered water customers over the 2009 determination period, with an average service charge of $424 per customer. This is in line with recent information provided by SCA (see section 7.4).

In the absence of forecasts provided by SCA, IPART has assumed that SCA will supply Goulburn Mulwaree Council with 42 ML[128] of water in 2010/11 and 577 ML of water in 2011/12, in line with Goulburn Mulwaree Council's submission to the draft report (see section 7.3).

[128] This figure is the 2010/11 per annum supply estimate of 505 ML divided by 12, given that Goulburn Mulwaree Council has advised that the Wingecarribee to Goulburn pipeline will only be ready to commence operation in the last month of the 2010/11 year.

8 Pricing decisions for SCA's water services

Using the decisions discussed above – including the decisions on aggregate pricing approach and forecast water sales – IPART has set prices for SCA's services over the 2009 determination period. The section below provides a summary of these pricing decisions. The following sections discuss the decisions on SCA's charges to Sydney Water, Local Councils and unfiltered and raw water customers in detail.

As noted in section 1.1, all figures (prices and costs) in this report are presented in 2008/09 dollars (unless stated otherwise), while prices in the determination (preceding this report) are in 2009/10 dollars.

8.1 Summary of pricing decisions

Decision

12 IPART's decision is that SCA can charge the maximum prices shown in Table 8.1 for its services over the 2009 determination period.

Table 8.1 Decision on maximum prices SCA can charge for its services, 2009/10 to 2011/12 ($, real 2008/09)

SCA's charges	2008/09	2009/10	2010/11	2011/12
Volumetric price to Sydney Water ($/ML)	222.17	240.61	250.57	260.92
Fixed charge to Sydney Water ($M)	67.21	72.78	75.80	78.93
Volumetric price to Local Councils ($/ML)	210.05	227.48	236.90	246.69
Volumetric price for unfiltered water ($/kL)	0.84	0.91	0.95	0.99
Volumetric price for raw water ($/kL)	0.49	0.53	0.55	0.58
Fixed charge to unfiltered water customers – for 20mm meters ($)	75.00	81.23	84.59	88.08
Fixed charge to unfiltered water customers – for meter size above 20 mm ($)	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400	$(\text{Meter size})^2$ x 20mm charge/400

As discussed in section 3.5, prices have been set so that, in present value terms, SCA's notional revenue requirement equals its expected revenue from tariffs over the determination period. Under IPART's pricing approach, prices to Sydney Water and Local Councils also increase by a higher percentage (approximately 8.3 per cent) in

2009/10 than in the remaining two years (about 4.1 per cent in each year) of the determination period.[129]

8.2 Pricing decisions for charges to Sydney Water

In the 2005 determination, IPART changed the balance between SCA's fixed (per month and per annum) charge and volumetric (per ML) charge to Sydney Water. It increased the relative size of the volumetric charge compared to the fixed charge, "so that approximately two-thirds of SCA's revenue will be obtained from volumetric charges by 2008/09."[130] IPART noted that this will help achieve the objective of setting charges with reference to SCA's Long Run Marginal Cost of supply (LRMC),[131] and "will send a pricing signal to Sydney Water that will help achieve the State Government's demand management objectives."[132]

Prior to the 2005 determination, IPART had set SCA's prices so that it earned approximately equal revenue from its fixed and volumetric charges to Sydney Water.

8.2.1 SCA's submissions

SCA's submission to the issues paper

SCA's proposed prices in its September 2008 submission are listed in Table 8.2. These prices would result in SCA generating approximately 80 per cent of its revenue from its fixed charge to Sydney Water, and only 20 per cent from its volumetric charge. This is a significant change from IPART's 2005 determination which, as discussed above, set prices so the volumetric charge generates around 65 per cent of revenue.

Table 8.2 SCA's proposed prices for charges to Sydney Water ($, real 2008/09)

($2008/09)	2008/09	2009/10	2010/11	2011/12
Fixed price ($M)	67.21	172.43	161.52	161.67
Volumetric price ($/ML)	222.17	75.59	78.69	78.76

Source: SCA submission, September 2008, p 41; and SCA 2008 Information Returns.

[129] Volumetric prices for unfiltered and raw water listed in Table 8.1 do not increase by this exact amount, as they are rounded to the nearest cent (per kL).

[130] IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report*, September 2005, p 96.

[131] In general terms, SCA's LRMC is calculated as the present value of the cost of SCA's next supply augmentation measure divided by the present value of the amount of water supplied by the measure.

[132] IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report*, September 2005, p 135.

SCA submitted that its proposed balance between the two charges would benefit SCA and Sydney Water, as the higher fixed charge would give them greater revenue/cost certainty. It also submitted the lower volumetric charge would send a price signal to Sydney Water that reflects SCA's Short Run Marginal Cost of supply (SRMC) over the next determination period.

Further, in support of its pricing proposal, SCA argued that:

- The signals Sydney Water's prices send to its customers would be unaffected by the structure of SCA's prices over the 2009 determination period. This is because the cost pass-through mechanism in the 2008 Sydney Water determination specifies that variations in SCA's total charges to Sydney Water will be passed through only via Sydney Water's fixed water service charge to its customers.
- While Sydney Water has advised that it intends to run the desalination plant at close to full capacity for its first two years of operation:

  …uncertainty over the volume of water that will be supplied to Sydney Water during and after its two year start up period is still a major concern for the SCA in terms of potential revenue variability. Trialling a fixed charge approach over the next price path would be a good way to minimise risk for the SCA, Sydney Water, and its customers during this period.[133]

SCA also noted that setting its volumetric charge to Sydney Water with reference to its estimated LRMC would be problematic, for the following reasons:

- It is not possible to estimate SCA's LRMC accurately, as the scope, timing and decision to construct future SCA supply augmentation projects will be made by the Government in finalising the next version of the Metropolitan Water Plan (to be released in 2010).
- Given the magnitude of recent estimates of SCA's LRMC and its revenue requirement for the 2009 determination period, if its volumetric charge to Sydney Water was set equal to its LRMC, SCA would over-recover its costs or require a negative fixed charge in order to avoid such over-recovery.[134]

SCA's submission to the draft determination and report

SCA's April 2009 submission maintained its argument for a substantial increase to its fixed charge to Sydney Water, and its proposal to set its volumetric charge to Sydney Water with reference to its SRMC. SCA argued for a higher fixed/volumetric charge ratio on the basis of its views that:

- Supply augmentation is not expected to be required for several years – therefore, it is appropriate to set its volumetric price to Sydney Water with reference to its SMRC rather than LRMC of supply.

[133] SCA submission, September 2008, pp 40-41.
[134] Ibid, pp 38-41.

- A higher fixed charge would help to protect it against sales volatility. It notes that a substantially higher fixed charge to Sydney Water over the next three years would "act as a buffering mechanism to sales and consequent revenue variability."[135] It also suggested that measures to secure its revenues are particularly important in the current economic climate, where SCA faces increases in its long service leave liability and actuarial losses on defined benefit superannuation schemes.[136]

SCA argued against maintenance of the current fixed/volumetric price ratio (and hence the tariff structure in IPART's draft determination and report) on the following grounds:

- There is no volumetric price signal to Sydney Water's end use customers from SCA's prices. For the duration of the upcoming three year price path, volumetric charges to Sydney Water's customers have already been determined by IPART (under IPART's 2008 Determination of Sydney Water's prices, changes to Sydney Water's cost of purchasing water from SCA as a result of this determination will be passed through to end use customers via the fixed water service charge).
- It is appropriate to set SCA's volumetric charge at SRMC rather than LRMC, as the next SCA water supply increment for Sydney is not expected to be required until 2028.
- Any financial incentive to Sydney Water as a result of SCA's tariff structure over the next three years "is relatively weak, especially in light of the need to prove its desalination plant."[137]

8.2.2 Stakeholder comments

Stakeholder submissions to the issues paper

Several stakeholders expressed concern with the SCA's proposal that a higher proportion of its revenue be generated through its fixed charge to Sydney Water.

The Independent Advisory Panel for the Sydney Metropolitan Water Plan (the Panel) submitted that in its view, SCA's proposed 80 per cent fixed and 20 per cent volumetric split has the potential to create perverse outcomes when Sydney Water makes choices between alternative water sources – particularly in the future, with a likely more complex portfolio of potential water sources. It also pointed out that if SCA's proposed split is adopted, Sydney will have a regime in which retail customers are receiving price signals guided by LRMC but wholesale water customers would receive price signals that more closely reflect the SRMC.

[135] SCA submission, April 2009, p 7.
[136] Ibid, p 5.
[137] Ibid.

The Panel put the view that SCA's volumetric charge should generally be based on its LRMC of supply, and this LRMC should be estimated with reference to supply augmentation projects required over a 30-year planning horizon. However, the Panel also recognised that a feature of LRMC is that it can fluctuate sharply – falling immediately after a significant augmentation has been made to capacity; and rising steadily towards the next augmentation. The Panel considered that this may require some 'smoothing' of prices.

In addition, the Panel suggested that the estimated opportunity cost of desalination plant water could be used as a guide for setting SCA's volumetric charge. According to the Panel, this cost could be calculated as the variable operating costs of the desalination plant *plus* the 'cost' of lost airspace[138] in the dams as a result of running the desalination plant.[139]

Jemena Limited also submitted that it would be a regressive step to lower the volumetric charge, especially to the extent proposed by SCA. Jemena put the view that this would compromise the economics of conservation measures, such as network leakage reduction, which could be justified in part by higher volumetric charges. Jemena supported an option whereby SCA charges Sydney Water a fixed price for a given maximum quantity of water ("something less than the sustainable yield"), with any consumption above this amount charged at a volumetric price set with reference to an estimate of SCA's LRMC. In recognition of the complexity in determining the LRMC, Jemena also proposed an alternative approach whereby the volumetric charge is set equivalent to the marginal cost of water from Sydney Water's desalination plant.[140]

The Total Environment Centre (TEC) submitted that IPART should continue the process of reducing the reliance on fixed charges in favour of volumetric charges. TEC considered that SCA's proposal to increase its fixed charge would reduce the resource conservation signal to Sydney Water and "reverse the price reform progress made in the previous determination." TEC pointed out that Sydney Water has the capacity to respond to a volumetric price signal by investing in demand management and recycling initiatives.

TEC also submitted that Sydney Water should not exceed the demand management targets in its Operating Licence. It recommended a 'step pricing' approach to any water supplied by SCA that would place Sydney Water above these demand management targets. It argued that Sydney Water should not be allowed to pass this additional cost onto customers, and that any additional revenue received by SCA from 'step pricing' should be dedicated to environmental research and restoration.[141]

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138 The Panel's submission (p 4) mentions "cheap water that can be captured when there is more airspace in storages" and "the benefits and costs of dam spills".

139 Independent Advisory Panel for the Sydney Metropolitan Water Plan submission, October 2008, pp 1-5.

140 Jemena Limited submission, October 2008, pp 1-2.

141 Total Environment Centre submission, October 2008, pp 2-3.

Sydney Water noted that SCA's proposal would transfer significant risk from SCA to Sydney Water. It put the view that if SCA's proposed price structure is adopted, there would need to be an adjustment at the next determination of Sydney Water's prices for extra costs incurred by Sydney Water over the course of the 2009 determination period, as well as recognition of increased risk to Sydney Water in future determinations.[142]

Stakeholder submissions to the draft determination and report

Jemena supports IPART's draft decision not to reduce SCA's volumetric charges. According to Jemena:

> The proposed real increase in the volumetric charges over the period, while not as great as Jemena believes can be justified, is a move in the right direction. Ultimately these increases should flow through to retail volumetric charges to improve the competitive position of sources, such as recycled water, that compete in the retail market.[143]

TEC also welcomes IPART's decision not to support SCA's proposal to generate more revenue from its fixed charge to Sydney Water. As noted in its October 2008 submission, TEC believes that SCA's proposal to reduce its volumetric charge to Sydney Water would "diminish the resource conservation signal provided to bulk water customers such as Sydney Water." TEC is disappointed, however, that IPART has not sought to strengthen this signal by reducing fixed charges and increasing the contribution of volumetric charges.

8.2.3 IPART analysis

IPART considered a number of options for SCA's charges to Sydney Water, including those proposed by SCA and other stakeholders.

IPART has decided to increase SCA's fixed and volumetric charges to Sydney Water by equal proportion. Its pricing decisions on these charges are shown in Table 8.3 below.

Table 8.3 SCA prices to Sydney Water 2009/10 to 2011/12 ($, real 2008/09)

SCA's charges	2008/09	2009/10	2010/11	2011/12
Volumetric price to Sydney Water ($/ML)	222.17	240.61	250.57	260.92
Fixed charge to Sydney Water ($M)	67.21	72.78	75.80	78.93
Year on year % increase in charges		8.3%	4.1%	4.1%
Proportion of revenue generated by fixed charge	38.4%	37.8%	40.3%	40.9%

[142] Sydney Water submission, October 2008, p 2.
[143] Jemena Limited submission, April 2009, p 1.

This pricing approach:

- increases SCA's current fixed and volumetric charges to Sydney Water by about 17.4 per cent over 2008/09 (current prices) to 2011/12 (the last year of the upcoming determination period)
- provides a volumetric signal above SCA's SRMC (which is about $70 per ML[144]), but below estimates of its LRMC[145] and the desalination plant's marginal operating cost (estimated to be at least $422 per ML[146])
- approximately maintains the current ratio between the revenue generated from the volumetric charge and from the fixed charge
- maintains the current distribution of sales risk between SCA and Sydney Water.

IPART considers that this approach is a reasonable 'holding' option for the 2009 determination, given that SCA's operating environment will be in a state of some transition during the determination period. One of the primary reasons for this is that the Metropolitan Water Plan is currently being updated (scheduled to be released 2010). The updated plan will drive SCA's expenditure and operating requirements in the future. Another reason is the commissioning of the desalination plant and development of the plant's operating rules (also due to occur in 2010).

IPART does not favour SCA's proposal for two main reasons:

- First, it would result in a significant decrease to SCA's volumetric charge, when this charge may have to be increased at future price determinations (eg, to signal the cost of SCA's supply augmentation requirements or the scarcity value of water in its storages). This would lead to significant price volatility between determination periods.
- Second, the volumetric charge would not provide any signal in relation to future (or longer term) SCA supply augmentation requirements.

Furthermore, while SCA has argued for a lower volumetric charge on that grounds that there is significant uncertainty over the volume of water that will be supplied to Sydney Water from the desalination plant, IPART considers this uncertainty to be minimal given that Sydney Water's latest estimates of the operating regime of the plant (which assume that it will run at near full capacity for its first two years of operation) have been factored into SCA's supply forecasts.

144 SCA's December 2008 submission (p 1) reports that SCA's SRMC is estimated at $0.07 per kL, "based on the current cost of water pumping in the Shoalhaven Scheme."

145 Based on indicative estimates of the cost and yield (kL) of SCA's next likely supply augmentation project (a form of Shoalhaven transfers project), IPART's preliminary estimate is that SCA's LRMC is at least $1.20 per kL.

146 Sydney Water's September 2007 submission (p 51) to its 2008 Determination states that the annual operating costs of running the desalination plant at 250ML/day are about $55 million and that about 70 per cent of these costs vary with output.

Scarcity pricing: pricing that depends on dam levels

In considering SCA's price structure, IPART examined a number of pricing options. As noted in the draft report, IPART is particularly interested in the potential development of a form of 'scarcity pricing', as a complement to (not replacement for) water restrictions. Under such an approach, SCA's volumetric charge to Sydney Water would vary with dam levels and the relative scarcity of SCA's available water supply. This may or may not be linked to a form of scarcity pricing for Sydney Water's customers – although if scarcity pricing is passed through to retail customers, IPART envisages that it would only apply to discretionary levels of water consumption. IPART's preliminary views on the characteristics and possible benefits of a potential scarcity pricing model are outlined further in Appendix F.

A form of scarcity pricing would have the advantage of recognising that as SCA water becomes more (or less) scarce, the opportunity cost of using water for immediate consumption increases (or decreases). In turn, this may help to:

- signal to Sydney Water the points in time when it is more appropriate to draw on alternative sources (such as desalination)
- provide incentives to Sydney Water to invest in additional water conservation and demand management measures, where efficient
- signal to water consumers the scarcity value of water (meaning that they may have an incentive to reduce discretionary consumption when dam levels are low) – if this price is ultimately passed through to these consumers by Sydney Water.

However, IPART has decided not to implement scarcity pricing as part of this determination. This is because IPART sees merit in examining this pricing option as part of a concurrent review of SCA's and Sydney Water's prices. Such a review could examine the merits and form of a workable scarcity pricing model suitable to the Sydney context, including consideration of its role and objectives, whether it should be applied to retail as well as wholesale prices, and the potential effects of this form of pricing.

IPART has also decided not to implement a form of scarcity pricing at this time because development and implementation of this option should be informed by reviews that are due to be completed during the 2009 determination period, including review of the current restriction regime (a new regime is scheduled to be introduced in 2010[147]), release of the updated Metropolitan Water Plan (due 2010), and release of the operating rules for the desalination plant (due 2010).

[147] According to the 2007 Progress Report on the NSW Government's Metropolitan Water Plan (p 10), "As part of the update of the Metropolitan Water Plan, an improved drought restrictions regime for the next drought will be developed to take account of the experiences and community responses from this drought and new developments such as the desalination plant."

In response to the draft report, Sydney Water noted that the introduction of new water sources and the potential entry of new players "may make it worthwhile to investigate the scope to develop a market for bulk water", and that "Efficient bulk water pricing may be a step in this direction." However, Sydney Water also stated that:

- Through investments in recycling, desalination and water efficiency measures, "Sydney does not currently have a scarcity of water and there are substantial potential new supply sources to address any future scarcity."
- If the price of water is set at its long run marginal cost, then "additional supply should be financially viable and should be implemented to the extent required to address any scarcity. In these circumstances, it is not clear what wholesale scarcity pricing is intended to achieve and nor is it clear why it is needed."
- Any approach to pricing SCA water depending on its dam levels should complement the outcomes of the current Metropolitan Water Plan review, which is considering the most efficient combination of water supply sources to meet demand, "both within and out of drought."
- Any scarcity pricing regime would necessitate changes to Sydney Water's operating licence.[148]

The Total Environment Centre (TEC) has reservations about scarcity pricing. It believes that there should be an equally strong focus on conserving water during both droughts and in periods of abundant water supply:

> Thus a strong resource conservation signal is important at all times. There is also a risk that rather than invest in demand management and water conservation; Sydney Water may simply seek to increase the output of the energy intensive and environmentally damaging desalination plant.
>
> TEC believes that a superior approach would be to apply financial penalties to Sydney Water for any water sales in excess of operating licence demand management targets. Such penalties should apply irrespective of the source of supply – ie, SCA or desalination. This would provide a strong incentive to Sydney Water to invest in demand management and water conservation, irrespective of supply levels. Revenue obtained from such penalties should be invested in demand management and water conservation in order to address the failure to meet demand management targets.[149]

IPART will consider the issue of scarcity pricing further over the course of the 2009 determination period, including the above-mentioned points raised by stakeholders. It therefore remains interested in receiving stakeholder comments on this pricing option.

[148] Sydney Water submission, April 2009, p 2.
[149] Total Environment Centre submission, April 2009, p 1.

8.3 Pricing decisions for charges to Local Councils

SCA currently levies Local Councils (Shoalhaven City Council and Wingecarribee Shire Council) a volumetric charge only.

Over the 2005 determination period, SCA's price to Local Councils has been increasing towards the level of SCA's volumetric charge to Sydney Water. The 2005 determination set SCA's prices to Local Councils at $126.88 per ML in 2005/06 ($2005/06), to transition up to $192.27 per ML by 2008/09, which equates to a real price increase of 51.5 per cent. This compares to SCA's volumetric charges to Sydney Water of $155.34 per ML and $203.27 per ML ($2005/06) in 2005/06 and 2008/09, respectively, which resulted in a real price increase of 30.9 per cent over the 2005 determination period. In its final report on the 2005 determination, IPART noted that this increase to Local Council prices over the determination period reflected its decision that:

> …water usage charges for Wingecarribee Shire Council and Shoalhaven City Council should be increased in an orderly manner so that their water usage charges reach a similar level to Sydney Water's charges in the next determination period.[150]

8.3.1 SCA's submission

SCA proposed that its volumetric charge to the Wingecarribee Shire Council and Shoalhaven City Council increase by the change in the CPI only. It also proposed its charge to Goulburn Mulwaree Council be the same as the other Councils, once the SCA commences supply to Goulburn.[151] SCA's proposed prices to Local Councils are listed in Table 8.4 below.

Table 8.4 SCA's proposed prices to Local Councils ($, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Volumetric price ($/ML)	210.1	210.1	210.1	210.1

Source: SCA submission, September 2008, pp 42-43.

8.3.2 Stakeholder comments

Stakeholder submissions to the issues paper

Shoalhaven City Council submitted that SCA's proposal to increase its price to the Local Councils by the change in the CPI is reasonable.[152]

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[150] IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report*, September 2005, p 102.

[151] As previously mentioned, a pipeline that will supply water from Wingecarribee Dam to Goulburn Mulwaree Council is due for completion in June 2011.

[152] Shoalhaven City Council submission, October 2008.

Goulburn Mulwaree Council stated that it would be concerned if prices increased by more than the change in the CPI. It would also oppose the introduction of a fixed charge – as there will be long periods when it is not required to purchase water from the SCA (because it will only need to do so to supplement its supply during times of drought).[153]

Wingecarribee Shire Council submitted that SCA's current charge to it should be reduced. It argued that, as its demand can be met from water collected from the Wingecarribee River Catchment, the transfer system from the Shoalhaven River to Metropolitan Sydney and the rest of Sydney's bulk water supply are not relevant for supplying the Wingecarribee Shire. Therefore, it considered that only a 'small fraction' of SCA's total operating costs and infrastructure relate to the supply of water to Wingecarribee Shire Council's treatment plant.

Wingecarribee Shire Council also noted that it is at least partly responsible for funding major sewage plant upgrades and sewerage works, which impose a significant cost on the Council and its residents (via higher sewerage charges), but which benefit Sydney as a whole by helping to protect the drinking water catchment.

In addition, Wingecarribee Shire Council pointed out that SCA's price has risen significantly since 2003/04, and that has had a 'marked' impact on the Council's charges to its customers, which it claims are already significantly higher than the state average.[154]

Stakeholder submissions to the draft determination and report

IPART's draft determination increased all of SCA's charges by equal proportion, using a 'p-nought' and then glide path approach to recover SCA's costs. This meant that under the draft determination SCA's prices to Local Councils would have increased by 14.2 per cent in real terms from 2008/09 to 2011/12.

Wingecarribee Shire Council has argued that the draft determination would result in bulk water prices to Local Councils that are too high. It requested that IPART reduces the bulk water price to Local Councils or at least caps the price at the present level for the upcoming determination period.

In arguing for a lower price, Wingecarribee Shire Council states that:

> Only a very small proportion of the total infrastructure owned and operated by the SCA contributes to supplying water to Council. The SCA's cost of supplying a megalitre of water to Council is only a small proportion of supplying a megalitre of water to Sydney Water.[155]

[153] Goulburn Mulwaree Council submission, October 2008.
[154] Wingecarribee Shire Council submission, October 2008, pp 1-12.
[155] Wingecarribee Shire Council submission, April 2009, p 1.

It also believes that the following factors should support its argument for a lower price:

- Excluding the impact of changes in SCA's price, Wingecarribee Shire Council's water charges to its residents may need to increase by approximately 7 per cent in 2009/10. According to the Council, the impact of an additional price rise owing to an increase in SCA's bulk water price "will be significant for shire residents."
- Wingecarribee Shire Council is well advanced with a $104 million program of upgrading and maintaining its sewerage infrastructure, and much of this is to protect the Sydney Catchment. According to the Council, its residents are currently paying approximately $520 per annum in sewerage charges, "which is one of the highest for similar sized councils." Therefore, it states that:

  "In recognition of this commitment, a fair and equitable price for the supply of bulk water from SCA is a reasonable expectation."[156]

Goulburn Mulwaree Council also argues for a lower price than that listed in the draft determination. It states that under the draft determination SCA's charge to Goulburn Mulwaree Council is:

> …excessive and does not recognise the valid differences between Goulburn's circumstances and those of other bulk water customers.[157]

Goulburn Mulwaree Council cites the following reasons for its position:

- The cost of the Wingecarribee to Goulburn pipeline ($54.3 million plus operating costs) has been the subject of broad community concern. This cost will increase charges to retail water customers in the Goulburn area.[158]
- Goulburn already has expensive water compared to the rest of NSW, with residential charges in 2008/09 comprised of an availability charge of $230 plus a stepped tariff of $1.45 per kL up to 292 kL and $2.00 per kL beyond this level of consumption.
- The current drought has had a significant impact on the Goulburn community. "The financial impact on existing water customers in funding drought security is very significant and has been the subject of a prolonged debate."
- Due to the Wingecarribee to Goulburn pipeline, SCA incurs no costs in delivering bulk water to Goulburn Mulwaree Council (whereas SCA has to deliver water to Sydney Water's treatment facility).

Goulburn Mulwaree Council also notes that as Goulburn sits within the Sydney Catchment, there is an ongoing cost to the Goulburn community in protecting Sydney's drinking water catchment.

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156 Wingecarribee Shire Council submission, April 2009, p 2.

157 Goulburn Mulwaree Council submission, April 2009, p 1.

158 Goulburn Mulwaree Council notes that current residential water customers have been levied an additional $75 per household for a period of 30 years to repay a $10 million loan for the Council's share of the pipeline's cost.

8.3.3 IPART's analysis

IPART's decision is to increase all of SCA's charges by equal proportion. This means that from their current level in 2008/09 to the final year of the 2009 determination period (2011/12), SCA's prices to Local Councils will increase by approximately 17.4 per cent. These prices are shown in Table 8.5 below.

Table 8.5 Decision on SCA's prices to Local Councils ($, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Volumetric price ($/ML)	210.05	227.48	236.90	246.69

This approach increases prices to Local Councils, in line with SCA's increasing costs and revenue requirement, but it still maintains a relatively small price differential between SCA's volumetric prices to Local Councils and to Sydney Water (about 5.5 per cent per annum throughout the determination period).

IPART notes that due to the integrated nature of SCA's system and because most of its costs are fixed, SCA has advised that it is difficult or almost impossible to separate out its costs of supplying each Council with any reasonable degree of accuracy.[159]

However, in response to the Councils' concerns about the level of SCA's prices, including the points raised in Wingecarribee Shire Council's and Goulburn Mulwaree Council's submissions, IPART notes the following:

- as with Sydney Water, Local Councils benefit from the dispersed yet integrated nature of SCA's supply system, through enhanced security and reliability of supply
- SCA's operating costs over 2009/10 to 2011/12 do not include provision for the cost of pumping water from the Shoalhaven to Sydney
- unlike Sydney Water, Local Councils are not faced with a fixed charge from SCA, and their volumetric charge remains below that of Sydney Water's usage price for SCA water
- SCA's charge to Local Councils also remains well below estimates of SCA's overall average cost of water supply. Table 8.6 shows that over the upcoming determination period, SCA's charge to Local Councils is estimated to be between 43 per cent and 42 per cent lower that SCA's average per ML cost of supply.

IPART notes that these last two points are significant, and act as considerable arguments against the Local Councils' call for lowering prices or maintaining them at current levels – particularly considering SCA's costs are increasing over time. While the SCA volumetric charge to Local Councils' is only marginally below that paid by Sydney Water, the absence of a fixed charge means that the Local Councils' per ML

[159] This is shown by the broad cost range quoted in SCA's December 2008 submission (p 3): SCA's preliminary estimates of its costs of supplying Wingecarribee Shire Council range from $150 per ML (incremental cost) to $1,000 per ML (stand-alone cost).

cost of purchasing SCA water is significantly below Sydney Water's average per ML cost of supply from SCA and also significantly below SCA's overall average per ML cost of supply.

Table 8.6 SCA prices to Local Councils compared to SCA's average cost of supply ($, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Volumetric price to Local Councils ($/ML)	210.05	227.48	236.90	246.69
SCA's average cost of supply ($/ML)[a]	371.83	401.46	412.67	424.94
Difference: discount to Local Councils' price relative to SCA's average cost of supply	44%	43%	43%	42%

a Average cost of supply is calculated as: SCA's notional revenue/SCA's total sales.

8.4 Pricing decisions for charges to unfiltered and raw water customers

SCA supplies water to about 65 retail customers, which currently account for approximately 0.04 per cent of its water sales. Currently, the water supplied to retail customers is classified into two categories:

- raw water – ie, water that has not been managed in any way
- unfiltered water – ie, water that has been managed for quality, whether by chemical treatment or otherwise (eg, source selection), but not treated at a water filtration plant.

These retail customers have direct off-takes from SCA's pipelines, canals and storages. Raw water customers draw directly from SCA's storages. Unfiltered water customers draw from SCA's supply conduits, prior to the water reaching a filtration plant. SCA currently has approximately 58 unfiltered water and 7 raw water customers.

Under IPART's 2005 determination:

- Raw water customers only pay a volumetric charge. This was set at $0.45 per kL in 2005/06 ($2005/06), to be maintained in real terms throughout the determination period. This charge is $0.49 in $2008/09.[160]
- Unfiltered water customers currently pay:
  - A volumetric charge set at $0.77 per kL in 2005/06 ($2005/06), which was maintained in real terms throughout the determination period. This charge is $0.84 per kL in $2008/09.[161]

[160] SCA submission, September 2008, p 43.
[161] Ibid.

– A fixed service availability charge based on meter size. For each meter size, the fixed charge was held constant throughout the determination period.[162] For example, the charge for a 20mm meter was $75.00 in 2005/06 and is still $75.00 in 2008/09.[163]

IPART notes that SCA's charges to unfiltered and raw water customers have remained essentially unchanged since 2000.

8.4.1 SCA's submission

SCA proposed that its unfiltered water prices be fully aligned with Sydney Water's[164] unfiltered water prices.[165] It pointed out that, although the fixed charges for SCA's and Sydney Water's unfiltered water customers are 'practically identical' for 2008/09[166], the 2008 Sydney Water determination resulted in a Sydney Water volumetric charge for unfiltered water of $1.31 per kL in 2008/09[167], compared to SCA's current charge of $0.84 per kL. According to SCA:

> This 36 percent disparity in prices for the same product results in neighbouring property holders wanting to switch from Sydney Water to SCA connection.[168]

SCA also proposed that, over the 2009 determination period, raw water customers' usage charge be transitioned up to align with that of unfiltered water customers.[169]

SCA's December 2008 submission noted that:

> When the SCA was established in 1999, it inherited a number of other smaller 'retail' customers. In its original 2000 price determination for the SCA, IPART recognised the need to align prices between Sydney Water's customers and the SCA's retail customers. The SCA's approach to pricing for these retail customers has since been to essentially maintain the status quo. In making its price determination for the SCA's retail customers in 2000, IPART:
>
> • took into account the fact that when normal reticulated water supplies are available from Sydney Water, customers are required to disconnect from the major transportation conduits of the SCA and reconnect to Sydney Water's 'normal' distribution mains

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162 The 2005 Determination provided that only 75 per cent of this charge was to be levied in the first year of the determination period (2005/06).

163 IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services – Determination No 7, Sydney Catchment Authority*, September 2005, p 7.

164 Sydney Water currently sells unfiltered water to a range of customers, including large industrial customers such as BlueScope Steel in Wollongong.

165 SCA submission, September 2008, p 43.

166 In 2008/09, for a 20mm fixed connection, charges for Sydney Water customers are $75.70 per annum.

167 Sydney Water's unfiltered water charge is then set to transition up to $1.63 per kL by 2011/12.

168 SCA submission, September 2008, p 43.

169 Ibid.

- sought to avoid price shocks that this might generate to the SCA's customers (when transferring to Sydney Water's reticulation)
- maintained the signal in relation to demand management and efficient resource use, to the SCA's retail customers, similar to that for Sydney Water's customers.

Since then however, SCA and Sydney Water pricing for unfiltered water have diverged.[170]

8.4.2 IPART's analysis

As outlined above, IPART has decided to increase all of SCA's charges by equal proportion.[171] This means that SCA's prices to unfiltered and raw water customers will increase by approximately 17 to 18 per cent over 2008/09 to 2011/12. These prices are shown in Table 8.7 below.

Table 8.7 Decision on charges for unfiltered and raw water ($, real 2008/09)

SCA's charges	2008/09	2009/10	2010/11	2011/12
Volumetric price for raw water ($/kL)	0.49	0.53	0.55	0.58
Volumetric price for unfiltered water ($/kL)	0.84	0.91	0.95	0.99
Fixed charge to unfiltered water customers – for 20 mm meters ($)	75.00	81.23	84.59	88.08
Fixed charge to unfiltered water customers – for meter size above 20 mm ($)	(Meter size)^2 x 20mm charge/400	(Meter size)^2 x 20mm charge/400	(Meter size)^2 x 20mm charge/400	(Meter size)^2 x 20mm charge/400

IPART considers that the benefits of this pricing option are:

- SCA's increase in revenue requirement (costs) is shared proportionally across all charges (and customers)
- unfiltered and raw water prices increase, as would be expected to occur given SCA's increased revenue requirement and the trend of all other water charges, but not to the significant extent proposed by SCA
- this appears to be a reasonable holding option, until further work is done on the cost of servicing SCA's and Sydney Water's unfiltered and raw water customers.

IPART decided not to adopt SCA's proposal for the following reasons:

- it would involve significant increases in price for a small number of customers, and SCA was unable to provide sufficient justification for these large price increases on the basis of cost
- this significant price increase would occur at a time when SCA's other customers face relatively moderate price rises

170 SCA submission, December 2008, p 4.

171 Although volumetric charges to unfiltered and raw water customers do not increase by the exact same proportions as SCA's other prices, due to rounding (to the nearest cent per kL).

- unfiltered and raw water customers account for only a small fraction of total demand for SCA's water - therefore, these prices would make an insignificant or negligible contribution to SCA's revenue, as well as an negligible impact on SCA's water supply balance.

IPART has sought detailed information from SCA on the costs of supplying its raw and unfiltered water customers. SCA has not been able to supply this information. Establishing prices that reflect the costs of providing the service is a key principle adopted by IPART in setting regulated prices. One outcome of the 2008 Sydney Water determination was the agreement of Sydney Water to participate in a review of the cost of supplying unfiltered water to its customers in preparation for the next price determination. SCA has volunteered to also review its costs of supplying raw and unfiltered water in preparation for the next determination.[172] IPART considers that SCA should undertake this.

[172] SCA submission, December 2008, p 5.

9 Implications of pricing decisions

In making its determination, IPART had regard to all the matters it is required to consider under the IPART Act. (Appendix A lists these matters in full and indicates where each matter is discussed in this report.) IPART is satisfied that the determination achieves an appropriate balance between these matters, particularly the needs and interests of water customers, SCA, the broader community and the environment.

The sections below discuss IPART's considerations and analysis in relation to several of these matters, including the implications of its pricing decisions on water customers, SCA's service standards, SCA's financial position and shareholders, general inflation and the environment.

9.1 Implications for water customers

In reaching its pricing decisions, IPART considered the implications of these prices for Sydney Water and its customers, the three Local Councils supplied by SCA and their customers, and SCA's retail (raw and unfiltered water) customers. As noted in Chapter 1, the determination primarily affects Sydney Water's and the Local Councils' water customers, as these businesses can generally pass SCA price rises onto their customers. IPART also analysed the contribution of the Minister for Water's section 16A direction to the price increases under the determination.

9.1.1 Implications for Sydney Water and its customers

IPART's 2008 Sydney Water determination included a 'pass-through' mechanism that allows Sydney Water to adjust its charges to reflect changes in its bulk water costs as a result of the 2009 determination of SCA's prices.

The formula Sydney Water must use to adjust its charges is set out in the 2008 Sydney Water determination. For that determination, IPART set the level of the variable water usage charge so that it reflects the Long Run Marginal Cost (LRMC) of water supply. It then set the level of fixed water service charges to generate the difference between Sydney Water's annual revenue requirement and the expected annual revenue from usage charges. Therefore, the formula requires that any adjustments to Sydney Water's retail prices to account for changes in SCA's prices are to be made to the fixed water service charges.

Table 9.1 shows the increases in Sydney Water's current schedule of water service charges that will occur as a result of this SCA determination. These increases are relatively small. For example, for a typical residential customer (with a 20mm meter), the water service charge will increase by $6.77 in 2009/10 (taking the charge from $90.96 to $97.73 per annum) and by $16.45 in 2011/12 (taking the charge from $116.39 to $132.84 per annum). In percentage terms, Sydney Water's water service charges will increase by 7.4 per cent in 2009/10, 11.7 per cent in 2010/11 and 14.1 per cent in 2011/12 as a result of this determination of SCA's prices.

Table 9.1 Increase in Sydney Water's water service charges as a result of the determination ($, real 2008/09)

Meter size (mm)	2009/10	2010/11	2011/12
20	6.77	12.40	16.45
25	10.57	19.37	25.70
30	15.23	27.89	37.00
32	17.32	31.74	42.10
40	27.07	49.59	65.79
50	42.30	77.48	102.79
65	71.48	130.94	173.72
80	108.28	198.35	263.14
100	169.18	309.92	411.16
150	380.66	697.32	925.11
200	676.74	1,239.69	1,644.64
% increase to all service charges	7.4%	11.7%	14.1%

Note: These increases are relative to Sydney Water's schedule of prices for 2008/09 to 2011/12, as set by IPART at the 2008 Determination of Sydney Water's prices.

Table 9.2 shows the increases in combined water and sewerage bills for a variety of customers that resulted from IPART's 2008 Sydney Water determination, and the additional increases that will occur as a result of this determination of SCA's prices. It indicates that the 2008 Sydney Water determination resulted in significant increases in average water and sewerage bills over 2007/08 to 2011/12, and that the this SCA determination will result in further but relatively minor increases.

For example, for residential households that use 200kL of water per annum, the 2008 Sydney Water determination increased the average water and sewerage bill from $752 in 2007/08 to $997 in 2011/12, an increase of about 33 per cent over four years. This SCA determination will increase this average bill by a further $16 (or around 1.6 per cent) in 2011/12, taking it from $997 to $1,013.

Table 9.2 Increase in typical water and sewerage bills for customers of Sydney Water as a result of the 2008 Sydney Water determination and the 2009 SCA determination ($, real 2008/09)

Typical water & sewerage bills	2007/08	2008/09	2009/10	2010/11	2011/12
Res: 20mm meter & 100 kL pa					
Bill - 2008 SWC Det.[a]	615	717	753	784	804
Year on year increase		16.6%	5.0%	4.1%	2.6%
Bill – 2009 SCA Det.			760	796	820
Increase to bill from 2009 SCA Det.			0.9%	1.6%	2.0%
Res: 20mm meter & 200 kL pa					
Bill - 2008 SWC Det.[a]	752	878	933	974	997
Year on year increase		16.8%	6.3%	4.4%	2.4%
Bill – 2009 SCA Det.			940	986	1,013
Increase to bill from 2009 SCA Det.			0.7%	1.3%	1.6%
Non-Res: 20mm meter & 300 kL pa					
Bill - 2008 SWC Det.[a]	890	1,039	1,113	1,164	1,190
Year on year increase		16.7%	7.1%	4.6%	2.2%
Bill – 2009 SCA Det.			1,120	1,176	1,206
Increase to bill from 2009 SCA Det.			0.6%	1.1%	1.4%
Non-Res: 32mm meter & 1,000 kL pa					
Bill - 2008 SWC Det.[a]	3,130	3,581	3,816	3,969	4,043
Year on year increase		14.4%	6.6%	4.0%	1.9%
Bill – 2009 SCA Det.			3,833	4,001	4,085
Increase to bill from 2009 SCA Det.			0.5%	0.8%	1.0%
Non-Res: 80mm meter &10,000 kL pa					
Bill - 2008 SWC Det.[a]	31,519	35,408	37,584	38,920	39,494
Year on year increase		12.3%	6.1%	3.6%	1.5%
Bill – 2009 SCA Det.			37,692	39,118	39,757
Increase to bill from 2009 SCA Det.			0.3%	0.5%	0.7%

a Sourced from IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, From 1 July 2008, Determination and Final Report*, June 2008, pp 131-133.

To put these increases into context, Table 9.3 shows the average water and sewerage bills for Sydney Water customers since 1996/97, and compares these bills to average earnings in NSW. This comparison indicates that, while average water and sewerage bills have increased significantly since 2007/08, they have been a relatively constant proportion of average earnings since 1996/97. Table 9.3 also shows that this SCA determination will not have a significant impact on average water and sewerage bills as a proportion of average earnings.

Table 9.3 Average Sydney water and sewerage bills as a proportion of average earnings in NSW, 1996/97 to 2011/12

Year	Av bill ($2008/09)[a]	Av earnings NSW ($2008/09)[b]	Av bill as a % of av earnings	Av bill from this det.	Av bill from this det. as a % of earnings
1996/97	689	43,107	1.6%		
1997/98	714	43,897	1.6%		
1998/99	725	44,999	1.6%		
1999/00	727	46,176	1.6%		
2000/01	708	45,798	1.5%		
2001/02	707	45,907	1.5%		
2002/03	699	46,918	1.5%		
2003/04	703	47,872	1.5%		
2004/05	706	48,781	1.4%		
2005/06	739	49,180	1.5%		
2006/07	750	49,689	1.5%		
2007/08	752	50,434	1.5%		
2008/09	878	51,191	1.7%		
2009/10	933	51,958	1.8%	940	1.8%
2010/11	974	52,738	1.8%	986	1.9%
2011/12	997	53,529	1.9%	1,013	1.9%

a Annual water and sewerage bill for a customer that consumes 200kL per annum, from IPART's *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, From 1 July 2008*, *Determination and Final Report*, June 2008, p 132.

b Annual average gross (before tax) earnings of all employees. Average of four quarters ending August 2008. Source: Australian Bureau of Statistics, *Average Weekly Earnings Australia, 6302.0*, November 2007.

Note: Average earnings are assumed to increase at 1.5% per annum from 2006/07 levels (in real terms) from 2007/08 onwards.

Source: IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, From 1 July 2008*, *Determination and Final Report*, June 2008, p 132.

IPART also considered the impact of this SCA determination on potentially vulnerable customers (eg, those on low incomes who may be more affected by price increases). IPART notes that eligible pensioners currently receive rebates on their Sydney Water service charges. At present, these rebates are 100 per cent of the water service charge (subject to a maximum of $18.94 per quarter, for 2008/09), 83 per cent of the sewerage service charge and 50 per cent of the stormwater service charge.[173] This means that, provided Sydney Water's pensioner rebate remains at 100 per cent of the water service charge (for metered residential properties and 20mm meter connections), this determination of SCA's prices will have no affect on 'eligible' pensioners' water bills.

[173] Sydney Water, Rebates and social policy 2008-09, www.sydneywater.com.au/Publications/FactSheets/RebatesAndSocialPolicy.pdf#Page=1, accessed 17 February 2009.

For other potentially vulnerable customers, Sydney Water's current social program includes several measures to mitigate the impact of prices, including:

- extended payment arrangements – Sydney Water offers customers flexible extended payment terms and a range of payment options to help them manage their bills
- No Interest Loan Scheme – Sydney Water supports this scheme, which involves a number of accredited community agencies providing loans to help customers purchase water efficient appliances
- Payment Assistance Scheme – under this scheme, participating welfare agencies assess the financial position of customers and provide payment vouchers to customers in financial difficulty.[174]

9.1.2 Implications for Local Councils and their customers

IPART's determination will increase prices to Local Councils by approximately 17.4 per cent from 2008/09 (current prices) to 2011/12 (the end of the 2009 determination period).

Wingecarribee Shire Council, the largest of SCA's Council customers, has advised that the current average household water bill for its customers is approximately $380 per annum, and that the proportion of this bill attributable to bulk water costs is about $47.50 (12.5 per cent).[175] Using these figures, Table 9.4 shows that the determination would increase a typical household water bill from $380 in 2008/09 to approximately $388 in 2011/12, a rise of about 2.2 per cent. This is equivalent to an increase of around 0.9 per cent for a typical household's combined water and sewerage bill. Data from the Water Services Association of Australia (WSAA) indicates that Wingecarribee Shire Council purchased approximately 79 to 86 per cent of its bulk water from SCA over 2006/07 and 2007/08.[176]

As it is expected to source a smaller proportion of its water from SCA, the impact of the determination on Goulburn Mulwaree Council's water customers is likely to be smaller than the impact on Wingecarribee Shire Council's customers. SCA is forecast to supply Goulburn Mulwaree Council with an average approximately 577 ML of water per year from 2011/12, which equates to about 15 to 17 per cent of its current unrestricted system demand.[177]

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[174] www.sydneywater.com.au/CustomerServices/CommunityAssistance/FinancialAssistance/#FactSheets, accessed 17 February 2009.

[175] Email from Michael Brearley, Director Technical Services, Wingecarribee Shire Council, 5 December 2008.

[176] Water Services Association of Australia, *National Performance Report 2007-2008, urban water utilities, Part B – Utility by Utility performance results*, p 230.

[177] The *Goulburn Water Supply Strategy Review* reports that: "It is estimated that the unrestricted system demand in 2008 would be about 3,340 ML/a for a year of average rainfall and up to 3,702 ML/a in a dry year after deducting water supplied from rainwater tanks." (Goulburn Mulwaree Council and NSW Department of Commerce, *Goulburn Water Supply Strategy Review* – Report for Goulburn Mulwaree Council, Report No. WSR08005, January 2009, p 3.)

IPART expects that impact of the determination on Shoalhaven City Council's water customers should be very minor, as Shoalhaven purchases a very low proportion of its water from SCA. WSAA indicates that Shoalhaven City Council purchased about 0.5 per cent of its water from SCA over 2006/07 and 2007/08.[178]

IPART also notes that, with State Government support, Local Councils offer pensioner rebates and other social programs designed to protect vulnerable customers.

Table 9.4 Impact of determination on Wingecarribee Shire Council water bills ($, real 2008/09)

	2008/09	2009/10	2010/11	2011/12
Typical household water bill[a]	380[b]	384	386	388
Increase relative to 2008/09		1.0%	1.6%	2.2%
Typical household water and sewerage bill[a]	900[c]	904	906	908
Increase relative to 2008/09		0.4%	0.7%	0.9%

a Assumes that (apart from the cost of purchasing bulk water from SCA) all other costs of servicing customers (ie, all other drivers of customer bills) remain unchanged.

b According to Wingecarribee Shire Council, a typical water bill is currently about $380 per annum, and the cost of purchasing bulk water from SCA accounts for approximately 12.5 per cent ($47.50) of this bill (email to IPART, 5 December 2008).

c Wingecarribee Shire Council's April 2009 submission advised that residents are currently paying approximately $520 per annum in sewerage charges. Therefore, assuming a typical water bill is $380 per annum, a typical household water and sewerage bill is $900 per annum.

9.1.3 Implications for unfiltered and raw water customers

As noted in section 8.4, SCA supplies water to about 65 retail customers, comprising 58 unfiltered water customers and 7 raw water customers. Around a third of the SCA's retail customers consume more than 1,000kL a year and are typically industrial customers.[179] However, SCA has also provided raw and unfiltered water to government departments and agencies; religious orders, schools and scouting bodies; agricultural producers; and domestic users.[180]

Table 9.5 shows the usage distribution of SCA's raw and unfiltered water customers for 2007/08.[181]

178 Water Services Association of Australia, *National Performance Report 2007-2008, urban water utilities, Part B – Utility by Utility performance results,* p 189.

179 SCA submission, December 2008, p 4.

180 IPART, 2003, *Sydney Catchment Authority Prices of Water Supply Services – Mid Term review of price path from 1 October 2000 to 30 June 2005*, p 38.

181 SCA's 2008 Information Return to IPART reports that it had a total of 58 retail customers in 2007/08 (comprised of 3 raw water customers and 55 unfiltered water customers). This Information Return forecasts 7 raw water customers over the 2009 determination period, and recent information provided by SCA suggests it now services 58 unfiltered water customers (email from SCA to IPART, 22 January, 2009).

Table 9.5 Usage distribution of SCA's retail customers (2007/08)

kL per annum	Number of customers
0	9
100	6
200	10
300	5
400	2
500	6
750	2
1000	10
>5000	8
Total	58

Source: SCA submission, December 2008, p 4.

Under IPART's determination, SCA's raw and unfiltered water customers' water bills would increase by around 17 to 18 per cent over the determination period. For raw water customers, this increase comprises an 8.2 per cent increase in 2009/10, a 3.8 per cent increase in 2010/11 and a 5.5 per cent increase in 2011/12. For an unfiltered water customer consuming 200kL per annum, with a 20 mm meter, this increase comprises an 8.3 per cent increase in its water bill in 2009/10, a 4.3 per cent increase in 2010/11 and a further 4.2 per cent increase in 2011/12.

IPART notes that SCA's raw and unfiltered water charges have remained essentially the same since 2000. IPART considers that this determination achieves an appropriate balance between ensuring that raw and unfiltered water customers adequately contribute to the recovery of SCA's costs, while also protecting them from a significant price shock.

IPART also notes that SCA undertakes a limited range of social programs designed to assist vulnerable retail customers. These programs are a continuation of those Sydney Water used to undertake prior to the transfer of bulk water responsibilities to SCA. SCA has advised that, in total, these programs represent less than $3,000 per annum, and include:

- pensioner rebates – these apply to three unfiltered water customers who receive a pensioner rebate equal to the unfiltered water service charge
- exempt properties – these apply to four properties supplied with unfiltered water that were not charged a service charge by Sydney Water because they were exempt from such charges under the terms of the *Sydney Water Act 1994*.[182]

IPART considers that these arrangements are appropriate and should continue.

[182] Email, SCA to IPART, 18 February 2009.

9.1.4 Impact on price increases of the section 16A direction

As noted in Chapter 2, the Minister for Water directed IPART to include in its 2009 determination the efficient costs of SCA complying with the Minister's direction to SCA to contribute $17.7 million ($2009/10) to the Accelerated Sewerage Program (ASP). Therefore, IPART has included this $17.7 million[183] in its estimate of SCA's efficient operating expenditure for 2009/10, for the purposes of determining SCA's notional revenue requirement and prices.

The exact effect on prices of SCA's contribution to the ASP depends on how IPART would have chosen to transition or smooth prices (and SCA's rate of return) over the determination period in the absence of this contribution. Nevertheless, IPART notes that this $17.7 million contribution represents approximately 8.6 per cent of SCA's notional revenue requirement in 2009/10, which is marginally greater than the 8.3 per cent increase in SCA's prices in 2009/10 under the determination.

Under SCA's original pricing proposal, which involved equating revenue from prices with its notional revenue requirement in each year of the determination period, SCA's contribution to the ASP would add about $11 (out of a total of $18) to the annual water service charge of a typical (20mm meter) Sydney Water customer in 2009/10.[184]

Under an NPV neutral and smoothed pricing approach,[185] SCA's contribution to the ASP adds a total of about $11 to the bills of typical (20mm meter) Sydney Water customers over 2009/10 to 2011/12 (ie, an average of about $3.70 per annum over the three year determination period).

9.2 Implications for SCA's service standards

It is important that IPART's pricing decisions do not adversely affect the standards of service delivered to customers. For SCA's customers, service standards primarily relate to catchment management, bulk water quality, and security and reliability of water supply.

SCA's operating licence contains a number of service-related standards and requirements, which are reviewed as part of the annual audit of its compliance with the provisions of this licence. The most recent completed audit was in 2007/08. This audit found that SCA achieved High to Full Compliance with the audited sections of its operating licence that relate to bulk raw water quality, catchment management and protection, and management of catchment infrastructure works and water conservation. (See Appendix D for more detail on this audit.)

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183 This equates to $17.3 million in $2008/09.

184 SCA submission, September 2008, p 45.

185 Under this approach, prices increase relatively smoothly over the determination period, but in a manner that ensures the present value of SCA's expected revenue from prices equates with the present value of its notional revenue requirement over 2009/10 to 2011/12.

In addition, as Chapter 2 discussed, SCA is regulated through a range of other instruments and requirements, many of which aim to ensure it maintains service standards. For example, these include SCA's water management licence, its bulk water supply agreements with customers, the requirements of NSW Health and the Dams Safety Committee, and the requirement for an audit of the state of the Catchment to be conducted every two years.

IPART considers that the prices under the determination will allow SCA to continue to meet all of its service standards and other requirements during the 2009 determination period. The efficiency targets IPART included in estimating SCA's efficient operating and capital expenditure over this period are reasonable and achievable. In addition, IPART notes that in its submission, SCA identified a number of initiatives aimed at maintaining or enhancing its catchment management and bulk water supply performance. For example, these include enhancing the SCADA hydrometric system, implementing the Catchment Decision Support System, and developing an evaluation and monitoring process for all catchment activities.[186]

Further, as Chapter 3 discussed, IPART has made a decision to require SCA to report against output measures over the 2009 determination period, to link expenditure with projects that are important to the effective functioning of SCA.

9.3 Implications for SCA and its shareholders

IPART is satisfied that its determination will not adversely affect SCA's ability to operate, maintain, renew and develop the assets required to deliver its regulated services. In particular, it is satisfied that the determination will enable SCA to earn a reasonable rate of return, achieve an acceptable investment category rating (above the NSW Government's minimum requirement for a BBB rating), and pay appropriate dividends to its shareholder. If SCA did not increase its prices to the maximum levels allowed under the determination, IPART expects that SCA's contribution to the Consolidated Fund would fall.

9.3.1 Rate of return

Table 9.6 shows IPART's decision on SCA's annual notional revenue requirements over the determination period, and the annual target revenue SCA is expected to generate from charges (given IPART's pricing decisions). The table also shows the difference between these amounts and the expected rate of return from charges. It indicates that under the determination, IPART expects SCA to earn a pre-tax rate of return on its RAB of around 5.9 per cent in 2009/10, increasing to 7.0 per cent in 2011/12. IPART considers that this rate of return appropriately balances the interests of SCA, its shareholder, its customers and the broader community.

[186] Ibid, p 30 and 32.

Table 9.6 SCA's expected rate of return, given IPART's decisions on notional revenue requirement and prices ($ million, real 2008/2009)

	2008/09	2009/10	2010/11	2011/12
Notional revenue requirement	182.3	201.6	187.1	188.2
Present value of notional revenue requirement	532.9			
Target revenue from tariffs	182.3	193.7	189.5	194.6
Present value of target revenue	532.9			
Difference between present value of notional revenue requirement and present value of target revenue	0.0			
Expected rate of return from tariffs (real pre-tax)	6.3%	5.9%	6.7%	7.0%

9.3.2 Investment category rating

Investment category ratings provide an indication of a business' overall financial strength and viability. IPART analysed a range of financial indicators that are commonly used by credit rating agencies to assess an entity's financial strength and ability to service and repay debt. In doing so, IPART assumed that SCA would pay dividends to the NSW Government equal to 75 per cent of its after-tax profit. It also took account of the NSW Government's view that a BBB rating is the minimum target rating to ensure financial viability.

In calculating investment category ratings, NSW Treasury uses different ratio targets, depending on the underlying business risk of the entity. This means that to achieve a given investment rating a business classed as more risky will require greater financial protection (as measured by financial ratios or indicators) than a business with a lower risk profile. For the draft determination, IPART calculated investment ratings assuming that SCA has a business risk profile of 'well above average' – which is the lowest level of risk and the same profile that NSW Treasury has assigned to Sydney Water. However, SCA's submission to the draft determination notes that NSW Treasury classes SCA as 'above average' – which assumes a low level of risk, but not as low as Sydney Water's 'well above average' classification.[187]

For this review, IPART has not conducted in-depth analysis of SCA's business risk profile relative to that of Sydney Water, and therefore has not formed a view of whether SCA should be classed as having a risk profile of 'well above average' or 'above average'. Rather, it has examined results for both types of risk profile. Table 9.7 presents SCA's expected investment category ratings assuming that SCA has a business risk profile of 'well above average', while Table 9.8 lists these ratings assuming that SCA has a business risk profile of 'above average'. Table 9.8 shows that even if SCA is deemed to be subject to greater business risk than Sydney Water (per Treasury's classification), the maximum prices under this determination should enable it to achieve an overall credit rating of at least BBB+ throughout the determination period.

[187] SCA submission, April 2009, p 16.

Table 9.7 SCA's expected investment category rating under the determination – assuming SCA has a profile of 'well above average'

Indicator	2008/09	2009/10	2010/11	2011/12
1. Funds from Operations Interest Cover	2.78	2.35	2.47	2.74
NSW Treasury rating (2008)	A+	A	A	A+
2. Funds from Operations / Total Debt	11.7%	9.3%	10.7%	12.9%
NSW Treasury rating (2008)	A	BBB+	A	A+
3. Debt gearing (regulatory value)	36.6%	37.3%	36.5%	35.4%
NSW Treasury rating (2008)	AAA	AAA	AAA	AAA
4. Pre-tax Interest Cover	2.55	2.10	2.29	2.59
NSW Treasury rating (2008)	AA	A+	A+	AA
5. NSW Treasury total score (0 -10)	7.75	7.00	7.25	8.00
Overall rating	A+	A+	A+	AA

Table 9.8 SCA's expected investment category rating under the determination – assuming SCA has a profile of 'above average'

Indicator	2008/09	2009/10	2010/11	2011/12
1. Funds from Operations Interest Cover	2.78	2.35	2.47	2.74
NSW Treasury rating (2008)	BBB+	BBB	BBB	BBB+
2. Funds from Operations / Total Debt	11.7%	9.3%	10.7%	12.9%
NSW Treasury rating (2008)	BBB	BBB	BBB	BBB+
3. Debt gearing (regulatory value)	36.6%	37.3%	36.5%	35.4%
NSW Treasury rating (2008)	A+	A+	A+	A+
4. Pre-tax Interest Cover	2.55	2.10	2.29	2.59
NSW Treasury rating (2008)	A	BBB+	BBB+	A
5. NSW Treasury total score (0 -10)	5.50	5.00	5.00	5.75
Overall rating	BBB+	BBB+	BBB+	BBB+

SCA's submission to the draft determination also argued that IPART should adopt a benchmark capital structure (ie, a 60 per cent borrowing/RAB ratio from the start of the determination period) rather than SCA's actual gearing ratio (ie, a 37 per cent borrowing/RAB ratio from the start of the determination period) in undertaking analysis of its financial strength. SCA states that "Otherwise, there is a perverse incentive for shareholders to increase gearing levels to inefficient levels in order to maximise revenue requirements".[188] It also believes that "It is inconsistent to adopt a benchmark gearing for the purposes of determining the WACC and actual gearing for the purposes of determining the impact of regulatory decisions (including WACC) on financial viability."[189]

[188] SCA submission, April 2009, p 16.
[189] Ibid.

However, IPART has maintained its approach of using SCA's actual gearing ratio for its calculation of investment category ratings. IPART notes that it does not use these ratings to set prices per se. Rather, they are used to provide an indication of the impact of IPART's pricing decisions on SCA, and to balance considerations listed under section 15 of the IPART Act. Given this, IPART considers that SCA's concerns regarding 'perverse incentives' and 'inconsistencies' with the determination of the WACC are not warranted.

9.3.3 Dividend payments

Based on the prices in the determination, IPART's modelling indicates that SCA will be able to maintain a 75 per cent dividend payout ratio (consistent with SCA's past dividend performance) and still achieve a credit rating of at least BBB+ in each year of the determination period.

9.3.4 Impact on the Consolidated Fund if SCA does not increase prices to maximum levels allowed under the determination

Under section 16 of the IPART Act, IPART is required to report on the likely impact on 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.

IPART's financial modelling is consistent with a tax rate of 30 per cent for pre-tax profit and dividend payments at 75 per cent of after-tax profit. Assessing dividend applicable after-tax profits only, a one dollar decline in after-tax profit would result in a loss of revenue to the Consolidated Fund of 75 cents. Including the tax payable on pre-tax profits, a one dollar decline in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 75 per cent of the after-tax profit of 70 cents, or 53 cents in total.

9.4 Implications for general inflation

Water and sewerage currently comprise about 0.77 per cent of the eight capital cities weighted average consumer price index (CPI), and approximately 0.64 per cent of Sydney's CPI.[190] For a Sydney Water customer consuming 200kL per annum, the annual average increase to a water and sewerage bill from 2008/09 to 2011/12 as a result of the SCA determination is about 1.2 per cent (in real terms). Therefore, given that Sydney represents about one third[191] of the eight capital cities weighted average consumer price index (CPI), the approximate annual impact of the SCA determination on the national average CPI is about 0.0032 per cent.[192] For Sydney's CPI, the approximate annual impact of the SCA determination is about 0.0078 per cent.[193] This suggests that this determination will have a minimal to negligible effect on general price inflation.

9.5 Implications for the environment

SCA's main objectives are to manage and protect Sydney's drinking water catchments and supply Sydney with reliable bulk water. Therefore, management and protection of the catchments' environments are fundamental to its operations.

The most significant impact on the environment of SCA's activities is its extraction of water from the environment and its modification of natural stream and river flows. As Chapter 2 discussed, several government agencies are responsible for regulating the environmental performance of SCA, including DWE and DECC.

IPART expects that its pricing decisions will assist SCA in meeting its environmental performance standards and encourage sustainable water management and consumption by:

- Allowing SCA to recover the costs it efficiently incurs in fulfilling its catchment management and water supply functions and in meeting its environmental obligations.
- Allowing SCA to recover its efficient costs and structuring its prices so that a significant proportion of its revenue is received via volumetric charges. This means the volumetric charges signal the costs of additional water consumption to SCA's customers and thus promote water conservation (where efficient) and least cost planning in water supply.

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190 Australian Bureau of Statistics, Consumer Price Index 15th Series Weighting Pattern (cat. no. 6430.0), September 2005.

191 Sydney represents 33.80 per cent of the eight capital cities weighted average CPI (ibid).

192 0.0032% = (33.80% x 0.77%) x 1.2%.

193 0.0078% = 0.64%x 1.2%.

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	Chapters 3 to 6
b) the protection of consumers from abuses of monopoly power	Chapters 2 and 3
c) the appropriate rate of return and dividends	Chapters 6 and 9
d) the effect on general price inflation	Chapter 9
e) the need for greater efficiency in the supply of services	Chapters 3 to 6
f) ecologically sustainable development	Chapter 9
g) the impact on borrowing, capital and dividend requirements	Chapter 9
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	SCA outsources some elements of its functions (eg, the SASPoM DECC Service Contract). IPART has set prices to allow SCA to recover its efficient costs of carrying out its roles and responsibilities (whether functions are carried out directly by SCA or contracted out to a third party). Chapters 5 and 6 outline IPART's findings on SCA's efficient expenditure.
i) need to promote competition	Not directly discussed, but relates to ensuring that prices reflect efficient costs and are not artificially deflated or inflated (which would distort competition).
j) considerations of demand management and least cost planning	Chapters 8 and 9
k) the social impact	Chapters 8 and 9
l) standards of quality, reliability and safety	Chapter 9

B SCA's 2006/07 water balance (for Total Supply System)[194]

Total Supply System	Sources of water		Distribution of water	
	Volume (ML)	% of total	Volume (ML)	% of total
Storage volume				
Volume in storages at start of year			1,078,660	
Volume in storages at end of year			1,405,760	
Changes in storages			**327,100**	**21%**
Storages net evaporation			**94,015**	**6%**
Inflows				
All dams and weirs[a]	1,546,655	99%		
Groundwater	450	0%		
Fish River water supply purchases	3,115	0%		
Sub-total	**1,550,220**	**100%**		
Water supplied to customers				
Sales to Sydney Water			502,692	32%
Sales to Wingecarribee Shire Council			4,221	0%
Sales to Shoalhaven City Council			77	0%
Sales to Retail Customers			268	0%
Sub-total			**507,258**	**33%**
Water released under water management licence				
Releases to Shoalhaven City Council (Tallowa)			12,440	1%
Riparian releases			2,008	0%
Environmental releases[b]			41,195	3%
Other System release to river			499	0%
Sub-total			**56,142**	**4%**
Reservoir or Weir Spills			**572,274**	**37%**
Unaccounted difference[c]	**6,568**	**0%**		
Total	**1,556,788**	**100%**	**1,556,788**	**100%**

a Environmental Releases from Wingecarribee to Warragamba are not included as inflow for the Total System although this release has been included as Inflow for the Warragamba System.

b Only Environmental Releases that leave the system boundary are included in the balance.

c Unaccounted for difference is estimated as the difference between inflows, outflows and change in the storage. This includes river evaporation, seepage, overbank flow, theft and any measurement errors recording other components.

194 Accessed from SCA's website on 5 March 2009, http://www.sca.nsw.gov.au/__data/assets/pdf_file/0008/2015/WaterBalance0607.pdf.

C Recommendations of the 2007 Audit of the Sydney Drinking Water Catchment[195]

The following recommendations were made in DECC's 2007 audit of the Sydney drinking water catchment (Catchment), undertaken in accordance with the *Sydney Water Catchment Management Act 1998*:

Raw water quality

- The operator and regulator(s) of the sewage treatment systems in the Catchment should continue efforts to reduce current levels of nutrient loads discharged into the Catchment.
- SCA should continue the process of understanding the causes of the 'high' incidences of algae in the water storages of the Kangaroo River (priority), Wingecarribee River (priority) and Lake Burragorang sub-catchments, to help ensure that specific management strategies are in place for the short, medium and long-term in each sub-catchment.
- SCA should investigate the causes of the continued presence of pathogens in the Nattai River and in the Wollondilly River, Mid Coxs River and Werriberri Creek (priority) sub-catchments.
- SCA should undertake sampling for the presence of pathogens in the Kangaroo River (priority) sub-catchment.

Managing water resources

- DWE should work with stakeholders to complete a Water Sharing Plan that covers the Catchment as soon as practicable.

Land condition

- SCA, DECC and CMAs (Catchment Management Authorities) should undertake programs that address soil erosion and salinity in the areas with identified and observed risk, and integrate them with other programs for riparian and vegetation management where possible.

[195] NSW Department of Environment and Climate Change (DECC), 2007 *Audit of the Sydney Drinking Water Catchment*, Report to the NSW Minister for Climate Change, Environment and Water, 2007, pp 132-133.

Ecosystem health

- SCA should investigate the reasons and drivers for declines in both water quality and macroinvertebrate health in those regions where declines have been documented.
- SCA should review its water quality monitoring and macroinvertebrate sampling programs to ensure that integrated ecosystem monitoring is undertaken in all sub-catchments.
- SCA should undertake follow-up monitoring at macroinvertebrate monitoring locations that have significantly impaired or severely impaired AusRivAS ratings.

General

- The frequency of the Audit should be changed to every three years from 2009 to align with State of the Environment (SoE) and Monitoring, Evaluation and Reporting (MER) timeframes.
- Opportunities for the development of common or complementary indicators between the Audit SoE and MER reporting processes should be examined.
- SCA, DECC and CMAs should continue to work to establish a spatial information system to track and record information on all ground works being undertaken or funded by Government for the purposes of water quality and ecosystem health management in the Catchment.

D SCA's compliance with its operating licence over 2007/08[196]

IPART employed a risk-based approach for the 2007/08 audit of SCA's compliance with its operating licence. This meant that only clauses assessed as having high risks associated with non-compliance were included in the audit scope. Other clauses were subject to audit review, which required SCA to provide IPART with a statement of compliance together with evidence or an outline of compliance.

The grades used in the 2007/08 audit of SCA's compliance with its operating licence are listed in Table D.1

Table D.1 SCA operating licence audit compliance grade (2007/08)

Compliance Grade	Description
Full Compliance	All requirements of the condition have been met.
High Compliance	Most requirements of the condition have been met with some minor technical failures or breaches.
Moderate Compliance	The major requirements of the condition have been met.
Low Compliance	Key requirements of the condition have not been met but minor achievements regarding compliance have been demonstrated.
Non Compliance	The requirements of the condition have not been met.
Insufficient Information	Relevant, suitable or adequate information to make an objective determination regarding compliance was not available to the auditor.
No Requirement	The requirement to comply with this condition does not occur within the audit period or there is no requirement for the utility to meet.

Overall, the auditor found that SCA achieved predominantly Full Compliance with the audited sections of its operating licence.

More specifically:

- Full Compliance was achieved for most of the audited clauses relating to **Bulk Raw Water Quality**. Out of twenty-five clauses, SCA was awarded Full Compliance for twenty two and High Compliance for three.
- Full Compliance was achieved for all audited clauses relating to **Catchment Management and Protection**.

[196] IPART, *Sydney Catchment Authority Operational Audit 2007/08, Report to the Minister*, December 2008, pp 1 – 5.

- Full Compliance was achieved for most of the audited clauses relating to **Management of Catchment Infrastructure Works and Water Conservation**. Of the seven clauses, SCA was awarded Full Compliance for five and High Compliance for two.

In addition, SCA provided evidence of compliance with all of the operating licence conditions not subject to audit.

The full report on the 2007/08 audit of SCA's performance against its operating licence is available at IPART's website: www.ipart.nsw.gov.au.

E Weighted Average Cost of Capital (WACC)

There are several approaches for calculating the return on capital on the regulatory asset base (RAB). IPART's preferred approach is to use the weighted average cost of capital (WACC) to determine an appropriate range for the rate of return. A point estimate of the WACC is then selected from this range. The WACC for a business is the expected cost of the various classes of capital (debt and equity), weighted to take into account the relative share of debt and equity in the total capital structure. As with previous determinations, IPART has used a real pre-tax WACC.[197]

There are a number of input parameters to consider in determining an appropriate WACC range. The risk free rate, inflation adjustment and debt margin are dependent on current market rates. The market risk premium, tax rate and dividend imputation factor do not vary with the nature of the business. However, the equity beta, capital structure and debt margin vary with the nature of the business.

In the draft determination, IPART calculated a rate of return of 7.0 per cent, which was based on market conditions to 14 January 2009. For the final determination, IPART has updated its estimate of the rate of return to reflect market conditions averaged for the 20 days to 27 March 2009. On the basis of the updated market data and its decision to update its approach to calculating the debt margin and inflation adjustment, IPART has determined that the rate of return for the final determination is 6.5 per cent. In making this determination, IPART considered the views of SCA, current regulatory and financial practice, its previous decisions and its own analysis. The parameters used in the draft and final decisions are shown in Table E.1 below.

[197] The real pre-tax formula is presented in: IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation from 1 October 2006 to 30 June 2010 – Final Report*, September 2006, Appendix D.

Table E.1 SCA: draft and final decisions on the rate of return and the parameters IPART used to calculate the WACC

WACC parameter	Draft decision	Final decision
Nominal risk free rate	4.2% [a]	4.3% [b]
Real risk free rate	2.8% [a]	NA [c]
Inflation adjustment	1.3% [a]	2.5% [b]
Market risk premium	5.5% - 6.5%	5.5% - 6.5%
Debt margin	1.2% – 3.6% [a]	2.8% – 3.5% [b]
Debt to total assets	60%	60%
Dividend imputation factor (gamma)	0.5 - 0.3	0.5 - 0.3
Tax rate	30%	30%
Equity beta	0.8 - 1.0	0.8 - 1.0
Cost of equity (nominal post-tax)	8.6% - 10.7%	8.7% - 10.8%
Cost of debt (nominal pre-tax)	5.4% - 7.7%	7.1% - 7.8%
WACC range (real pre-tax)	5.9% - 8.6%	5.7% - 7.5%
WACC (real pre-tax) point estimate	7.0%	6.5%

a Reflects market data averaged for the 20 days to 14 January 2009.

b Reflects market data averaged for the 20 days to 27 March 2009.

c The real risk free rate is not necessary in this calculation when using swap market data to derive the inflation adjustment.

IPART's decisions on its approach to the WACC and each of the WACC parameters are discussed below.

E.1 IPART's past WACC decisions

Table E.2 below shows the final parameters adopted by IPART in the 2008, 2005 and the 2003 metropolitan water decisions, the 2006 bulk water decision, the 2007 electricity decision and, more recently, the 2008 CityRail decision.

Table E.2 Rate of return parameters – past decisions

Parameter	2008 CityRail	2008 Sydney Water	2007 Electricity retail	2006 Bulk water	2005 Metro water	2003 Metro water
Nominal risk free rate	5.2%	6.1%	5.9%	5.8%	5.2%	5.1%
Real risk free rate	2.5%	2.4%	2.7%	2.4%	2.6%	2.9%
Inflation	2.7%	3.6%	3.1%	3.3%	2.5%	2.2%
Market risk premium	5.5 - 6.5%	5.5 - 6.5%	5.5 - 6.5%	5.5 - 6.5%	5.5 - 6.5%	5.0 - 6.0%
Debt margin	2.9 - 6.0%	3.1 - 3.7%	1.0 - 1.3%	1.1 - 1.3%	1.2 - 1.3%	0.7 - 1.0%
Debt to total assets	60%	60%	30 to 40%	60%	60%	60%
Dividend imputation factor (gamma)	0.5 - 0.3	0.5 - 0.3	0.5 - 0.3	0.5 - 0.3	0.5 - 0.3	0.5 - 0.3
Tax rate	30%	30%	30%	30%	30%	30%
Equity beta	0.8 - 1.0	0.8 - 1.0	0.8 – 1.2	0.8 - 1.0	0.8 - 1.0	0.65 - 0.90
WACC range (real pre-tax)	6.5 - 9.7%	6.8 - 8.4%	7.2 - 9.9%	5.5 - 6.9%	5.7 - 7.1%	5.2 - 6.7%
WACC (real pre-tax point estimate)	**7.2%**	**7.5%**	**8.6%**	**6.5%**	**6.5%**	**5.6%**

As can be seen from Table E.2, there has been a relatively wide variation in the WACC range that IPART has determined over the years. This is not surprising, given that some parameters are based on market observations and consequently reflect prevailing market conditions at the time of the decision. IPART considers that there is merit in maintaining a consistent approach to the calculation of the cost of capital across regulatory decisions. Table E.2 highlights a very high degree of consistency for parameters that are not directly observable from market data. Such inter-temporal consistency reduces regulatory risk and its associated costs. Hence, there is a presumption that unless an alternative approach to the calculation of a WACC parameter is demonstrated to be clearly superior, the existing approach should be maintained.

E.2 Issues Paper

In July 2008, IPART released an issues paper setting out its preliminary position on its approach to calculating an appropriate rate of return to apply to SCA's RAB.[198] IPART proposed to maintain its existing approach of using the real pre-tax WACC and selecting a point estimate for the WACC from a range. IPART indicated that the capital asset pricing model (CAPM) has been used to derive the cost of equity, and the cost of debt has been calculated as a margin over the risk free rate.

E.3 SCA's original submission

SCA's September 2008 submission proposed a real pre-tax WACC of at least 7.5 per cent; the rate of return determined by IPART for Sydney Water in its 2008 determination. The parameters used in this determination are shown in Table E.2.

According to SCA:

> …while initiatives such as the desalination plant will help secure Sydney's water supply, they do not serve to reduce SCA's systematic risk. The SCA is heavily reliant on sales to Sydney Water. Any variability in its sales to Sydney Water consequent to future operation of the desalination plant will have a major impact on the SCA's revenue, as evidenced in the price path ahead. Accordingly, the SCA believes that its rate of return should be at least equal to that determined for Sydney Water (subject to variation in the underlying market interest rates).[199]

SCA acknowledged that:

> …market based parameters including the risk free rate, inflation and debt margin will need to be updated at the time of the SCA's Final Determination to reflect prevailing market conditions and potential changes in methodology to reflect current regulatory practice."[200]

E.4 IPART's draft decision

In March 2009, IPART released its draft determination and report for SCA, which applied a real pre-tax WACC of 7.0 per cent to SCA's RAB. IPART determined this value by creating a range using the parameters shown in Table E.1 and by selecting a point within this range after considering the views of SCA, current regulatory and financial practice, its previous decisions, section 15 of the IPART Act and its own analysis.

For the draft determination, IPART selected a point estimate that was just below the midpoint in the range to balance the objectives of section 15 of the IPART Act.

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198 IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 - Issues Paper*, July 2008.

199 SCA submission, September 2008, pp 35-36.

200 Ibid, p 56.

E.5 Stakeholder submissions to the draft decision

In response to the draft determination and report, SCA's submission provided detailed comments on IPART's draft position on the appropriate rate of return.[201] SCA's submission commented particularly on IPART's approach to:

- estimating the WACC point estimate and the resulting value of the WACC
- estimating the debt margin and the resulting range of values of the debt margin.

These issues are addressed in the relevant sections below. No other stakeholders commented on the rate of return.

E.6 IPART's analysis and decision

Approach to calculating the WACC

Decision

13 IPART's decision is that for the purposes of calculating the allowance for a return on assets, a real pre-tax WACC of 6.5 per cent will be applied to the RAB.

IPART's finding is that for the purposes of calculating the allowance for a return on assets, a real pre-tax WACC of 6.5 per cent will be applied. This finding reflects IPART's view that an appropriate rate of return is in the range of 5.7 per cent to 7.5 per cent. A range has been constructed in recognition of the uncertainty of calculating the WACC, particularly the market risk premium, debt margin, equity beta and the dividend imputation factor (gamma). The midpoint has been selected for the final decision.[202]

IPART's decision maintains the approach of the draft determination whereby the weighted average cost of capital of a benchmark Australian water utility is applied to SCA's RAB.

The parameters IPART used to calculate this WACC range are shown in Table E.1 and were based on market conditions averaged over the 20 days to 27 March 2009. There has been some volatility in financial markets between the draft and final determinations that has had some effect on the value of market-based parameters. This is one factor that has lead to a 50 basis point difference between the draft and final determinations. The other factor resulting in this reduction is the change in the

[201] SCA submission, April 2009.

[202] The midpoint is calculated on the basis of the midpoint of the range for each parameter. Because the formula is non-linear, the calculated midpoint is not necessarily the midpoint of the range of the WACC.

methodology to calculate the implied inflation[203], consistent with the approach described in IPART's discussion paper.[204]

These effects have been mitigated by IPART's decision to:

- exclude a bond with a short term to maturity from its selection of proxies for the debt margin
- select the midpoint of the range.

As previously noted, a key consideration of IPART is the objective of consistency between regulatory decisions over time. IPART considered this when evaluating alternative approaches to determining an appropriate rate of return.

SCA's April 2009 submission commented on IPART's general approach to setting the WACC and the resulting value. Specifically, SCA provided comment on the selection of a point below the midpoint of the range, the resulting point estimate compared to other determinations, and principles to consider when setting the WACC.

SCA's submission noted that IPART departed from the midpoint of the range after considering and assessing section 15 of the IPART Act in making its draft determination. SCA argues that section 15 considerations can only justify a movement below the midpoint of the range when there is evidence that the midpoint would result in inappropriate social outcomes. IPART agrees that the impacts of price decisions on the agency and customers should be well-understood and carefully considered. For the final decision, IPART has carefully balanced a range of competing objectives in selecting its point estimate in the range. IPART considers that it is appropriate to adopt the midpoint for the final decision.

SCA noted that the resulting point estimate for the draft decision was 50 basis points below the WACC determined for Sydney Water in 2008. SCA considers that this is inconsistent with current economic conditions. IPART calculated the range for the WACC in the draft determination using the same approach as was used in the Sydney Water determination in 2008. The difference is due to volatility in the market data and IPART's selection of a point estimate within the range. The final decision recognises that there may be problems in the underlying market data by removing a bond with a short term to maturity (the AGL bond, discussed in the 'debt margin' section below) and by relying on swap market data to calculate the inflation adjustment rather than problematic market data (discussed further in the 'nominal risk free rate and inflation' section below).

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[203] Note that this decision had a downward effect on the WACC range in this particular instance. This may not be the case in future decisions, as the values are dependent on underlying market data at the time of the determination.

[204] IPART, *Adjusting for expected inflation in deriving the cost of capital – Discussion Paper*, February 2009.

SCA's submission sets out some principles in selecting a rate of return. According to SCA, the WACC should:

- be sufficient to meet SCA's underlying cost of funds
- not threaten the long-term viability of the business
- provide appropriate incentives for future investment.

IPART considers that SCA's proposed principles are consistent with the principles adopted in determining an appropriate rate of return for all of IPART's pricing decisions. IPART's draft and final decisions estimate the weighted average cost of capital of a benchmark Australian water utility to apply to SCA's RAB. Therefore, the decisions should provide appropriate incentives for future investment. Further, IPART assesses the financial viability of the businesses it regulates by conducting a credit rating analysis (see Chapter 9).

The remainder of this appendix details IPART's considerations in relation to the individual parameters.

Nominal risk free rate and inflation

Decision

14 IPART's decision is to apply the following parameters for the purpose of calculating the rate of return to apply for SCA:

- a nominal risk free rate of 4.3 per cent based on the 20-day average of nominal Commonwealth Government bonds to 27 March 2009
- an inflation adjustment of 2.5 per cent based on the 20-day average of swap market data to 27 March 2009.

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 cost of debt calculation, the risk free rate is the base to which is added a premium or margin reflecting the risk profile of the specific business for which the rate of return is being derived.

In its draft decision, IPART used the 20-day average yield on the 10-year Commonwealth Government bond for the risk free rate. It determined the long-term inflation forecast by using the difference between the nominal and real risk free rates, with the real risk free rate being measured as the 20-day average yield in indexed government bonds with a 20 basis points adjustment for a potential bias in real yields. This adjustment was made in recognition of evidence of a bias in the indexed government bond market due to severe shortages of supply. This was done after

considering evidence from NERA[205], the Allen Consulting Group (ACG)[206], the Reserve Bank of Australia (RBA) and the Australian Treasury.[207]

IPART recognises that there are a number of problems with using Commonwealth Government bond yields to estimate inflation for the purposes of calculating the WACC:

- the Australian Office of Financial Management has indicated that there will be no further issues of indexed bonds
- there is a potential bias in real Commonwealth Government bond yields due to supply constraints.

In response to these significant problems, IPART released a discussion paper in February to investigate alternative approaches to calculating the implied inflation forecast.[208] In particular, this paper sought comment on a methodology whereby the inflation adjustment is estimated using data from the zero-coupon inflation-linked swap market. IPART has received submissions from Sydney Water Corporation[209], Australian Rail Track Corporation (ARTC)[210] and NSW Treasury[211] on the proposed alternative approach.

Sydney Water states that, while it is not well-placed to assess the merits of the alternative approaches in the discussion paper, it recognises that there is unprecedented volatility in the market data. Sydney Water considers that IPART should base its estimates of inflation on all evidence available, including economists' forecasts of inflation.

Synergies (on behalf of ARTC) submits that "expected inflation should be estimated based on forecasts of the RBA [Reserve Bank of Australia]. This is done by taking a long-term (10-year) average, based on their most recent forecasts for inflation for the first two years and then the mid-point of their target range beyond this."[212]

NSW Treasury submits that it does not have any specific concerns regarding IPART's proposed methodology. It notes that if IPART continues using a real rate of return, further analysis of a potential downward bias in nominal Commonwealth

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205 NERA, *Bias in inflation-indexed CGS yields as a proxy for the CAPM risk-free rate*, March 2007; NERA, *Absolute bias in (nominal) Commonwealth Government Securities*, June 2007.

206 ACG, *Relative bias of inflation indexed CGS yields as a proxy for the CAPM risk-free rate*, July 2007.

207 Australian Treasury, *The Treasury bond yield as a proxy for the CAPM risk-free rate*, Letter to the ACCC, August 2007.

208 IPART, *Adjusting for expected inflation in deriving the cost of capital, Discussion Paper,* February 2009.

209 Letter from Sydney Water Corporation, *Adjusting for expected inflation in deriving the cost of capital*, 9 April 2009.

210 Submission from Synergies on behalf of ARTC, *Adjusting for Expected Inflation: Submission to IPART*, April 2009.

211 NSW Treasury, *Adjusting for expected inflation in deriving the cost of capital – NSW Treasury Response,* April 2009.

212 Submission from Synergies on behalf of ARTC, *Adjusting for Expected Inflation: Submission to IPART*, April 2009.

Government bonds should be undertaken before implementing alternative approaches in estimating the real risk free rate.

IPART released its final decision on the issue of the inflation adjustment in May. This contained IPART's full considerations on the issue. Consistent with the final decision on the inflation adjustment, IPART has adopted the methodology of estimating the inflation adjustment using data from the zero-coupon inflation-linked swap market. IPART considers that relying on swap market data has several advantages over other options:

- unlike the use of economists' forecasts, it is based on market observations, and is therefore objective, repeatable and transparent and does not require the subjective selection of data
- unlike the methodology of using the difference between real and nominal government bonds, it does not require an arbitrary adjustment for biases in the market data
- unlike the methodology of using the difference between real and nominal government bonds, it overcomes the practical problem of the Australian Office of Financial Management indicating that there will be no further issues of indexed bonds[213]
- the calculation of the real risk free rate is not required when using this methodology.

The inflation adjustment resulting from the swap market is 2.5 per cent for this determination. This result is broadly consistent with official forecasts and targets of the Reserve Bank of Australia, although movements in the swap market may lead to results that vary in other determinations.

IPART has maintained the approach used in the draft determination to determine the nominal risk free rate, updated for changes in market conditions.

As at 27 March 2009, the 20 day average of the yield on nominal Commonwealth Government bonds and the inflation adjustment from swap market data is shown in Table E.3.

Table E.3 Risk free rate and inflation adjustment

Parameter	Value
Nominal risk free rate	4.3%
Expected inflation	2.5%

Source: Australian Financial Review, Bloomberg and IPART analysis.

[213] IPART notes that there has been speculation that the Australian Office of Financial Management may issue further indexed bonds. If this is the case, and if the issue overcomes supply issues in the market, IPART may reconsider its previous approach of deriving a forecast of inflation using the difference between the yield on nominal and real Commonwealth Government bonds.

Debt margin

Decision

15 IPART's decision is to adopt a debt margin range of 2.8 per cent to 3.5 per cent based on market observations as at 27 March 2009.

The debt margin represents the cost of debt 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 of debt, the assumed capital structure and the credit rating.

In the draft decision, IPART based its range for the debt margin on 20-day averages of fair value yield curve data obtained for BBB rated Australian corporate bonds with a maturity of 10 years, as well as actual bond yields for BBB and BBB+ rated securities. The draft decision included an allowance of 12.5 basis points for debt raising costs.

In response to IPART's draft determination, SCA provided comment on the debt margin.[214] SCA queried the source of data, the selection of proxies and the resulting range of values. These issues are considered below.

IPART's draft decision sourced the data underpinning the range for the debt margin from Bloomberg rather than CBASpectrum. SCA submit that "the fair value yields reported by Bloomberg and CBASpectrum have widened considerably in recent months", with Bloomberg yields now lower than the yields of CBASpectrum. SCA propose that IPART conduct further analysis on both approaches before changing the source of the data due to the material impact on debt margin outcomes.

As noted in the draft decision, IPART obtained actual and fair value yields from Bloomberg as CBASpectrum has discontinued its service to some non-bank customers including IPART.[215] SCA has not proposed a practical alternative to address the problem of accessing the CBASpectrum service. IPART also notes that:

- Bloomberg is accepted by Australian banks and businesses seeking to raise funds in the equity and debt capital markets as well as other Australian regulators to be an appropriate source of data
- there is no evidence that Bloomberg consistently understates yields or is biased.

Therefore, IPART maintains its draft position that it is appropriate to source data from Bloomberg.

SCA also submits that "it is appropriate to determine [the] debt margin with reference to BBB to BBB+ credit spreads across the entire market, rather than limiting debt margin analysis to any particular sector."[216]

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214 SCA submission, April 2009, pp 11-14.
215 IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Draft Report,* March 2009, p 113.
216 SCA submission, April 2009, p 13.

As noted in previous reports[217], IPART has conducted preliminary analysis on the measurement of the debt margin. This was in response to concerns that market conditions in the Australian corporate bond market may not reflect the actual cost of debt a utility would face in a competitive market.

The analysis conducted in the CityRail final determination highlighted the extent of the volatility in the yield on corporate debt resulting from the current financial crisis. Yields prior to the middle of 2007 were fairly stable. Since then, a re-pricing of risk has become evident, particularly with regards to:

- industry-specific issues (property and financial services) and
- business-specific issues (mainly debt and its refinancing).

IPART has updated this research as part of a discussion paper on approaches to calculating the debt margin.[218] IPART's updated analysis for this discussion paper confirms its earlier findings that utility issued bonds may provide a commercial debt margin that more closely matches the risk profile of the businesses that IPART regulates and is more consistent with historical averages.

In the draft and final determination, IPART had regard to both the traditional set of proxies as well as a set of utility-specific bonds. However, the debt margin was set with reference to the traditional approach, whereby the range for the debt margin is based on 20-day averages of fair value yield curve data obtained for BBB rated Australian corporate bonds with a maturity of 10 years, as well as actual bond yields for BBB and BBB+ rated securities. For the final determination, the same set of actual BBB and BBB+ corporate bonds has been used as in the draft determination, except for the exclusion of the AGL bond (discussed below). As for the draft determination, IPART's final decision includes an allowance of 12.5 basis points in the debt margin in recognition that debt raising and debt refinancing costs are costs above the debt margin that businesses incur in competitive markets.

The 20-day average debt margins generated using IPART's traditional methodology (excluding the AGL bond) and the debt margin based on a portfolio of utility-issued bonds are presented in Table E.4. For future price determinations, IPART will consider adopting the alternative methodology after considering feedback from stakeholders on its discussion paper, which was released in May.[219]

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217 IPART, *Review of CityRail fares, 2009-2012, Final Report,* December 2008, Appendix G; IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Draft Report,* March 2009, Appendix E.

218 IPART, *Estimating the debt margin for the weighted average cost of capital*, May 2009.

219 Ibid.

Table E.4 Debt margins at 27 March 2009

	Lower bound	Upper bound
Traditional methodology	2.8%	3.5%
Utility issued bonds only	1.6%	3.5%

Note: Includes 12.5bp debt raising costs.

Source: Bloomberg and IPART analysis.

SCA's submission notes that the lower bound of the debt margin range in the draft decision is lower than credit spreads on AAA rated 10-year TCorp bonds. SCA query the proxies used in determining this range. IPART's draft decision used the same set of BBB and BBB+ rated corporate bonds as the final decision for Sydney Water in 2008. However, IPART has recognised that one of the proxies, the AGL bond, is due to mature in September this year. Observations of the AGL bond set the lower bound for the debt margin. IPART has further considered the composition of the portfolio of bonds referenced in making the draft determination. Due to its short term to maturity, IPART has excluded the AGL bond for this decision as its yield is not likely to be representative of the yield of 10-year corporate debt. The range for the final decision was set with regards to the same corporate and fair yield bonds as used in the draft decision, excluding the AGL bond.

SCA's response to the draft decision also compares the value of the debt margin range with other decisions, noting that the midpoint of the range is 205 basis points lower than that determined by IPART for CityRail in December 2008.[220] IPART considers that removing the AGL bond addresses this issue to an extent. However, as the methodology used for the draft decision is the same as that used for the CityRail determination (and the 2008 Sydney Water determination), the values are largely dependent on volatility in market conditions. IPART has recognised that volatility in corporate bond markets is an emerging problem in regulatory decisions. IPART's recently released discussion paper on the debt margin will attempt to resolve this issue, amongst others. For the purposes of the decision, IPART has adopted a debt margin in the range of 2.8 per cent to 3.5 per cent (see Table E.1 and Table E.4).

Equity beta

Decision

16 IPART's decision is to adopt an equity beta of 0.8 to 1.0 for the purpose of calculating the rate of return to apply for SCA.

The equity beta value is a business-specific parameter that measures the extent to which the return of a security varies in line with the return of the market. It represents the systematic or market-wide risk of an asset that cannot be avoided by holding the assets as part of a diversified portfolio. It is important to note that the equity beta does not take into account business-specific or unsystematic risks.

[220] SCA submission, April 2009, p 12.

In its draft decision, IPART valued equity beta in a range of 0.8 to 1.0. Table E.2 shows that this value is consistent with values adopted in previous decisions. This range was adopted in the 2005 determination for SCA and in the 2008 determination for Sydney Water. A range has consistently been constructed, due to the inherent uncertainty in estimating the equity beta.

IPART notes that new evidence has caused other Australian regulators to revise their established valuations for equity beta:

- The Australian Energy Regulator's (AER) final decision of its review of the WACC parameters for electricity transmission and distribution businesses has valued equity beta at 0.8.
- In its final decision on the Gas Access Arrangement Review 2008-2012, the Essential Services Commission of Victoria valued equity beta at 0.7. This decision included a transitional mechanism, which effectively allowed an equity beta of 0.8.

IPART does not consider that it is appropriate to change its approach to valuing the equity beta at this late stage of the review. However, for future determinations it will consider the new evidence that has emerged from the AER's review.

Given that it is likely that SCA faces a similar level of systematic risk to that of Sydney Water, and in the interest of achieving consistency between regulatory decisions, IPART considers that a range of 0.8 to 1.0 is an appropriate valuation of the equity beta for this determination.

Capital structure, tax rate and dividend imputation factor (gamma)

Decision

17 IPART's decision is to adopt the following parameters for the purpose of calculating an appropriate rate of return to apply for SCA:

- debt to total assets of 60 per cent
- tax rate of 30 per cent (statutory tax rate)
- dividend imputation factor of 0.5 to 0.3.

When determining the level of gearing used to calculate the WACC, IPART adopts a benchmark capital structure, rather than the actual financial structure, to ensure that customers will not bear the cost associated with an inefficient financing structure. Another factor that needs to be considered is the dividend imputation factor (gamma). Under the Australian dividend imputation system, investors receive a tax credit (franking credit) for the company tax they have paid. This ensures that the investor is not taxed twice on their investment returns (ie, once at the company level and once on the personal tax level).

The value of the imputation tax credits is represented in the CAPM by 'gamma'. The rationale behind this, including the value of gamma in the CAPM, is that as investors are receiving a tax credit from their investment, they would accept an investment with a lower return than if there were no tax credits attached to this investment. The gamma is an important input in the CAPM, as a high value (valued at or approaching one) would reduce the cost of capital considerably.

As Table E.2 shows, IPART's preference for debt to total assets and tax rate parameters has been the benchmark capital structure value and the prevailing company statutory tax rate, respectively. In establishing what value to assign to gamma, IPART has reviewed a number of independent expert reports and academic studies that have consistently shown that there is no conclusive evidence on the exact value that investors attach to imputation tax credits.

The draft determination adopted a range of 0.5 to 0.3 for the value of gamma, set the level of gearing at 60 per cent and assumed a tax rate of 30 per cent. In response, no submissions were received on these parameters.

IPART notes that since its draft determination, the AER has released its final decision on its review of the WACC parameters for electricity transmission and distribution businesses, which valued gamma at 0.65. However, for this determination, IPART does not consider that it is appropriate to change its approach to valuing gamma.

For this final determination, IPART has maintained the draft determination's values for capital structure, tax rate and dividend imputation factor.

Market risk premium (MRP)

Decision

18 IPART's decision is to adopt an MRP range of 5.5 to 6.5 per cent for the purpose of calculating an appropriate rate of return to apply for SCA.

The market risk premium (MRP) represents the additional return over the risk free rate of return that an investor requires for the risk of investing in a diversified equity portfolio.

In its most recent decisions, IPART has maintained an MRP range of 5.5 to 6.5 per cent (see Table E.2). For the draft determination, IPART adopted a value within this range. For this final determination, IPART has maintained the draft determination's value of 5.5 to 6.5 per cent.

Since IPART made its draft decision, the AER released its final decision on its review of the WACC parameters for electricity transmission and distribution businesses, which determined an MRP value of 6.5 per cent. However, for this determination, IPART does not consider that it is appropriate to change its approach to valuing the MRP.

F Pricing that depends on dam levels

Economic theory and empirical evidence show that when a resource is scarce, its market price will rise (and vice-versa). This relationship is important for ensuring that demand and supply for the resource are in balance over time and that economic welfare is maximised. It does this by:

- ensuring that the resource is allocated to its highest value uses
- providing incentives to consumers of the resource to reduce consumption in times of scarcity – eg, by innovating, developing technology, changing behaviour or seeking out alternatives so that less of the scarce, more costly resource is required
- providing incentives to producers to develop means of increasing supply of the resource (or alternatives to it) in times of scarcity.

With this in mind, IPART is interested in possibly developing a form of 'scarcity pricing' for potential implementation at the 2012 SCA price determination. Under such a pricing approach, the price of water from SCA's dams would vary inversely with dam levels (available supply). SCA's prices to Sydney Water would rise when dam levels fall (ie, when dam water is scarce); and fall when dam levels rise (when dam water is plentiful) – thus prices would reflect the relative scarcity or value of SCA water under prevailing conditions. Notably, in contrast to other scarcity pricing proposals, IPART favours an approach that complements, rather than replaces, a regime of water restrictions.

A form of scarcity pricing could ultimately apply to retail prices (ie, Sydney Water's prices to its customers). However, IPART is particularly interested in applying this pricing approach to wholesale water prices (ie, SCA's prices to Sydney Water). The appeal of this approach to wholesale water pricing is that it has the potential to:

- provide incentives to Sydney Water to invest in water conservation and demand management measures, where efficient
- signal to Sydney Water when it is more appropriate to obtain water from sources other than SCA, and vice-versa
- provide signals to potential new suppliers of bulk water as to when it may or may not be viable for them to invest in new water supply infrastructure.

If a form of scarcity pricing were to be introduced at the retail level, IPART envisages that it would be applied at the margin, targeting discretionary water consumption only and operating to support the water restriction regime in equating water demand with supply.

Outlined below are more details on IPART's preliminary thoughts on a potential pricing model applicable to Sydney's water supply.

IPART will consider the issue of scarcity pricing further over the course of the 2009 determination period, including points raised by stakeholder submissions to the draft report (see section 8.2.3). It therefore remains interested in receiving stakeholder comments on this pricing option.

F.1 Scarcity pricing at the wholesale level

To ensure that appropriate price signals are sent to bulk water consumers and other potential bulk water suppliers, and that SCA's water is used efficiently, the price of water from SCA's dams should reflect its scarcity value, as well as SCA's costs of water capture, storage and supply. This suggests that SCA's prices to Sydney Water should depend on SCA's dam levels – with higher prices during droughts when dam levels decline, and lower prices when water is in relative abundance and dam levels are high.

In the absence of a market determined price, IPART favours an administrative form of scarcity pricing, whereby IPART would set SCA's prices to apply at specified dam levels or determine a formula for the calculation of these prices. Under this arrangement, the relationship between SCA's volumetric water price and dam levels would depend, amongst other factors, on the adequacy of existing water storage infrastructure, the cost of augmenting water supplies and the importance that society places on not running out of essential water. As mentioned above, IPART considers that such a pricing regime should work alongside and complement, rather than replace, a water restriction regime.

Determining volumetric prices under such a scarcity pricing approach would require careful consideration. For illustrative purposes, a purely hypothetical example of a schedule of SCA's volumetric prices to Sydney Water is as follows:

- storage level below 40 per cent: $600 per ML
- storage level between 40 and 50 per cent: $400 per ML
- storage level between 50 and 70 per cent: $300 per ML
- storage level above 70 per cent: $245 per ML.

Consideration would also need to be given to the level of SCA's fixed charge to Sydney Water and how frequently this charge should be adjusted, taking into account SCA's revenue requirement as well as the intention of scarcity pricing to provide a price (or cost) signal to Sydney Water. Similarly, consideration may need to be given to mechanisms such as an 'unders and overs' account to manage any variations between SCA's revenue under a scarcity pricing model and its actual revenue requirement. IPART notes that any viable pricing option must allow SCA to recover its efficient costs of meeting the community's service and environmental standards.

The benefits of scarcity pricing at the wholesale level

IPART envisages that SCA's scarcity price schedule would operate in conjunction with the rules for the operation of Sydney Water's desalination plant, which are currently being developed by Government. These operating rules are expected to optimise the operation of the plant in relation to its primary role as a supplementary supply source in times of drought. Scarcity pricing could complement these operating rules by signalling to Sydney Water the point at which it is appropriate to draw on supply from the desalination plant, as opposed to additional water from SCA, and vice-versa.

A form of scarcity pricing could also signal to SCA when it is appropriate to pump water from the Shoalhaven, taking into account the cost to SCA of pumping this water and the revenue that it could receive by selling it to Sydney Water. For example, under scarcity pricing, SCA would have little incentive to pump water from the Shoalhaven when its dam levels are full (and its volumetric price to Sydney Water is low). Rather, to maximise the difference between Shoalhaven pumping costs and revenue received from sales of this water, it would have an incentive to pump water from the Shoalhaven when its dam levels are low (and its volumetric price to Sydney Water is high).

While acknowledging the dominant role that SCA is likely to continue to play in the provision of water, IPART considers that it is also important to recognise that Sydney is likely to increasingly have alternative sources of water supply. In addition to SCA's dams, desalination and the use of recycled water for non-potable purposes will become increasingly important. Some alternative sources of water are owned by Government, but others may be privately owned. In these circumstances, it is worth investigating the role that pricing can play in providing effective signals to both Sydney Water and potential new suppliers of bulk water, to ensure that Sydney's water needs are supplied at least cost to the community.

A pricing approach that takes into account dam levels has the potential to:

- Signal to Sydney Water the cost, based on prevailing conditions, of various water supply sources, thus helping to ensure that it obtains its necessary supply of water from the least cost combination of supply sources (ie, the optimal mix of desalination, recycled and dam water).

- Provide incentives to Sydney Water to invest in additional water conservation and demand management measures, where efficient.
- Provide signals to potential new suppliers of bulk water. For instance, if bulk water prices reflect dam levels and dam levels are relatively low over a sustained period, average bulk water prices will be higher, which may provide an incentive for new bulk water suppliers to enter the market.

Such a pricing approach can also act to reinforce the impact of water restrictions or defer or avoid the need for more severe restrictions. For instance, if variations in SCA's prices are not passed through to retail prices, Sydney Water would have an incentive to ensure that drought restrictions are effectively implemented and enforced so as to minimise its exposure to high SCA prices during periods of low dam levels and, over the longer term, to invest in drought-resistant supply options such as recycled water.

A pricing approach that varied SCA's volumetric price inversely with its dam levels could also mitigate sales risk to SCA. Presently, if SCA's sales are less than forecast when setting its volumetric price (eg, due to the effect of higher than forecast restriction levels in reducing water demand), it is at risk of under recovering its revenue requirement – particularly as its costs are mostly fixed. To date, this has acted to limit the extent to which IPART can increase SCA's volumetric charge at the expense of its fixed charge. Under a scarcity pricing approach, higher level water restrictions (as a result of low dam levels) will result in proportionally higher volumetric SCA prices. However, IPART recognises that the allocation of financial risk (between SCA, Sydney Water and water customers) arising from any new water pricing arrangements is an issue that requires further consideration.

F.2 Scarcity pricing at the retail level

The above sections primarily consider how the price that SCA charges Sydney Water might change with dam levels. A separate question is whether Sydney Water's retail prices should also vary with SCA's dam levels to reflect the economic value of water. IPART notes that this does not necessarily need to occur, even if SCA's wholesale price to Sydney Water does vary with dam levels.

If a form of scarcity pricing were to be introduced at the retail level, IPART favours an approach that acts to support (rather than replace) water restrictions and which only targets discretionary levels of water consumption (to protect customers' essential levels of water consumption from significant price variations).

Under such a pricing model, prices for residential and non-residential levels of water consumption above non-discretionary or essential levels would be charged at a price that varies with dam levels (and Sydney Water's cost of bulk water purchases from SCA). A purely hypothetical example of Sydney Water's price schedule for discretionary levels of retail customer water consumption is as follows:

- storage level below 40 per cent: $3.60 per kL

- storage level between 40 and 50 per cent: $2.50 per kL
- storage level between 50 and 70 per cent: $1.90 per kL
- storage level above 70 per cent: $1.60 per kL.

As with SCA's wholesale prices, consideration would need to be given to the level of Sydney Water's fixed charges to its customers and the extent to which these should change over time, taking into account Sydney Water's costs and the price signal provided to customers by their water bills – as well as the potential for measures such as an 'unders and overs' account to manage any variations between Sydney Water's revenue and its costs.

The benefits of scarcity pricing at the retail level

Theoretically, the potential benefits of introducing a form of scarcity pricing at the retail level are that it would:

- reinforce the impact of drought water restrictions or defer or avoid the need for more severe restrictions – as Sydney Water's usage prices for discretionary levels of water consumption would be higher during times of low dam levels and high water restrictions
- provide an indication of the scarcity value of water to end use consumers, meaning that they would have an incentive to reduce discretionary consumption when dam levels are low.

However, IPART notes that the implementation challenges of applying a form of scarcity pricing at the retail level (ie, Sydney Water's prices to its customers) are likely to be somewhat greater than merely applying this at the wholesale level (ie, SCA's prices to Sydney Water).

For instance, determining a 'discretionary' (or non-essential) level of water consumption to which scarcity pricing would apply, and establishing a price structure accordingly, can be problematic. In reality, the discretionary level of water consumption can vary across households (eg, with family size) and industry, and can also vary over time (eg, as a result of technological development in water saving measures). To be cautious, IPART would favour setting the level of discretionary consumption fairly low relative to total average household water consumption. However, this would mean that the scarcity price would only affect a relatively small component of retail consumption - which, added to the administrative costs involved in such a pricing approach, calls into question whether scarcity pricing is worth implementing at the retail level.

IPART also recognises that the natural volatility of dam inflows, combined with Sydney Water's current practice of issuing its bills quarterly, can create challenges in effectively applying scarcity pricing to retail prices. This is because by the time retail customer bills are issued, these bills could reflect past rather than existing (or expected future) dam levels, thus resulting in a disconnection between the price

signal received by retail customers (via receipt of their bills) and dam levels. This could lead to a scenario where retail customers face high prices, which reflect past, low dam levels – even though dams have subsequently filled and SCA water is in relative plentiful supply.[221]

F.3 IPART's preliminary position

While recognising that there are a number of implementation issues to work through, IPART initially favours introducing a form of scarcity pricing at the wholesale level only (ie, SCA's prices to Sydney Water). This is primarily because of the potential benefits listed in section F.1. IPART also notes that water restrictions have been effective in reducing discretionary demand in times of drought (one of the main arguments for introducing scarcity pricing at the retail level), and that applying an acceptable form of scarcity pricing at the retail price level is likely to be more problematic than at the wholesale level.

Regardless, over the 2009 determination period, IPART is interested in receiving comments on the potential application of scarcity pricing in Sydney at the wholesale and/or retail level. It is particularly interested in stakeholders' views on the design and application of such as pricing model, implementation issues to be addressed and its potential advantages and disadvantages.

In considering this pricing option further, IPART will take into account points raised by stakeholders in response to the draft report (see section 8.2.3), as well as any other submissions received over the 2009 determination period.

[221] Although IPART does also note that over time retail customers could become accustomed to a scarcity pricing regime and its relationship with bills. For example, the prevailing retail price could be published on Sydney Water's website or in the newspaper, so that customers have access to information on current prices (reflecting current dam levels), even though they might not receive an actual bill for their water consumption until several months later.

G Section 16A direction

NEW SOUTH WALES

The Hon. Nathan Rees MP
Minister for Emergency Services
Minister for Water

2 - JUL 2008

RECEIVED
- 4 JUL 2008

Ref: M2008/00116

Dr Michael Keating
Chairman
Independent Pricing and Regulatory Tribunal of NSW
PO Box Q290
QUEEN VICTORIA BUILDING NSW 1230

Dear Dr Keating

The Sydney Catchment Authority (SCA) manages its Accelerated Sewerage Program to fund the fast-tracking of upgrades of sewerage treatment plants in Sydney's drinking water catchments. The SCA has already spent or committed $20 million over five years on these works, which further protect raw drinking water quality. The funding is included in the SCA's approved regulated price. The method of funding is by augmenting funds made available to councils for the upgrades through the Department of Water & Energy's (DWE's) Country Towns Water Supply and Sewerage Program.

I have directed the SCA, pursuant to section 11 of the *Sydney Water Catchment Management Act 1998*, to pay from its Accelerated Sewerage Program an additional $17.7 million, plus GST, to DWE towards the cost of six sewage treatment plant upgrades (Attachment 1).

Pursuant to Section 16A of the *Independent Pricing & Regulatory Act 1992*, I hereby direct that the Independent Pricing & Regulatory Tribunal, when it next determines the maximum price for the government monopoly services provided by the SCA, to include in the price an amount representing the efficient cost of the SCA complying with the requirement to fund the Sewerage Treatment Plan Upgrade Works as set out in my direction to the SCA.

I attach the contract between SCA and DWE, entitled *Accelerated sewerage program funding contract*, dated 15 April 2008, which includes the schedules of payments (Attachment 2).

Yours sincerely

The Hon. Nathan Rees MP
Minister for Emergency Services
Minister for Water

GPO Box 5341, SYDNEY NSW 2001 Telephone: (02) 9228 5050 Facsimile: (02) 9228 5099
Email: reception@rees.minister.nsw.gov.au

H Output measures

As discussed in section 3.9, IPART has decided to develop output measures for the 2009 determination, as a starting point for the assessment of prudent expenditure at the next determination of SCA's prices.

These output measures are listed below. These have been developed after considering SCA's proposed output measures and WorleyParsons' advice on the 'criticality' of projects in SCA's forecast expenditure program.

H.1 IPART's output measures

1. **Deliver a strategy for the future of the Upper Canal by June 2013**
   The Upper Canal, which currently transfers approximately 20 per cent of Sydney's water, consists of a series of tunnels, open canals and aqueducts built over 100 years ago. The canal design and age introduces risks to water quality, and limits the volume of water that can be transferred. In order to ensure both the reliability and quality of water supplied, the SCA will need to either undertake major refurbishment works or replace the canal structure.[222] Over the forthcoming determination period, SCA will undertake longer-term water supply system planning, including developing options for the replacement of the Upper Canal.

2. **Complete the Prospect Reservoir upstream embankment stabilisation upgrade by April 2013**
   This project is to comply with dam safety mandatory standards. The installation of a new raw water pumping station and the subsequent use of Prospect Reservoir as an emergency supply can lead to a drawdown of seven metres and poses stability risks for the upstream dam embankment. This project will result in stabilisation of this embankment.

[222] SCA submission, September 2008, p 29.

3. **Complete the Warragamba Dam crest gates construction project by June 2011.**
   This project involves:
   - raising the radial gates to provide greater clearance for passing of flood waters
   - improving drum and radial gate reliability and strength
   - updating the drum and radial gate control system, and
   - application of protective painting.

   WorleyParsons notes that this is a critical dam safety requirement. The capacity to raise the radial gate and strengthen the facility provides greater protection against dam failure.

4. **Complete the Wingecarribee Dam safety upgrade project by June 2013**
   This project comprises mandatory upgrades to dam safety to meet existing safety legislation.

5. **Complete the Upper Nepean environmental flows works project by April 2010**
   The project, which is part of the NSW Government's Metropolitan Water Plan, requires SCA to undertake works to:
   - Release 80/20 environmental flows from the Upper Nepean Dams (Cataract, Cordeaux and Nepean).
   - To maximise the environmental benefits for the Nepean and Hawkesbury Rivers by enabling the passage of these flows and of fish past two water supply weirs (at Broughton Pass and Pheasants Nest) and 13 irrigation weirs downstream.

6. **Complete the Metropolitan Dams electrical systems upgrade project by April 2013**
   This program comprises upgrades to meet mandatory Occupational Health and Safety standards.

Glossary

2005 determination	*Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report,* September 2005 (Determination Nos 5, 6 and 7, 2005).
2005 determination period	The period from 1 October 2005 to 30 June 2009, as set in the 2005 Determination.
2008 Sydney Water determination	*Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, June 2008 (Determination No 1, 2008).
2009 determination period	The period commencing 1 July 2009
Act	*Sydney Water Catchment Management Act 1998*
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 October 2005 to 30 June 2009, as set in the 2005 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	*Independent Pricing and Regulatory Tribunal Act 1992*
kL	kilolitre
LRMC	Long Run Marginal Cost of supply
Minister	Minister for Water
ML	megalitre
MMA	McLennan Magasanik Associates
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
SASPoM	Special Areas Strategic Plan of Management
SCA	Sydney Catchment Authority
SRMC	Short Run Marginal Cost of supply
Sydney Water	Sydney Water Corporation
upcoming determination period	the period commencing 1 July 2009
WICA	*Water Industry Competition Act 2006*
WACC	Weighted Average Cost of Capital
WorleyParsons	WorleyParsons Services Limited Pty Ltd
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).