IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Review of prices for the Sydney Catchment Authority

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Water — Draft Report
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Review of prices for the Sydney Catchment Authority

From 1 July 2012 to 30 June 2016

Water —Draft Report
March 2012

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Invitation for submissions

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

Submissions are due by 13 April 2012.

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

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

2012 SCA Draft Price Determination
Independent Pricing and Regulatory Tribunal
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Our normal practice is to make submissions publicly available on our website <www.ipart.nsw.gov.au>. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed on the previous page.

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

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

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1 Introduction and executive summary

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) is currently reviewing the prices that the Sydney Catchment Authority (SCA) can charge for providing water services to its customers. The purpose of this review is to determine the maximum prices for these services from 1 July 2012 to 30 June 2016 (the 2012 determination period).

SCA is the main supplier of bulk water in the Sydney region. It manages and protects Sydney's drinking water catchments and catchment infrastructure. It supplies bulk water to its customers, including Sydney Water and 3 local councils.

This report explains our Draft Determination of SCA's prices, including the rationale and analysis that underpins our draft decisions. We are seeking submissions on the Draft Report and Determination, which we will consider before making our Final Determination in June 2012. Details on how to make a submission are provided on page iii of this report. The closing date for submissions is 13 April 2012.

1.1 Summary of IPART's draft decisions

Revenue required by SCA to deliver its water supply services, and prices based on that revenue, will decrease by $17.1 million or 8.1% in 2012/13, the first year of the determination period, compared with the target revenue we established for 2011/12, the last year of the 2009 Determination. SCA's prices will then move in line with inflation over the remainder of the 2012 determination period.

The main reason for the reduction in required revenue in 2012/13 is our change in approach to incorporating company taxation in our calculation of the costs of a regulated business. In December 2011, following consultation, we decided to calculate a more accurate and commercially-based tax allowance as a discrete building block, and to use a post-tax weighted average cost of capital (WACC)[1]. The net decrease in taxation explains 5 percentage points of the 8.1% decrease in SCA's required revenue in 2012/13, the first year of the determination period.

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

The remaining decrease in required revenue in 2012/13 reflects our decision that prices should recover costs in each year of the new determination. In the previous determination we smoothed price increases to phase them in for customers. This change reduces required revenue in 2012/13 and subsequent years.

Prices remain constant over the 2012 determination period because of SCA's restraint in operating and capital expenditure, and our draft decisions.

To set the level of draft prices to all SCA's customers, we have reviewed stakeholder submissions and commissioned independent advice on SCA's costs. We consider that our draft prices will allow SCA to meet its obligations, provide an adequate commercial rate of return on its assets and maintain SCA at an investment-grade credit rating.

We have decided that for SCA's sales to Sydney Water, there will be a different volumetric charge when the Sydney Desalination Plant (SDP) is operating and when it is not. This will manage the risk to SCA from the uncertainty in SDP's operation and will ensure that customers pay no more than necessary.

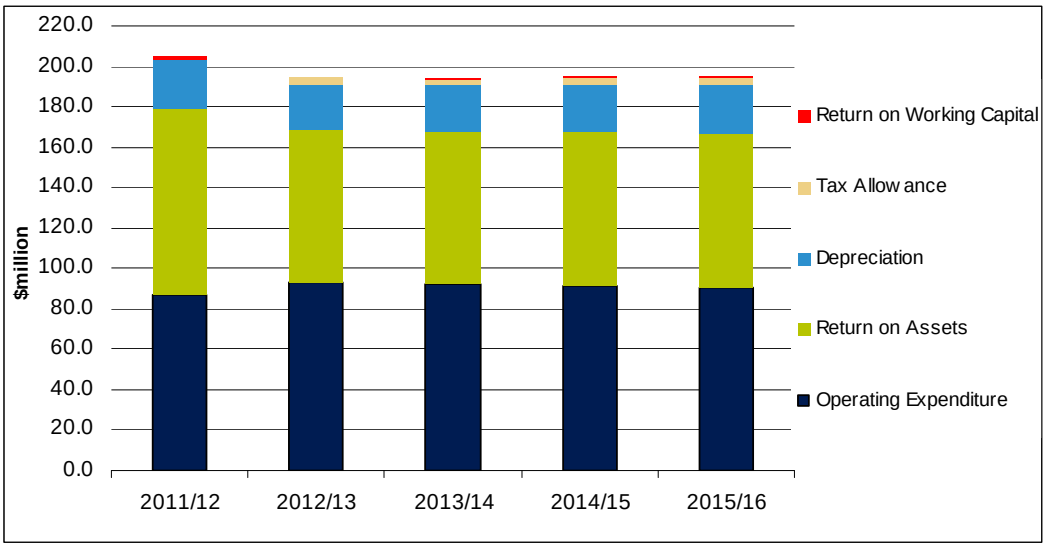
Prices to Sydney Water will have a larger fixed cost component than in the past. 80% of SCA's revenue will be recovered through a fixed charge, rising from 40% in previous determinations. This better reflects SCA's large fixed costs of doing business.

We have also changed the basis of prices to SCA's 3 local council customers to a 25:75 split between the percentage of revenue recovered through fixed charges and the percentage recovered through variable charges. This follows consultation between SCA and the 3 local councils. We have not changed prices to smaller customers.

1.2 Our draft decisions on required revenue

Figure 1.1 shows our draft decisions on revenue that SCA requires to meet its efficient costs of delivering water supply services over the determination period.

Figure 1.1 SCA's draft notional revenue requirement for the 2012 Determination ($million, $2011/12)



Notes: A table with this information is shown in Chapter 4. 2011/12 revenue is based on the target revenue requirement for SCA set in the 2009 Determination.

To reach our decisions on SCA's notional revenue requirement, we analysed its proposed operating and capital expenditure and its return on capital. We engaged an independent engineering consultant, Halcrow Pacific Pty Ltd (Halcrow), to review SCA's actual and forecast operating and capital expenditure.

Our allowance for operating expenditure increases from about $87 million in 2011/12 to $94.1 million in 2012/13. This is due largely to our decision to allow SCA to recover efficient costs associated with:

- expected water transfers from the Shoalhaven River (about 2.4% of total operating costs)
- the Federal Government's carbon price scheme which will commence on 1 July 2012 (about 2.1% of total operating costs).

For the Final Determination, we request that SCA update the expected costs of Shoalhaven transfers based on more recent information on dam storage levels. We have applied an annual efficiency target of 0.3% to SCA's operating expenditure to encourage SCA to continue achieving efficiencies.

For this Draft Determination, we have assessed most of SCA's proposed capital investment program of $146.1 million as prudent and efficient. We reduced SCA's proposed capital program by $21 million, taking into account concerns that Halcrow identified with SCA's planning and procurement of capital works. The main adjustment is to defer $18 million in 2015/16, which is most of the proposed capital expenditure on the Warragamba Dam reliability upgrade.

Our draft decision on an adequate return on SCA's assets is a real post-tax WACC of 5.5%. This is lower than the return of 6.0% proposed by SCA,[2] and is consistent with, and similar to, the recent decision for Sydney Desalination Plant.[3] This reflects updated market parameters that are used to calculate the cost of debt and equity components of the WACC. Like our decision about Sydney Desalination Plant's prices, we have taken account of current market uncertainties by considering long term averages and selecting a WACC at the top end of our range. We have made minor changes to our methodology for assessing the debt margin to reflect current market conditions and we are seeking feedback on these changes – see Appendix E.

1.3 Our draft decisions on prices to SCA customers

1.3.1 Prices to Sydney Water

Table 1.1 shows our draft decision on SCA's prices to Sydney Water, with the SDP "off" and "on" prices, and compares them to current prices.

Table 1.1 Draft decision on SCA prices to Sydney Water ($2011/12)

	2011/12[a]	2012/13	2013/14	2014/15	2015/16
Volumetric charge ($/ML)	284.38				
Volumetric charge ($/ML) – SDP plant "off"		79.23	78.79	78.71	78.16
Volumetric charge ($/ML) – SDP plant "on"		97.17	96.54	96.34	95.51
Fixed charge ($million pa)	86.0	154.5	154.3	154.8	154.9

a 2011/12 sales revenue is based on the 2009 target revenue requirement for Sydney Water. We define SDP as "on" when it is operating (ie, it is not in shutdown or restart mode) and "off" when it is in any of the 3 shutdown modes or in restart mode.

2 SCA's proposed WACC was 7% on a real, pre-tax basis. Using the same input parameters this would give a real post-tax WACC of approximately 6%.

3 The real pre-tax WACC for Sydney Desalination Plant is 6.7%. The real pre-tax WACC for SCA would be approximately 6.5% using the same input parameters, as shown in Table 7.4. For more information about these parameters see Appendix D.

Table 1.2 shows the impact of SCA's prices on a typical Sydney Water customer. The cost of water supplied by SCA is a small component of the notional revenue requirement allowed for Sydney Water in its 2012 Draft Determination. SCA's price changes therefore have a minimal impact on an average 2012/13 water and sewerage bill for a typical Sydney Water customer.

Table 1.2 Impact of SCA's draft prices on Sydney Water's customers ($2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Average annual household bill (200kL water and waste water)	1,105	1,086	1,074	1,061	1,048
Year-on-year change due to Sydney Water Draft Determination (%)		(1.7%)	(1.2%)	(1.2%)	(1.2%)
% change due to SCA price change		(0.4%)	0.0%	0.0%	0.0%

We have also made a draft decision not to introduce scarcity pricing at the wholesale level. We consider it is not necessary at present because many of the objectives of this form of pricing are being achieved through the 2010 Metropolitan Water Plan. However, we note that SCA prices are now linked with dam levels from our introduction of a price schedule to account for the operation of SDP. We have also aligned the volumetric price for SCA's dam water more closely with SCA's variable costs, which we consider to be consistent with a possible future approach to wholesale scarcity pricing.

The NSW Government has stated it will examine the role of scarcity pricing and other drought measures prior to the 2014 review of the Metropolitan Water Plan.[4] We support consideration of scarcity pricing and other potential market-based tools to manage demand and allocate water efficiently in future reviews of the Metropolitan Water Plan.

1.3.2 Prices to local councils

We have decided to set SCA's draft prices to its 3 local council customers for the 2012 Determination on a fully distributed cost basis. For its 2012 price proposals, SCA assessed the cost of assets that provide water to SCA's council customers and apportioned these costs by the water sales volume to each council. SCA and the councils consulted and agreed on SCA's proposed price levels and the new 25:75 fixed to variable price structure to replace the current 100% variable charge. We have accepted SCA's proposal on price structure and asset cost allocation. Table 1.3 shows our draft decision on prices to the 3 local councils.

4 NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 57.

Table 1.3 Draft decision on prices to SCA's 3 local council customers ($2011/12)

	2012/13	2013/14	2014/15	2015/16
Volumetric charge – all 3 councils ($/ML)	197.11	197.11	197.11	197.11
Fixed charge for each council ($/pa)				
Wingecarribee Shire Council fixed charge	269,386	269,386	269,386	269,386
Shoalhaven City Council fixed charge	6,570	6,570	6,570	6,570
Goulburn Mulwaree Council fixed charge	32,852	32,852	32,852	32,852

Table 1.4 shows SCA's sales revenue from its 3 council customers and the average cost of water to the councils using prices from the 2009 Determination compared to the 2012 Draft Determination. The average cost of supplying water to the 3 local councils is forecast to decrease by 2.3% in 2012/13. This is due to the new fully distributed cost pricing methodology and will result in a small decrease in real prices to the councils' retail customers.

Table 1.4 Impact of SCA's draft prices on average unit cost for local councils ($2011/12)

	2011/12[a]	2012/13	% Change
Sales revenue ($)	1,276,745	1,235,231	-3.3%
Average cost ($/ML)	268.87	262.82	-2.3%

a 2011/12 sales revenue is based on the 2009 target revenue requirement for local councils.

Note: Sales revenue for 2012/13 is based on the 25:75 fixed to variable price structure and forecast sales volumes to local councils.

1.3.3 Prices to small customers

SCA has approximately 65 bulk raw and unfiltered water customers, comprising industry, government departments and agencies, religious organisations, schools, agricultural producers and domestic users. Prices for these customers have been held constant at real 2011/12 levels, as proposed by SCA. We have also maintained price structures to smaller customers.

1.4 Output measures for the 2012 Determination

When we come to assess prudent expenditure over 2012/13 to 2015/16 in our next determination, we will use measures of the outputs of SCA's main projects to evaluate any deviation from targets established in the 2012 Determination.

We have established 9 draft output measures relating to SCA's asset renewal and expansion projects. Of these, 4 are for projects in the 2009 Determination that had not been completed at the time of this review. These output measures will allow us to assess the extent to which SCA has met project delivery expectations as agreed in the 2012 Determination.

1.5 Our combined approach to licensing and pricing

SCA's new operating licence and prices both commence from 1 July 2012 and, as foreshadowed in the June 2011 Issues Paper, we have conducted a joint review up to the point of the Public Workshop in November 2011. This is the first time that we have taken the opportunity to consider operating licence requirements together with pricing implications.

In the review, the main analytical link we have made between licensing and pricing is a cost-benefit analysis of changes to the licence proposed by SCA and IPART. This reflects good regulatory practice and has provided more rigour to our review. Early results of the cost-benefit analysis show that proposed changes to SCA's operating licence are not material, and therefore price implications will be small. The proposed licence changes and cost-benefit analysis are being finalised, and any price implications will be included in the final report.

We conclude that for SCA, pricing and licensing reviews do not need to coincide in future. We have instead aligned SCA's price path with that of Sydney Water to minimise regulatory uncertainty for both parties. This is supported by SCA and Sydney Water.

1.6 What does the rest of the report cover?

This report explains in detail our decisions for the Draft Determination, including analysis supporting each decision. The report is structured as follows:

- Chapter 2 outlines the scope and context for the review, including a summary of SCA's submission
- Chapter 3 outlines our price setting approach and draft decisions related to the regulatory framework
- Chapter 4 provides an overview of our draft decisions on the notional revenue requirement
- Chapters 5, 6 and 7 discuss our draft decisions on SCA's efficient operating expenditure, its revenue required for capital investment, and the allowances for a return on assets and regulatory depreciation
- Chapter 8 sets out our draft decisions on SCA's forecast water sales
- Chapter 9 discusses our draft decisions on SCA's price structure and price levels
- Chapter 10 outlines the implications of our draft pricing decisions, including the impacts on SCA, its customers and the environment
- Appendix D explains our decisions on the WACC, including the selection of input parameters and the resulting return on capital allowed under this Draft Determination, and the draft notional revenue requirement and prices on a real pre-tax basis

- Appendix E outlines changes to the debt margin methodology – we are seeking comment on these changes for our final determination
- other appendices provide information relevant to our decision, including matters considered under the IPART Act.

2 Scope and context for this review

The purpose of this review is to determine the maximum prices SCA can charge for the water supply services that it provides to its customers. The following sections outline the context for the review, including our review process, the matters we have considered, SCA's operations and regulatory environment, and SCA's submission to the review.

2.1 Integration of the operating licence with the price review

In our review of SCA's operating licence and prices to apply from 1 July 2012, we took the opportunity to integrate the consultation phase of both reviews into one streamlined process. This involved releasing a combined issues paper covering the licence and price review and holding a joint public workshop. Combining the review processes has also given us the opportunity to consider the cost-benefit implications of changes we make to SCA's operating licence. Depending on the outcomes of our cost-benefit analysis, this will allow us to include any efficient costs imposed to be recovered through SCA's prices. We have not done this in the past.

The cost-benefit analysis of our proposed changes to SCA's operating licence is due to be completed in March 2012. We will consider the results of this analysis and will decide on whether additional costs on SCA are to be added to its operating costs when finalising our prices in June 2012.

2.2 IPART's review process

As noted above, we have completed a combined consultation approach to our review of SCA's operating licence and prices. This involved:

- releasing a combined issues paper in June 2011 to assist in identifying and understanding the key issues for both reviews
- inviting SCA to make a submission to the review on issues related to its operating licence and its pricing proposals; 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[5]

5 SCA's submission was received on 19 September 2011.

- inviting interested parties to make submissions in response to our issues paper and SCA's submission[6]
- holding a joint public workshop on 17 November 2011 to provide stakeholders with an additional opportunity to express their views
- engaging an independent consultant, Halcrow, to review SCA's operating and capital expenditure and asset management, and to gather and assess inputs to support our cost-benefit analysis of proposed changes to SCA's operating licence.

Our issues paper, SCA's submission, Halcrow's report, stakeholder submissions and the transcript from the public workshop are on IPART's website <www.ipart.nsw.gov.au>.

We are now seeking submissions in response to this draft report and determination. We will consider all matters raised before we make our final determination in June 2012. The new charges are expected to apply from 1 July 2012. The remaining milestones of this review are shown in Table 2.1. For the operating licence review, the Governor will grant the operating licence by June 2012.

Table 2.1 Timetable for finalising this review

Task	Date
Release draft report and determination	16 March 2012
Receive submissions in response to draft	13 April 2012
Release final determination	June 2012
New prices to apply	1 July 2012

2.3 Matters considered

We are empowered to review and make determinations on the prices SCA charges for its water supply services under the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act) – see Appendix A. Section 15 of this Act requires us to consider a broad range of matters when making price determinations. These matters include:

- **Consumer protection –** the protection of consumers from abuses of monopoly power; the quality, reliability and safety standards of the services concerned; and the social impact of pricing decisions and their effect on inflation.
- **Economic efficiency –** the need for greater efficiency in the supply of services; the need to promote competition; and considerations of 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.

6 A total of 6 written submissions were received from other interested parties.

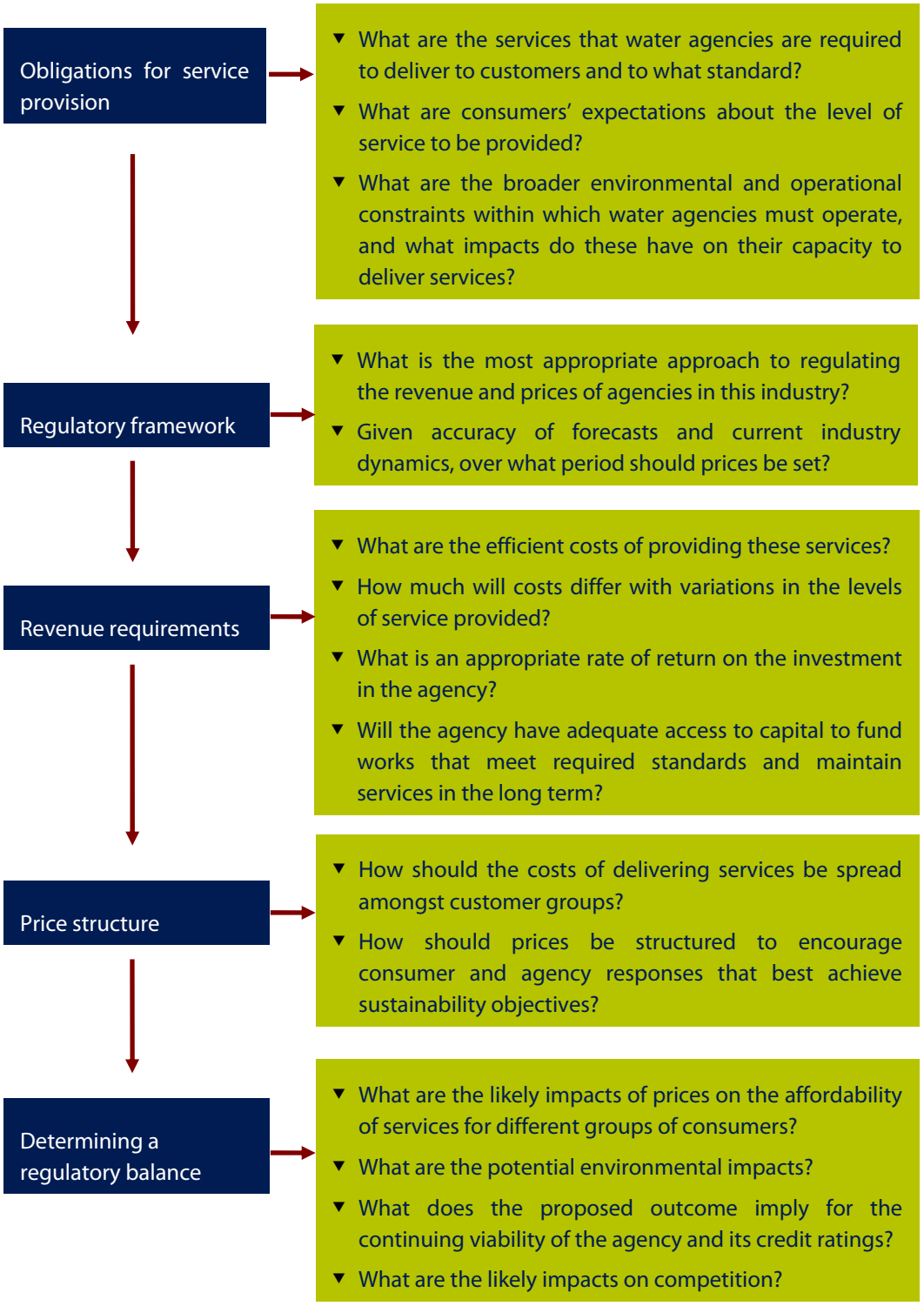
- **Environmental protection –** the need to maintain ecologically sustainable development through appropriate pricing policies.

In considering these matters, we aim to balance the diverse needs and interests of stakeholders, while also ensuring that SCA is adequately recompensed for the services it provides. We also take into account the principles issued by the Council of Australian Governments and contained in the National Water Initiative.[7]

Because of the numerous complex and sometimes conflicting requirements that need to be addressed, we follow a determination process that provides a framework to efficiently deal with these requirements. The process is shown in Figure 2.1.

[7] The National Water Initiative is built on the principles established in the 1994 COAG Water Reform Framework.

Figure 2.1 IPART's determination process



2.4 SCA's operations

SCA was established under the *Sydney Water Catchment Management Act 1998* (NSW) (the Act). SCA's role is to manage and protect the water catchment areas and infrastructure under its control, and to supply raw water of sufficient quality to Sydney Water and several smaller customers. Box 2.1 outlines SCA's 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 follows:

- 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 public safety, and the protection of the environment
- to ensure that water supplied by SCA complies with appropriate standards of quality
- where SCA's activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development, contained in section 6(2) of the *Protection of the Environment Administration Act 1991*
- to manage the SCA's catchment infrastructure works efficiently and economically, and in accordance with sound commercial principles.[a]

[a] *Sydney Water Catchment Management Act 1998*, Section 14(1).

2.4.1 SCA's customers

Once supplied with water, SCA's customers manage the water and distribute it to households, businesses and other users. SCA's water supply system is the source of drinking water for more than 4 million people – about 60% of NSW's population. Sydney Water currently uses about 99% of SCA's water supply. SCA's other customers include Wingecarribee Shire Council, Goulburn Mulwaree Council and Shoalhaven City Council, as well as around 65 smaller bulk raw water and unfiltered[8] water retail customers who have direct off-takes from pipelines, canals and storages.

8 Unfiltered water is water that has been treated for quality, whether by chemical treatment or otherwise (eg, source selection), but not treated at a water filtration plant.

Goulburn Mulwaree Council is a new customer since the 2009 Determination. In November 2010, the then NSW Department of Planning[9] approved plans to build a pipeline from SCA's Wingecarribee Reservoir to Goulburn, to supply the Goulburn community with up to 7.5ML of water per day in times of drought.[10] The total cost of the 80km pipeline[11] is estimated to be $50 million, with the NSW Government and the Australian Government's Water Fund each contributing $20 million, and the Goulburn Mulwaree Council liable for the remaining $10 million.[12] Construction of the pipeline was completed in October 2011.

In addition to its obligations in relation to these water customers, SCA is required to release water to the environment in accordance with the Water Sharing Plan (which has superseded the water management licence for this purpose from 1 July 2011).

2.4.2 SCA's water supply system

SCA's 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 water from 5 primary catchments: Blue Mountains, Shoalhaven, Warragamba, Woronora and Upper Nepean. These catchments, and hence SCA's area of operations, cover around 16,000km^2.[13] This includes 3,700km^2 of 'special areas', which comprise bushland surrounding SCA's storages.[14] Special areas act as a buffer zone by stopping potentially harmful substances from entering the storages through restricting or prohibiting public access.

SCA uses a multi-barrier approach to carry out its catchment management functions and protect water supplies. This involves:

- protecting the quality of water entering the storages by monitoring and influencing activities and land condition in the outer catchments. This includes regulating development in the catchment and monitoring activities that can pollute the catchment
- improving the quality of water entering the storages by restricting access to the water, to protect and manage inner catchment lands (special areas) surrounding the storages
- optimising water distribution among its storages and managing these storages
- optimising water quality by selecting the best quality water from different dams and, within the relevant dam, selecting the best quality of water

9 NSW Government, *Approval for $54 million water pipeline*, Media Release, 16 November 2010, available on the Department of Planning and Infrastructure website: www.planning.nsw.gov.au

10 http://www.highlandsourceproject.com.au/uploads/ufiles/Factsheets/Fact_Sheet_1_-_Introduction.pdf , accessed 21 June 2011.

11 Ibid.

12 http://www.highlandsourceproject.com.au/, accessed 22 June 2011.

13 SCA, *Healthy Catchments Strategy 2009–2012*, p 2. http://www.sca.nsw.gov.au/the-catchments/healthy-catchments-strategy-2009_2012, accessed 8 March 2012.

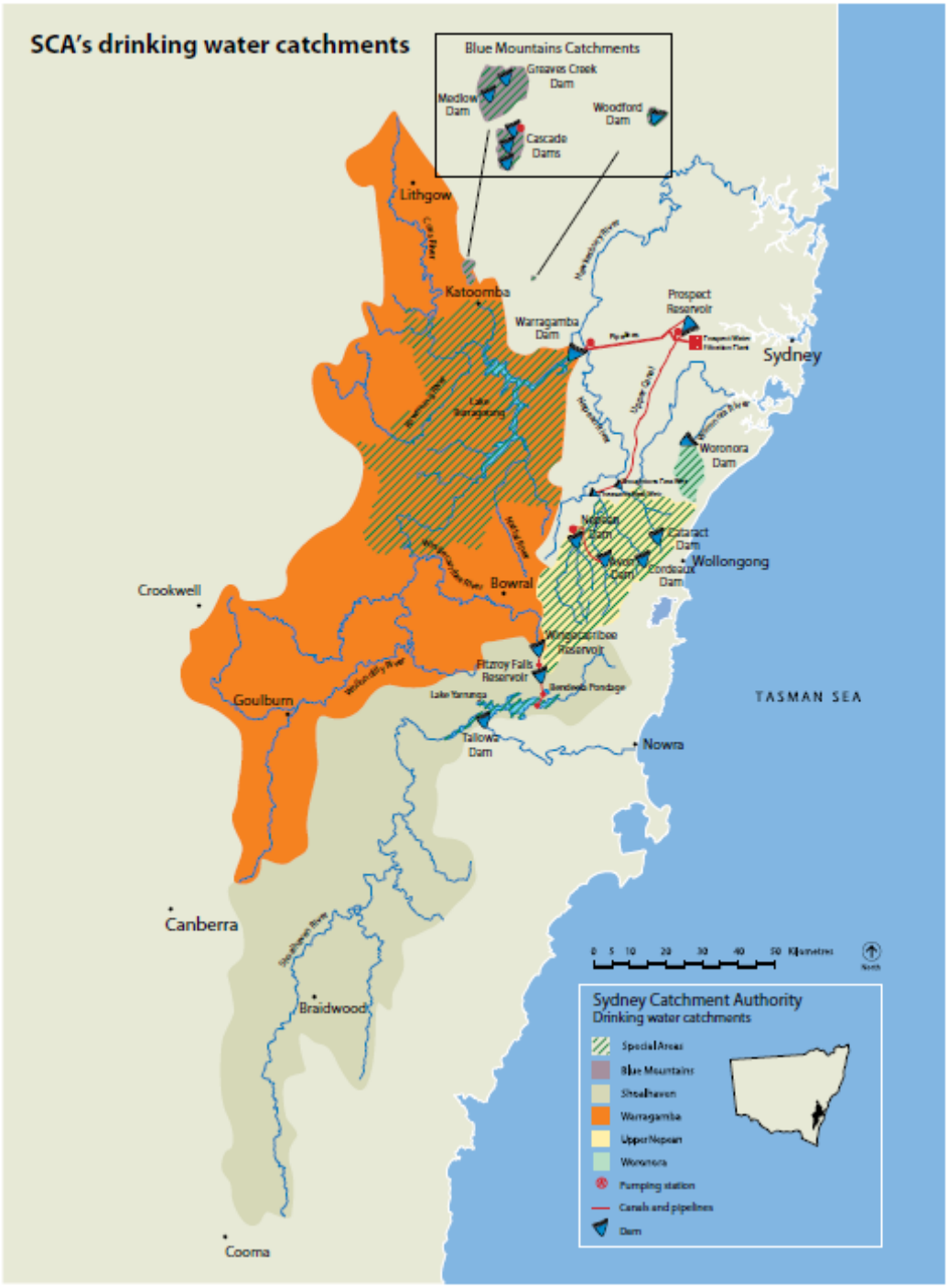
14 http://www.sca.nsw.gov.au/the-catchments/special-areas, accessed 22 June 2011.

- using comprehensive water-quality monitoring programs.[15]

Figure 2.2 shows the catchment area extends from the headwaters of the Coxs River north of Lithgow to the Shoalhaven River south of Braidwood. A schematic representation of the water storages and infrastructure under SCA's control is shown in Figure 2.3. SCA's water balance, which lists its inflows and outflows, is provided in Appendix B.

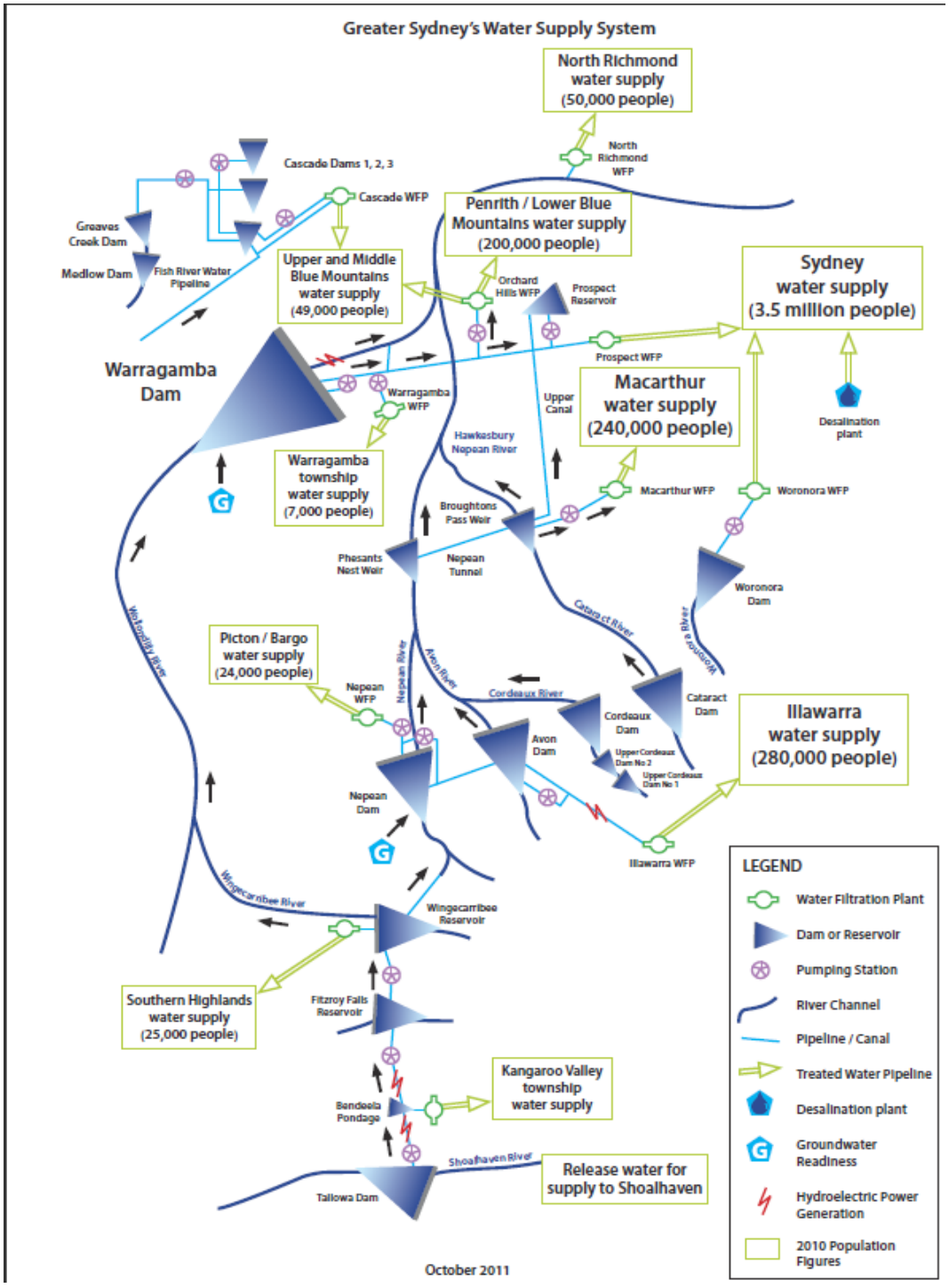
15 As advised by SCA.

Figure 2.2 SCA's catchment and special areas



Source: SCA, *Annual Report 2010–11*, www.sca.nsw.gov.au/publications.

Figure 2.3 SCA schematic of water supply infrastructure and operational control



Note: SCA infrastructure only includes infrastructure upstream of water filtration plants (WFP). Other infrastructure is controlled by organisations other than SCA. The desalination plant is owned by a subsidiary of Sydney Water, Sydney Desalination Plant Pty Ltd.

Source: http://www.sca.nsw.gov.au/publications/publications/water-supply-diagram, accessed 8 March 2012.

2.5 Regulatory framework

IPART is only one of SCA's regulators. As already mentioned, SCA is governed by the *Sydney Water Catchment Management Act 1998* (the Act), as well as other regulatory instruments relating to water quality, dam safety, natural resource management and environmental protection.

Key aspects of SCA's regulatory framework are discussed below. Box 2.2 summarises SCA's regulatory context.

Box 2.2 SCA's regulatory context

- **IPART**, which is responsible for setting the maximum prices that SCA can charge for the provision of water supply services to Sydney Water and other customers. IPART also recommends any operating licence amendments to the Minister for Primary Industries and is responsible for monitoring and reporting compliance with the operating licence. IPART also coordinates the NSW component of the national benchmarking project for major urban water utilities, including SCA. The benchmarking project involves the collection and audit of various performance, customer service and financial data, with the combined results forwarded to the National Water Commission.[a]
- The **Department of Primary Industries**, which includes:
  - **NSW Office of Water (NOW)**, which has primary responsibility for the management of water resources throughout NSW. From 1 July 2011, under the Greater Metropolitan Water Sharing Plan, SCA's existing water management licence was replaced with water access licences detailing water entitlements and works approvals for management of the infrastructure that stores and releases water.[b]
  - **Fishing and Aquaculture**, which has imposed requirements on SCA (under the *Fisheries Management Act 1994*) to install infrastructure enabling fish to migrate along river systems within the catchment area.
  - **Dam Safety Committee**, which is responsible for formulating measures to ensure the safety of dams, and maintaining surveillance of 'prescribed dams' (which include those under the management of SCA). This function is conducted under the *Dams Safety Act 1978*. Under the *Mining Act 1992*, the Dam Safety Committee has statutory functions, through advice to the responsible minister, in determining the type and extent of mining allowed near prescribed dams and their storages.[c]
- **NSW Health and the Environment Protection Authority (EPA)** each have a Memorandum of Understanding (MoU) with SCA, as required by section 36 of the Act. The requirements of each MoU are defined in SCA's operating licence. The MoU with NSW Health deals with water-quality standards and public health, and the MoU with EPA relates to environmental protection. In recent years, the Office of Environment and Heritage (OEH) has also been appointed by the Minister to undertake audits of Sydney's drinking water catchment. These audits are required in accordance with section 42A of the Act.

Notes:

a *National Water Initiative (NWI) Agreement* 2004.

b Email to IPART from SCA, 19 May 2011.

c Dam Safety Committee NSW, *Dam Safety Committee Background, Functions and Operations*, General Guidance Sheets (DSC1A), June 2010, available from www.damsafety.nsw.gov.au.

2.5.1 SCA's operating licence

The Governor grants an operating licence to SCA in accordance with the *Sydney Water Catchment Management Act 1998*.[16] IPART makes recommendations about the granting, amendment or cancellation of the operating licence.[17]

The purpose of the operating licence is to set out the terms and conditions under which SCA should meet the objectives and other requirements imposed on it in the Act, and to ensure that SCA is subject to appropriate performance standards, indicators and reporting requirements.[18]

The current licence started on 8 April 2011 and expires on 30 June 2012.

2.5.2 The catchment audit

The *Sydney Water Catchment Management Act 1998* requires that an audit of the state of the catchment be undertaken every 3 years, and that a report on that audit be submitted to the minister responsible for SCA. The minister is to appoint a public authority or other person to carry out the audit.

The Office of Environment and Heritage (OEH) was nominated to undertake the 2010 audit, covering the period from 1 July 2007 to 30 June 2010. The 2010 audit report is available on the OEH website, www.environment.nsw.gov.au.

2.5.3 Environmental planning instruments

The State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 (SEPP 2011) is a key instrument in SCA's regulatory framework. The SEPP has 3 aims:

- to support healthy water catchments that deliver high-quality water and permit development that supports that goal
- to ensure that consent authorities only allow proposed developments that have a neutral or beneficial effect on water quality
- to support water quality objectives in the Sydney drinking water catchment.[19]

16 Clause 25 of the Act.
17 Clause 30A of the Act.
18 See section 1.1 of SCA's operating licence.
19 Sydney Catchment Authority, http://www.sca.nsw.gov.au/the-catchments/regulating-activity/state-environmental-planning-policy.

2.5.4 Bulk water supply agreements

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

SCA's Bulk Water Supply Agreement 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 Bulk Water Supply Agreement commenced in April 2006 for an unspecified period.[20] The current agreement is being reviewed. The Act requires public consultation during this process – which occurred in December 2010 – and with IPART. IPART is also required to write a report to the relevant minister about the review.

SCA has also finalised Bulk Water Supply Agreements with Shoalhaven City Council and Wingecarribee Shire Council.[21] We expect that SCA will also develop a Bulk Water Supply Agreement with Goulburn Mulwaree Council, in light of the impending start to the operation of the Wingecarribee to Goulburn supply pipeline.

2.5.5 The 2010 Metropolitan Water Plan

The 2010 Metropolitan Water Plan is the NSW Government's strategy for ensuring that Sydney's water supply matches demand over the next 15 years. The plan continues the current rules for the transfer of water from the Shoalhaven River. It identifies major capital projects to be undertaken by SCA, the operating regime for the Sydney Desalination Plant (SDP) and a drought restrictions regime for the metropolitan area. These elements of the plan are explained below.

Shoalhaven transfers by SCA

The Shoalhaven River is an integral part of the water supply system. Since the 1970s, in times of drought, Sydney, the Southern Highlands and the Illawarra region have relied on water pumped from Tallowa Dam on the Shoalhaven River to boost total dam storage and supplement water supplies. Water is transferred using the river system to provide additional water in Warragamba Dam or the Upper Nepean dams.

20 IPART, *Sydney Catchment Authority Operational Audit 2006/07 - Report to the Minister*, Appendix B, *Final Audit Report – Halcrow Pacific Pty Ltd*, December 2007, p 3–5.

21 www.sca.nsw.gov.au/water-quality/bulk-water-supply-agreements, accessed 9 May 2011.

The 2010 Metropolitan Water Plan has continued the current rules for the transfer of water from the Shoalhaven River, namely:

- Transfers from Tallowa Dam begin when Sydney's total dam storage level falls below 75%, but only while the storage level of Tallowa Dam is above its minimum operating level of minus 1m from full supply level.
- In severe drought, the plan allows the minimum operating level for transferring water from Tallowa Dam to Sydney to be reduced to minus 3m from full supply level.
- SCA must cease water transfers from the Shoalhaven system when total system storage reaches 80%.

A 3-year Ministerial moratorium on Shoalhaven transfers expired in November 2011.

The Greater Metropolitan Water Sharing Plan

The Greater Metropolitan Water Sharing Plan commenced on 1 July 2011. Currently Sydney Water draws water for its North Richmond plant from the Hawkesbury River, and pays only water entitlement charges to the NSW Office of Water (NOW). Current extractions for Sydney Water at North Richmond are approximately 7.5GL per year, based on a climatically representative period of 1993–1999. In the plan, an additional 8GL has been allowed for the long-term average extraction limit for consumptive purposes below Warragamba Dam.[22]

The Greater Metropolitan Water Sharing Plan is based on the assumption that extractions will be conditional on equivalent releases from SCA's Warragamba Dam.

Drought restrictions enforced by Sydney Water

In 2010, the NSW Government announced a revised mandatory restrictions regime, made up of 2 levels commencing at around 50% and 40% of Sydney's total dam storage levels. If storages fall below 50%, mandatory restrictions will be imposed. These restrictions will be further tightened should storages fall below 40%.

Sydney's total dam storage level, predicted weather patterns, the season and demand forecasts will influence the exact timing for introducing drought restrictions. Sydney Water's operating licence notes it may place conditions on customers' water use at the discretion of the Minister or the Government.

In times of extreme drought, additional options have been identified in the 2010 Metropolitan Water Plan. These include reducing the allowable drawdown to 3m below Tallowa Dam's full storage to extract more water from the Shoalhaven River (as noted above), accessing groundwater, setting voluntary conservation targets and modifying the rules for environmental flow releases.

22 NSW Office of Water, *Draft Water Sharing Plan, Greater Metropolitan Region unregulated river water sources*, background document, p 44.

Desalination plant operating rules

SDP is a back-up water supply system for Sydney that can provide 90GL per year if required. The plant will operate in line with operating rules set out in the 2010 Metropolitan Water Plan.[23]

SCA's future capital works program

The 2010 Metropolitan Water Plan commits SCA to the following capital works programs.

Rehabilitation/replacement of the Upper Canal

The Upper Canal is a 130-year-old, 64km-long combination of open channels, tunnels and aqueducts that transfer water from SCA's Upper Nepean water storages to Sydney Water's Prospect Reservoir. It can transfer the equivalent of up to 30% of Sydney's water supply.[24] The catchments of the Upper Nepean and Shoalhaven rivers provide more reliable inflows than Warragamba, and with potential climate change, may become even more important to Sydney's water supply. The canal also provides flexibility to change the source or mix of water supplied to Sydney in response to water quality issues, or planned or emergency system maintenance.

Since its construction, urban development has encroached on the canal and presents a significant threat of pollution. The 2010 Metropolitan Water Plan calls for the rehabilitation and/or replacement of the canal, with concept plans to proceed throughout the time of the current plan. SCA has supplied forecast costs up to 2015 for rehabilitation of the canal but the cost of replacement is yet to be finalised.[25]

Environmental flow infrastructure for Warragamba Dam

The 2010 Metropolitan Water Plan commits the NSW Government to making a decision on Hawkesbury River environmental flows in time for the next plan in 2014, with the infrastructure to be implemented by 2018.[26]

23 NSW Office of Water, *2010 Metropolitan Water Plan*, p 36.
24 NSW Office of Water, *2010 Metropolitan Water Plan*, p 24.
25 There is some indication that the cost could reach $1 billion.
26 As advised by SCA, early estimates of the costs of this infrastructure are around $50 million to $100 million.

Upgrades to Shoalhaven transfers

Several options have been considered to transfer more water from Tallowa Dam to Sydney, the Southern Highlands and Illawarra, if required in the future.[27] Some of these options have the benefit of protecting the health of the river system by reducing the use of rivers to transfer water between dams. Based on community feedback, scientific and engineering investigations, and social, economic and cultural heritage assessments, 3 options were shortlisted for transferring more water from Tallowa Dam if required in the future. Further detailed technical investigations of these options were undertaken, with the preferred augmentation option being a tunnel from Burrawang to Avon Dam.

The 2010 Metropolitan Water Plan suggests that infrastructure for transferring water from the Shoalhaven system to Sydney and the Upper Metropolitan Dam system/Illawarra will be constructed to provide more water and replace the current run-of-river process by 2025.[28]

2.6 Overview of SCA's submission to our Issues Paper

SCA provided its pricing submission to IPART in September 2011. As part of this submission, SCA also submitted a commercial-in-confidence information return[29], which outlines in greater detail its proposed operating and capital expenditure programs for the 2012 Determination.

We base our summary of SCA's pricing proposal on SCA's information return, which in areas differs slightly to the written submission. We have converted all SCA's figures to 2011/12 dollars for ease of comparison across determination periods.[30] In doing so, we apply our forecast inflation rate, which differs slightly to that submitted by SCA.

27 As a result of climate change, the Sydney Climate Change Study (NSW Office of Water, Climate change and its impact on water supply demand in Sydney, summary report) concludes that the role of SCA's Shoalhaven and metropolitan/coastal dams is likely to increase as its inland catchments get drier.

28 The Centre for International Economics expects the project to cost around $500 million (CIE, *Cost Effectiveness Analysis – 2010 Sydney Metropolitan Water Plan*, prepared by NSW Office of Water, April 2010, p 66).

29 Such an information return is generally not a public document but is subject to the *Government Information (Public Access) Act 2009*.

30 SCA presents expenditure over the 2009 Determination in 2008/09 dollars, as requested by IPART. Projected expenditure in SCA's information return over the 2012 Determination is reported in dollars of the day.

We have also converted SCA's submission to a post-tax WACC basis so it can be easily compared to our draft decisions. We make this conversion as a result of our decision to change our approach to the incorporation of company taxation in price determinations since the release of our Issues Paper. We explain our decision to move to a post-tax WACC framework in Chapter 3 and in our final report on this review, released in December 2011.[31]

2.6.1 SCA's review of the 2009 determination period

Relative to forecasts made for the 2009 Determination, SCA reports that it has experienced over the current price path:

- a revenue shortfall of $27 million
- lower than forecast operating expenditure of $10 million
- lower than forecast capital expenditure of $38 million.

SCA reports a revenue shortfall of $27 million over the current regulatory period as a result of lower than forecast water sales of about 7% over the determination period.[32] SCA notes that the revenue shortfall is proportionately less than the reduction in sales because of its 40% fixed charge revenue component to Sydney Water.

Actual water sales to SCA's customers are compared to the forecasts adopted by IPART for the 2009 Determination in Table 2.2. SCA notes that the shortfall in sales extended beyond the lifting of water restrictions in Sydney at the beginning of 2009/10. According to SCA, the failure of demand to rebound may be related to the persistence of water management practices from the drought, combined with a price effect on demand from the increases in retail price over the past few years.[33] SCA expects forecasts of water sales will be more accurate for the 2012 Determination, given Sydney Water's new forecasting methodology. IPART has accepted this methodology as more accurate.[34]

Table 2.2 SCA total water sales (ML)

	2009/10	2010/11	2011/12 (forecast)	Total
IPART forecast water sales[a]	502,080	453,422	442,957	1,398,459
Actual water sales	482,169	416,944	397,673	1,299,943
% below forecast	(4.0%)	(8.0%)	(10.2%)	(7.0%)

a Forecast adopted by IPART for the 2009 Determination.

Source: SCA submission, 17 November 2011, p 37 (percentages calculated by IPART).

31 IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011, http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/Company_Tax/The_incorporation_of_company_tax_in_price_determinations.

32 SCA submission, 17 September 2011, p 38.

33 SCA submission, 17 September 2011, p 37.

34 IPART, Sydney Water 2012 Draft Determination, Chapter 7.

SCA reports its operating expenditure in the period 2009/10 to 2011/12 to be $10 million (4.2%) less than the allowance provided in the 2009 Determination. SCA attributes most of the reduction in operating expenditure to organisational change, which has led to lower employee-related costs.[35]

SCA expects operating expenditure for 2011/12 to be on target at about $87 million.[36] This would indicate that SCA has achieved its commitment of reducing base operating expenditure in real terms, which we estimate to be about 3.6% over the price path (ie, from the approved $90.3 million in the 2005 Determination to $87 million by the end of the 2009 Determination).[37]

We note that SCA's reported operating expenditure for 2011/12 is about $89.4 million when unregulated income is included (ie, not deducted out of operating expenditure). This indicates operating expenditure is above target by 2.7%. However, over the 3-year price path, we estimate SCA to be about $2.8 million under target or 1.1% under its allowance.

In relation to capital investment, SCA reports that it spent $38 million (27.8%) less over the 2009 determination period than IPART allowed. This mainly relates to SCA's decision to defer expenditure on the replacement of the Upper Canal ($30 million). SCA notes that the Upper Canal will be subject to further investigation to fit within the NSW Government's broader infrastructure priorities. The other large project that has not progressed as planned is the upgrade works for the Bendeela Camping Ground ($2.9 million).[38]

We note that SCA's underspend in operating and capital expenditure offsets at least $10 million of the $27 million under-recovery of revenue reported for the 2009 determination period.

SCA considers that it has delivered on its core responsibility of supplying quality water suitable for treatment. Over 2009 determination period, SCA reports to have[39]:

- provided an uninterrupted supply of water to its customers
- met health-related compliance with the Australian Drinking Water Guidelines, despite supplying raw rather than drinking water

35 SCA notes that the number of employees on a full-time equivalent basis has been reduced from 290 in 2008 to 250 over the past 3 years, while salary increases of 4% for the first 2 years of the price path have been absorbed. SCA submission, 17 September 2011, p 39.

36 SCA submission, 17 September 2011, p 41. We have converted the $80 million allowance to 2011/12 dollars.

37 To calculate the efficiency saving on a comparable basis we have excluded Shoalhaven pumping costs from the 2008/09 operating cost allowance established in the 2005 Determination, given the moratorium on Shoalhaven transfers over the 2009 Determination period and therefore an absence of these costs. IPART, *Review of prices for the SCA from 1 July 2009 to 30 June 2012*, June 2009, p 50.

38 SCA submission, 17 September 2011, p 44.

39 SCA submission, 17 September 2011, p 5.

- complied with both the NSW Dams Safety Committee requirements and the Australian National Committee on large dams guidelines.

SCA reports that a significant outcome over the 2009 determination period was the development and implementation of the first Healthy Catchments Strategy, which integrated its regulatory approach and actions in the catchment into the one strategy.

2.6.2 SCA's pricing proposal for the 2012 determination period

SCA proposes to maintain core operating expenditure at 2008/09 levels over the 2012 determination period through further efficiency savings. We estimate this to be equivalent to $89.2 million per year in 2011/12 dollars, which according to SCA absorbs the $1 million per year increase in licence fees from IPART's most recent determination for the NSW Office of Water (NOW).[40]

Two key drivers for SCA's expenditure over the next 5 to 10 years are water quality and catchment management. SCA proposes annual expenditure of around $7 million in the collection and laboratory analysis of samples for its Water Monitoring Program.[41] SCA also proposes expenditure of about $19.6 million per year on catchment activity. SCA is developing the Healthy Catchments Strategy for 2012–2016, which will outline the risks and priorities for actions that underpin its investment in protecting the catchment.[42]

SCA's operating expenditure includes a proposed yearly deduction of $0.4 million to share the benefits of its unregulated income with water consumers.[43] We estimate this deduction translates to about 20% of SCA's expected annual unregulated income over the 2012 determination period.[44]

In addition to the $89.2 million core operating expenditure, SCA seeks to include[45]:

- $2 million per year for a proposed self-insurance scheme premium to cover the expected costs of transferring water from the Shoalhaven River
- $1.8 million per year to cover carbon costs as a result of the Australian Government's legislated carbon price scheme commencing 1 July 2012.

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40 SCA submission, 17 September 2011, p 51.

41 SCA reports that it will maintain a robust Water Monitoring Program for both quantity and quality over the 2012 Determination. This program was reviewed in the current price path against the SCA/Sydney Water/NSW Health Catchment to Tap risk assessment. SCA submission, 17 September 2011, p 53.

42 SCA submission, 17 September 2011, p 52-53.

43 SCA submission, 17 September 2011, p 39.

44 In the 2009 Determination, we deducted 50% of SCA's expected unregulated income from the notional revenue requirement to pass some of the benefits on to customers (via lower prices), while providing SCA with enough incentive to pursue these opportunities.

45 SCA submission, 17 September 2011, p 54–55.

With these additional expenses, we estimate SCA's proposed operating expenditure to be $93 million in 2012/13. This represents an increase of 4.1% from the $89.4 million[46] reported for 2011/12.

SCA proposes a capital expenditure program of $146.2 million over the 4-year price path.[47] SCA reports that its capital expenditure continues to be dominated by work required to meet mandatory standards, particularly dam safety work.[48] However, there is a significant resource management expense in the fourth year of the price path, in relation to SCA's expectation of the Warragamba Dam environmental flows project commencing.

We note that SCA's forecast capital expenditure program is slightly larger than its program for 2008/09 to 2011/12. SCA's submission indicates it proposes to spend an average of $36.6 million per year over the 2012 determination period, compared to an average actual expenditure of $33.2 million per year over the 2009 determination period. We also note that SCA did not propose output measures for the coming price path.[49]

As part of our new approach to company tax, we converted SCA's proposed pre-tax WACC to 6.0% on a real, post-tax basis. SCA's projected revenue increases slightly in real terms over the 4-year period under a real post-tax WACC (Table 2.3). SCA's projected revenue is lower on a post-tax WACC basis than on a pre-tax WACC basis in its submission, due in large part to the lower, more commercially realistic estimate of company tax.

Table 2.3 SCA proposed revenue requirement – post-tax WACC 6.0%[a] ($ million, $2011/12)

	2011/12[b]	2012/13	2013/14	2014/15	2015/16
Operating costs[c]	99.6	93.0	92.6	92.6	92.7
Depreciation	24.4	22.7	23.2	23.7	24.4
Return on assets	78.7	81.8	82.2	82.7	83.5
Return on working capital		0.8	0.8	0.8	0.8
Tax allowance	n/a	3.6	3.8	4.0	4.0
Notional revenue requirement	202.7	201.9	202.6	203.8	205.5

a SCA's 7.0% pre-tax WACC submission converts to approximately 6.0% post-tax WACC.

b This is SCA's forecast revenue for 2011/12. It is taken from SCA submission, 17 September 2011, p 57.

c Operating costs include proposed carbon costs, which were shown separately in SCA's submission.

Source: Based on SCA submission, 17 November 2011, p 57. We have converted SCA's submission from a pre-tax to a post-tax WACC basis. We have also re-indexed SCA's submission using IPART's forecast inflation rate.

46 We exclude $10.2 million for the Accelerated Sewage Program from SCA's 2011/12 operating expenditure for comparative purposes, as this project does not continue through to the new price path.

47 SCA submission, 17 September 2011, p 8.

48 SCA submission, 17 September 2011, p 49.

49 We asked SCA to provide a list of capital projects or activities that it plans to undertake over the upcoming determination period. IPART Issues Paper, June 2011, p 54.

SCA's pricing approach to the upcoming price path is driven by changes in its operating environment and possible continuing volatility in water demand.[50] In particular, SCA considers that it could be exposed to a significant loss in revenue from the uncertain operating regime of the SDP.[51] That is, SCA foregoes water sales to Sydney Water when the plant operates, which leads to revenue loss. The operation of SDP is difficult to predict over the 2012 determination period as it depends on dam storage levels.[52]

Accordingly, SCA is seeking to change its price structure for the 2012 determination period from the current 40:60 fixed-to-variable ratio to an 80:20 fixed-to-variable ratio.[53] The volumetric charge under the 80:20 price split reflects SCA's short-run operating costs (based on the cost of pumping from the Shoalhaven), and the fixed charge recovers any revenue shortfall. SCA considers this pricing arrangement to sufficiently protect it from downside revenue risk and minimise over-recovery, should water sales be higher than forecast.

In addition to changing the price structure, SCA proposes that its volumetric price to Sydney Water be based on demand projections that assume SDP is operating at full capacity for the entire 2012 determination period.[54] We note that this assumption has an upward impact on Sydney Water's volumetric charge, as it assumes a reduced annual demand for SCA's dam water of 90GL.

SCA's proposed charges to Sydney Water on a post-tax WACC basis are presented in Table 2.4. We note that they remain constant in real terms over the determination period. As noted by SCA, the proposed charges to Sydney Water have a negligible impact on Sydney Water's customers. We estimate SCA's proposed charges to decrease a typical residential water household bill by about $0.07 per year, relative to the schedule of charges set in the 2008 Determination of Sydney Water's prices.

Table 2.4 SCA proposed charges to Sydney Water – post-tax WACC 6.0% ($2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Volumetric charge ($/ML)	284.38	100.81	100.64	100.72	100.60
Annual % change			-0.2%	0.1%	-0.1%
Fixed charge ($million p.a.)	86.0	160.3	160.9	161.9	163.1
Annual % change			0.4%	0.6%	0.8%

Note: Prices under a post-tax WACC, comparable to SCA submission, 17 November 2011, p 64.

50 SCA submission, 17 September 2011, p 7.
51 SCA submission, 17 September 2011, p 61.
52 After 1 July 2012, under the NSW Government's 2010 Metropolitan Water Plan, SDP is to commence operating when Sydney's total dam storage levels fall to 70% and continue operating until the total dam storage levels reaches 80%.
53 SCA submission, 17 September 2011, p 61.
54 SCA submission, 17 September 2011, p 60.

For its 3 local council customers, SCA is proposing to move to a 25:75 split between fixed and volumetric charge from the current 100% volumetric charge. The proposed change in price structure was established in consultation with the councils. In setting council prices, SCA has also derived costs for each council based on their usage share of SCA's assets. SCA's proposed charges to the 3 local councils are presented in Table 2.5.

Table 2.5 SCA proposed charges to local council customers ($2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Volumetric charge for all 3 councils ($/ML)	268.87	201.65	201.65	201.65	201.65
Fixed charge to each council ($/month)					
Wingecarribee Shire Council		22,966	22,966	22,966	22,966
Shoalhaven City Council		560	560	560	560
Goulburn Mulwaree Council		2,801	2,801	2,801	2,801

Source: SCA submission, 17 September 2011, p 65.

SCA proposes no change to its charges to bulk raw and unfiltered water customers for the 2012 Determination (Table 2.6).

Table 2.6 SCA's proposed charges to bulk raw and unfiltered water customers ($2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Volumetric price for bulk raw water ($/kL)	0.63	0.63	0.63	0.63	0.63
Volumetric price for unfiltered water ($/kL)	1.08	1.08	1.08	1.08	1.08
Fixed charge to unfiltered water customers – for 20mm meters ($/month)	96.0	96.0	96.0	96.0	96.0
Fixed charge to unfiltered water customers – for meter size > 20mm ($)	(Meter size)^2 x 20mm fixed charge/ 400	(Meter size)^2 x 20mm fixed charge/ 400	(Meter size)^2 x 20mm fixed charge/ 400	(Meter size)^2 x 20mm fixed charge/ 400	(Meter size)^2 x 20mm fixed charge/ 400

Source: SCA submission, 20 October 2011, amended price list.

3 IPART's price setting approach

In this chapter we outline our price setting approach, including the rules and methodologies we use to determine draft prices for SCA's regulated services over the 2012 determination period.

We use the same broad approach as in past determinations to calculate SCA's notional revenue requirement and convert this revenue requirement into prices. We have also decided to introduce a more accurate and commercially based tax allowance as a discrete building block, and to use a post-tax WACC.

We have made a draft decision to adopt a 4-year determination period, from 1 July 2012 to 30 June 2016. 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. We have made a draft decision to require SCA to report on progress against 9 output measures.

We have changed the SCA's price structure to its largest customer, Sydney Water, to an 80:20 split between the percentage of revenue recovered through fixed charges and the percentage recovered through variable charges. We have also introduced a price with different volumetric charges that apply when the Sydney Desalination Plant (SDP) is operating and when it is in shutdown or restart modes.

We have also changed the basis of prices to local councils in the 2012 Determination to a 25:75 split between the fixed and volumetric charge. We have maintained price structures to smaller customers.

We set the level of draft prices to all SCA's customers after considering stakeholder submissions. We aim to balance several objectives, including ensuring SCA's financial viability, encouraging economic efficiency and protecting water consumers from price shocks. We have decided not to introduce scarcity pricing for SCA at this time.

The following sections discuss our price setting approach and draft decisions in more detail.

3.1 Length of the determination period

Draft decision

1 Our draft decision is to adopt a 4-year determination period from 1 July 2012 to 30 June 2016 (2012 determination period).

SCA's prices are a key input to Sydney Water costs. Therefore, we have decided to align SCA's determination period with that of Sydney Water, with a 4-year price determination period (or price path).

SCA considers that a 4-year price path provides the right balance between a stable and certain operating environment and sufficient flexibility for the SCA to be able to respond to changes in the water industry. SCA also prefers its price path to be aligned with that of Sydney Water to minimise regulatory uncertainty for both entities.[55] Sydney Water expressed support for SCA's proposed 4-year determination period for similar reasons.[56]

We also considered whether the price determination period should coincide with the period of SCA's next operating licence. If there were strong benefits from aligning the term of SCA's price determination and operating licence, this may be a relevant factor. However, we have concluded that links between SCA's operating licence and prices can be made without the need to align the term of the operating licence and the price determination.

3.2 Approach for determining the notional revenue requirement

As with previous determinations, we used the building block approach to calculate SCA's notional revenue requirement in each year of the 2012 determination period. To apply this approach, we made draft decisions on the revenue SCA will require for efficient operating expenditure and capital investment over the 2012 determination period.

We consider 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 us to create incentives for the regulated business to improve its economic efficiency over the determination period. In addition, it is consistent with the approach we use in regulating other water businesses and industries in NSW.

In December 2011, after consultation, we decided to calculate a more accurate and commercially based tax allowance as a discrete building block, and to use a post-tax WACC.[57] Our previous approach used a pre-tax WACC with an assumed statutory tax rate. In most cases, this overstated the tax that would be paid by a comparable

55 SCA submission, 17 September 2011, p 46.
56 SCA public workshop transcript, 17 November 2011, p 83.
57 IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011.

commercial business. In this Draft Determination, the amount allowed for tax is lower than the amount SCA expects to pay, primarily because SCA's actual gearing and interest expense is lower than the benchmarks used for the WACC.

The 2012 Determinations for SCA's and Sydney Water's prices is the first time we have implemented our changed approach to tax. SCA's submission was on a real pre-tax basis as it was made before we changed our tax policy. All figures in this report are shown on a real post-tax basis, and Appendix D provides notional revenue and prices on a real pre-tax basis.

We have also changed our approach to the debt margin used to determine the WACC so there is a larger sample size of market observations used to calculate the margin. This will reduce the impact of current market volatility. We are seeking feedback on this approach. Appendix E explains our changes.

Chapter 4 provides a more detailed explanation of the building block approach and outlines our draft decisions on each building block.

3.3 Approach for converting the notional revenue requirement into prices

Our general approach to pricing for metropolitan water utilities is to set a combination of periodic fixed and volumetric charges. To convert SCA's notional revenue requirement into prices for SCA's customers, we considered a range of matters identified in Section 15 of the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) (IPART Act) (Appendix A), including:

- SCA's forecast water sales over the 2012 determination period. In particular, we gave consideration to the likelihood of the SDP operating and its impact on SCA sales volumes to Sydney Water
- the purpose of SCA prices and the incentives they create, taking into account the current water demand/supply balance and principles of economic efficiency
- SCA's short- and long-term financial viability
- the resulting distribution of sales risk between SCA and its customers
- the transparency and administrative complexity of the prices
- the level of prices and impacts on end-use customers, in particular average household water bills.

3.3.1 Forecast water sales

Forecast water sales form the basis of the volumetric charges set for SCA's customers. If water sales forecasts are understated then customers may pay prices that are higher than needed; if water sales forecasts are overstated then SCA may not receive enough revenue to cover its costs.

Forecasting SCA's water sales to Sydney Water is more difficult for this Draft Determination, as the 2010 Metropolitan Water Plan specifies that SDP will operate at full capacity when total dam storage levels fall below 70% and continue until storage levels reach 80%. SDP has the capacity to supply up to 90GL to meet Sydney's annual water needs.

We have decided to introduce a price with a different volumetric charge that applies to Sydney Water when SDP is operating and when it is not (see section 3.3.2). The difference in prices compensates SCA for reduced sales when SDP operates (ie, up to 90GL per year), and ensures that customers pay no more than necessary.

We have made a draft decision to adopt sales forecasts to Sydney Water that are consistent with the sales forecasts used in our Draft Determination of Sydney Water's maximum prices from 1 July 2012. We subtract 90GL from these sales forecasts to establish SCA's volumetric price to Sydney Water when SDP is operating or assumed to be "on". Our sales forecasts also include estimates of SCA releases for Sydney Water's extraction at North Richmond.

To set prices for SCA's other customers, we have made a draft decision to adopt SCA's sales forecasts to these customers. We note that over the 2009 determination period, SCA's sales forecasts to local councils were overestimated. The move to fully distributed cost pricing for local councils will require more precision in setting these forecasts.

Our considerations and draft decision on forecast water sales are discussed in Chapter 8.

3.3.2 Price structure

Basis of prices to Sydney Water

Draft decision

2 IPART's draft decision is to set the basis of SCA's prices to Sydney Water by:

- introducing a price structure with volumetric charges that differ depending on whether SDP is operating or whether it is shutdown or restarted
- adopting a price structure that reflects an 80:20 split between the fixed and volumetric charges.

Implicit in SCA's forecast sales to Sydney Water is the assumption that SDP operates at full capacity over the entire determination period.[58] This sales forecast assumption would have an upward impact on SCA's volumetric charge to Sydney Water, as a higher price would be needed to offset reduced annual sales of 90GL and recover

58 SCA submission, 17 September 2011, p 60.

SCA's required revenue. Stakeholder submissions[59] propose annual adjustments to SCA's prices to manage any over-recovery of revenue should SDP not run at full capacity as assumed by SCA.

Instead of locking in an assumption regarding the operation of SDP over the entire determination period as proposed by SCA, we have decided to set one price to account for lower water sales when SDP is "on" and another price when SDP is "off". The difference in prices compensates SCA for any foregone sales arising from the operation of SDP and ensures that customers do not pay more than what is necessary.

We consider the SDP price schedule to be administratively feasible, given that variations in SCA's prices would apply to only one large customer – Sydney Water. In addition, the price schedule has only 2 categories that would change infrequently. SCA has confirmed that the price schedule can be implemented without significant changes to its current billing arrangements with Sydney Water.[60]

We have also changed the structure of SCA's prices to Sydney Water from a 40:60 split between the percentage of revenue recovered through fixed charges and the percentage recovered through variable charges in the 2009 Determination to an 80:20 split. The 80:20 price structure is consistent with SCA's proposal and is considered appropriate because it better reflects SCA's underlying cost structure, given that SCA is largely a fixed-cost business. SCA notes in its submission that the volumetric charge under the 80:20 price structure reflects the SCA's short-run operating costs (based on the cost of pumping from the Shoalhaven River), and the fixed charge recovers any revenue shortfall.[61]

The 80:20 price structure reflects the costs of supplying water from SCA's dams. In particular, this price structure is consistent with the way we set SDP's prices for bulk water, in that they too reflect the split between fixed and variable costs.[62] We note that moving to an 80:20 price structure does not affect the structure of prices faced by end-use customers. Sydney Water's retail prices will still reference long-run marginal costs and maintain a conservation message to retail customers.

The 80:20 price structure will also give SCA greater revenue certainty over the 2012 determination period. We consider this pricing structure to minimise the risk of SCA either over- or under-recovering revenue should water sales significantly differ to our forecasts. We discuss our pricing approach and the risks to SCA revenue in greater detail below.

Our draft prices to Sydney Water are presented in Chapter 9.

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59 Sydney Water submission, 26 October 2011, p 2; NSW Government submission, 4 November 2011, p 3.

60 Personal communication with SCA, 29 November 2011.

61 SCA submission, 17 September 2011, p 61.

62 SDP's fixed charge under all modes of operation recovers the return on and of capital, which is the largest component of SDP's revenue requirement. IPART, *SDP 2012 Determination*, December 2011.

Basis of prices for releases for North Richmond

Draft decision

3 IPART's draft decision is not to set a separate price for SCA's water releases for North Richmond, but to apply the volumetric charge to Sydney Water to these releases.

SCA is required to release water for Sydney Water's North Richmond plant under the Greater Metropolitan Water Sharing Plan, which commenced on 1 July 2011. This decision effectively incorporates North Richmond in SCA's network of regulated supply over the 2012 determination period. In our Issues Paper we noted that we need to consider how to price SCA's releases for North Richmond.[63]

SCA considers the cost of supplying North Richmond identical to that of supplying Sydney Water at the other off-takes in the supply zone, and proposes that[64]:

- the volumetric charge for North Richmond be the same as that applicable to other Metropolitan Sydney off-takes
- no fixed charge be applied to North Richmond as Sydney Water already pays a fixed charge to SCA that covers the costs of the system.

Sydney Water did not comment on SCA's proposal.[65] We consider SCA's proposal to be reasonable and agree that there is no need to set a separate price for North Richmond. We have therefore included the volumes of water expected to be released for North Richmond in setting SCA's volumetric price to Sydney Water (we discuss SCA's forecast releases in Chapter 8).

Basis of prices to local councils

Draft decision

4 IPART's draft decision is to set prices to the 3 local councils using a 25:75 split between the fixed and volumetric charge.

We have made a draft decision to move from a 100% volumetric charge for local councils and to set prices using a 25:75 split between fixed and volumetric charges. The 25:75 split reflects the outcome of consultation between the local councils and SCA. The local councils consider this split to better align with their end-cost structure. The 25% fixed charge is based on the usage share of SCA's assets used to deliver water to local councils.

The fixed-charge component will also serve to mitigate against continued under-recovery of revenue from the local councils, as occurred over the 2009 determination period. The 25:75 price structure reduces possible revenue under-recovery from local councils by 25%.

63 IPART, 2012 SCA Issues Paper, June 2011, p 78.
64 SCA submission, 17 September, p 62.
65 Sydney Water submission, 26 October 2011.

Our draft prices to local councils are presented in Chapter 9.

Basis of prices to bulk raw and unfiltered water customers

Draft decision

5 IPART's draft decision is to maintain a:

- 100% volumetric charge for bulk raw water customers
- fixed availability charge based on meter size and a single volumetric charge for all unfiltered water customers.

SCA conducted analysis on the cost of supplying water to bulk raw and unfiltered water customers. Based on the analysis, over the 2012 determination period SCA proposes to maintain a:

- 100% volumetric charge to bulk raw water customers
- fixed availability charge based on meter size
- single volumetric charge for all unfiltered water customers.

We have made the decision to accept SCA's proposal on the price structure of bulk raw and unfiltered water customers. For unfiltered water customers SCA considered allocating costs of the pipeline assets to the point of supply. However, we agree with SCA that it is more administratively efficient to set one volumetric charge instead of creating a large number of individual prices for small customers. As noted by SCA, maintaining the current price structure for small customers also better aligns these charges to the price structure of the retail network.[66]

Our draft prices to bulk raw and unfiltered water customers are presented in Chapter 9.

3.3.3 Price levels and target revenue

We have set prices so that SCA's target revenue reaches its notional revenue requirement in each year of the determination period. This is consistent with SCA's pricing proposal. In setting the level of prices based on the notional revenue requirement, we considered a range of matters in line with the requirements of the IPART Act including:

- the magnitude of the movements in price required to generate the annual notional revenue requirements, and impacts of these price movements on water customers with varying levels of water consumption
- the implications of these prices 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.

[66] SCA submission, 17 September 2011, p 64.

Our draft target revenues and aggregate pricing approach are shown in Table 3.1. We discuss the pattern of price increases for each of SCA's customers below.

Table 3.1 Target revenues from draft prices for SCA's customers ($million, $2011/12)

	2011/12[a]	2012/13	2013/14	2014/15	2015/16
Sydney Water	**210.3**	**193.1**	**192.9**	**193.5**	**193.6**
year-on-year change (%)		-8.2%	-0.1%	0.3%	0.0%
Local councils	**1.3**	**1.2**	**1.2**	**1.2**	**1.2**
year-on-year change (%)		-3.3%	0.0%	0.0%	0.0%
Bulk raw and unfiltered water customers	**0.1**	**0.3**	**0.3**	**0.3**	**0.3**
year-on-year change (%)		93.8%[b]	0.0%	0.0%	0.0%
Target revenue for SCA	**211.7**	**194.6**	**194.4**	**195.0**	**195.1**
year-on-year change (%)		-8.1%	-0.1%	0.3%	0.0%

a IPART's allowance for 2011/12 reflects the target revenue set in the 2009 Determination rather than the notional revenue.

b Draft prices for bulk raw and unfiltered water customers for the 2012 Determination are the same in real terms as those under the 2009 Determination. Therefore, the year-on-year change in target revenue reflects an increase in forecast sales volumes only.

Note: year-on-year changes may not add up due to rounding errors.

Level of prices to Sydney Water

SCA's draft prices to Sydney Water achieve revenue in 2012/13 that is 8.2% lower than the target established for 2011/12 (Table 3.1). Target revenue remains almost constant in real terms over the remainder of the 2012 determination period. With sales volumes forecast to increase by about 2% over the determination period, the constant target revenue is achieved through a 2% decrease in price levels.

The main reason for the reduction in target revenue, and prices based on those revenues, is our change in approach to the incorporation of company taxation in our determinations. We have recently moved from a pre-tax WACC to a post-tax WACC which calculates a lower, more commercially based tax allowance as a discrete building block. This explains 4.8 percentage points of the 8.2% decrease in the revenue requirement for 2012/13.

In the 2009 Determination, we smoothed price increases in each year, while recovering the same overall revenue. SCA's target revenue for 2011/12 therefore exceeded the notional revenue requirement for that year. This explains the remaining 3.4 percentage points of the 8.2% decrease in target revenue for 2012/13 compared with the 2011/12 allowance.

We did not consider it necessary to smooth prices over the 2012 determination period, given the modest decrease in required revenue the first year of the determination period and the relatively small year-on-year changes thereafter.

We calculate that SCA's indicative credit rating will remain at investment grade. We consider that SCA's draft prices to Sydney Water and its other customers will allow SCA to generate sufficient revenue to operate, maintain and renew its assets, and to carry out its functions in a way that meets its service standards and other obligations. We discuss SCA's financial viability in Chapter 10.

Level of prices to local councils

Draft decision

6 IPART's draft decision is to implement fully distributed cost pricing for the 3 local councils.

In the 2009 Determination we asked SCA to consider allocating cost to the local councils based on their location in SCA's network. The aim was to ensure water charges to local councils move in a consistent manner with Sydney Water. Since the 2005 Determination we have been transitioning SCA's volumetric prices to local councils such that water prices move towards full cost recovery.

In its submission to the 2009 Determination, SCA was unable to provide a robust rationale to support its proposed prices to local councils or to identify costs associated with supplying water to local councils. This resulted in an unquantifiable cross-subsidy between local councils and Sydney Water.

Prior to our review, SCA met with representatives from the 3 local councils and conducted a consultation on price levels, price structure, forecast water sales, cost allocation and pricing methodology.[67] The outcomes of the consultation are reflected in SCA's submission. In its submission, SCA was able to identify the cost of assets used to supply water to the local councils. SCA proposes to allocate these costs to each council based on the council's demand share of the assets used to deliver water to local councils.

We have decided to implement prices based on fully distributed costs and therefore accept SCA's associated costs with supplying water to the 3 local councils. This removes the existing cross-subsidy between the councils and Sydney Water, and results in a 3.3% decrease in target revenue from current levels. We consider this an appropriate time to move to fully distributed cost pricing as it has a minimal impact on the local councils' end-use customers.

To calculate prices for each local council:

- the revenue requirement for each council is the total cost of supplying the 3 local councils multiplied by each council's share of SCA sales to the local councils
- the fixed charge for each council is 25% of the required revenue for that council
- the balance of 75% of the revenue requirement for each council is recovered through the volumetric charge.

[67] SCA submission, 17 September 2011, p 62.

Our draft decisions on price levels for local councils are discussed in Chapter 9.

Level of prices to bulk raw and unfiltered water customers

Draft decision

7 IPART's draft decision is to maintain the current level of prices for bulk raw water and unfiltered water customers.

We have decided to accept the SCA's proposal to maintain prices at current levels. We consider that the current levels of prices achieve an appropriate balance between ensuring bulk raw water and unfiltered water customers adequately contribute to the recovery of SCA's costs.

We also note that over the 2009 determination period prices to these retail customers increased by approximately 18%. However, IPART considered this price rise reasonable and justified, particularly considering SCA's bulk raw and unfiltered water prices have remained essentially unchanged from 2000/01 to 2008/09.

Our draft decisions on price levels for bulk raw and unfiltered water customers are discussed in Chapter 9.

3.3.4 Approach to addressing risks to SCA revenue

Draft decision

8 IPART's draft decision is not to include a mechanism to adjust for any under/over-recovery of revenue due to differences between forecast water consumption used to set prices in the 2012 determination period and actual water consumption in this period.

SCA submits that it faces significant revenue risk over the 2012 determination period from changes in its operating environment over which it has little or no control.[68] Notably, the SCA considers that it is exposed to significant downside revenue risk from the uncertainty over the operation of SDP.[69]

We agree that changes to SCA's operating environment since 2006 have increased revenue risk for SCA (changes are outlined in Chapter 2). In particular, we identify the following sources of revenue volatility for SCA over the 2012 determination period:

- variations between forecast and actual water sales to Sydney Water
- uncertainty over the operation of SDP and its impact on SCA's sales volumes
- uncertainty over future transfers of water from the Shoalhaven system and the impact this has on SCA's operating expenditure

68 SCA submission, 17 September 2011, p 7.
69 SCA submission, 17 September 2011, p 60.

- uncertainty over carbon costs.

We identified different methods of dealing with these sources of revenue risks in our Issues Paper, including changing the fixed-to-variable ratio to recover costs, consumption variation mechanism, revenue volatility allowance and a cost pass-through mechanism.[70]

Our draft pricing decisions remove the need to consider complicated adjustment mechanisms to account for these sources of revenue risk. In particular, we consider that our price schedule and new price structure for SCA's prices to Sydney Water provides SCA with sufficient financial security over the 2012 determination period.

As explained above, we have introduced different prices for SCA's charges to Sydney Water when SDP is "on" and when SDP is "off". This avoids having to make an assumption on the operation of SDP over the 2012 determination period and risk SCA over- or under-recovering revenue. Our price schedule compensates SCA exactly for foregone sales arising from the operation of SDP and fully manages this source of revenue risk.

We note that the price schedule does not mitigate against forecast errors in SCA's base sales to Sydney Water. However, we have also changed the balance of SCA's fixed and volumetric charges to an 80:20 split to better reflect SCA's underlying cost structure. We consider that the increase to the fixed-charge revenue component sufficiently protects SCA against any adverse revenue effects that may arise from lower-than-forecast water sales over the 2012 determination period.

The change in price structure is consistent with SCA's submission, where it proposes an 80:20 split between the fixed and usage charges noting that this price structure would manage revenue risk arising from a more uncertain operating environment.[71] Sydney Water also agrees that the 80:20 price structure is a better representation of SCA costs.[72] It notes that although the 80:20 price structure transfers revenue risk away from SCA and to Sydney Water, it is not a good enough reason not to implement what is a more efficient price structure.[73]

SCA has requested that IPART also include a cost pass-through mechanism in the regulatory framework to account for any unforeseen or uncontrollable costs that may arise over the 2012 determination period.[74] We have made reasonable allowances in SCA's operating expenditure for Shoalhaven pumping costs and carbon costs arising from the Australian Government's carbon pricing mechanism which will commence on 1 July 2012. These are two uncertain costs emphasised by SCA in its submission. Our draft decisions on these uncertain costs are discussed in detail in Chapter 5.

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70 IPART, *Review of the Operating Licence and review of prices for the Sydney Catchment Authority – Issues Paper*, June 2011, pp 64–67.
71 SCA submission, 17 September 2011, p 61.
72 Sydney Water submission, 26 October 2011, p 1.
73 SCA public workshop transcript, 17 November 2011, p 71.
74 SCA submission, 17 September 2011, p 55.

3.4 Approach to scarcity pricing at the wholesale level

Draft decision

9 IPART's draft decision is not to introduce scarcity pricing at the wholesale level for SCA.

We have made a draft decision to not introduce scarcity pricing at the wholesale level, given that many of the objectives of scarcity pricing are currently handled in other ways, most notably through the NSW Government's 2010 Metropolitan Water Plan. We also consider that a scarcity pricing regime for SCA could duplicate water costs to consumers.

Under an administered wholesale scarcity price, SCA's volumetric charge to Sydney Water would be set to vary inversely with storage levels to reflect the availability of dam water, and thus marginal value, under prevailing conditions.[75]

We examined the appropriateness of wholesale scarcity pricing for SCA as a means of encouraging optimal water use and investment in a range of supply sources. In particular, we noted in the Issues Paper that scarcity pricing could potentially:

- help ensure Sydney Water obtains its necessary supply of water from the least cost combination of supply sources
- 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 regarding where and when investment to increase water supplies is required.

However, the benefits of scarcity pricing depend on the institutional arrangements that govern bulk water markets and how it would work in practice. At present most metropolitan water supply planning decisions are made administratively by the NSW Government through its 2010 Metropolitan Water Plan. This includes decisions regarding augmentation of the water supply system, as well as most water-sourcing decisions through prescriptive operating rules.

Stakeholders agree in principle that the objectives of scarcity pricing are currently handled in other ways.[76] SCA engaged Frontier Economics[77] to provide advice on wholesale scarcity pricing in its pricing submission. SCA does not recommend the introduction of scarcity pricing given the relatively low water scarcity in the near to medium term and the limited benefit to scarcity pricing where the signalling effect of prices is negated by fixed water sourcing rules.[78] The NSW Government agrees with

75 The scarcity value of water relates to the value of the opportunity foregone by using water in the present period rather than in the future, and the increased future costs that occur as a consequence of current use (such as higher extraction charges). Productivity Commission, *Australia's Urban Water Sector*, Report No. 55, Final Inquiry Report, Canberra, 2011, p 135.

76 SCA public workshop transcript, 17 November 2011, pp 75–77.

77 Frontier Economics, *Options for scarcity pricing: A final report prepared for Sydney Catchment Authority*, September 2011. Found at Appendix 10 of SCA submission, 17 September 2011, p 93.

78 SCA submission, 17 September 2011, pp 58 and 69.

SCA that scarcity pricing is not warranted at this time, noting that the role of scarcity pricing is fulfilled by the 2010 Metropolitan Water Plan.[79]

We also consider there to be little scope for scarcity pricing within the current operating environment under the 2010 Metropolitan Water Plan because:

- Most water-sourcing decisions are locked in, and thus there is limited flexibility for utilities like Sydney Water to respond to wholesale water prices.
- The portfolio of supply and demand measures is designed to secure greater Sydney's supply of water without need for further augmentation until about 2025.[80] This raises doubt over the link between scarcity pricing and efficient investment in practice.[81]
- The 2010 Metropolitan Water Plan includes a drought response strategy to manage short-term supply–demand imbalances – notably, permanent Water Wise Rules and drought restrictions.

At present, Sydney Water has limited opportunity to respond to the volumetric price set for SCA's dam water because major water sourcing decisions are locked in under the 2010 Metropolitan Water Plan. Most notably, the operation of SDP is determined by specific operating rules, which limits Sydney Water's ability to substitute desalinated water from SDP for SCA's dam water and the role of scarcity pricing.

Greater Sydney's water network is also currently operating to higher reliability and service standards under the 2010 Metropolitan Water Plan.[82] Water supply and demand options, including the operation of SDP, have been modelled as a portfolio to slow depletion rates of dam water and the need to further supplement the water supply system over the medium term. Again, we note that this improved reliability reduces the need for scarcity pricing.

There also appears to be broad community acceptance of water restrictions as a means of managing potential drought. Community consultation as part of the 2010 Metropolitan Water Plan revealed that a majority of respondents felt that drought restrictions did not detract from their quality of life, with only around 5% wanting drought restrictions removed when the drought ended.[83] Surveys of Sydney Water customers show that 85% support the current Water Wise Rules.[84]

79 NSW Government submission, 4 November 2011, p 7.
80 NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 5.
81 Sydney Water, submission to the Productivity Commission's urban water sector inquiry, November 2010, p 15.
82 A point also made by SCA. SCA submission, 17 September 2011, p 46.
83 NSW Government, submission to the Productivity Commission's urban water sector inquiry, November 2010, p 15.
84 NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 55.

Adding a scarcity rent component[85] to SCA prices could also risk duplicating water costs to consumers to the extent that more costly alternative supply and demand options prescribed under the 2010 Metropolitan Water Plan are already reflected in retail prices. In particular, consumers could be considered to be already paying in part the marginal value of water or a drought surcharge through retail prices because retail prices reflect the costs of desalinated water when it is used. SDP's operating regime is designed to provide increased water security and reduce Sydney's likelihood of spending time in drought restrictions and having to further supplement the water supply system.[86] Similarly, SCA's prices to Sydney Water for the 2012 determination period could also be viewed as including a drought surcharge as we have made the decision to include the cost of Shoalhaven transfers.

We note that our price schedule of fixing different volumetric charges for SCA's supply of dam water to Sydney Water when SDP is "on" and "off" does not duplicate water costs for consumers as prices will remain cost reflective at all times. The volumetric charge under our price schedule will increase when dam levels fall and SDP operates but this increase in price is to ensure that SCA recovers revenue for changes in its sales volumes only. The volumetric price for SCA therefore does not incorporate a scarcity rent.

However, our price schedule allows the volumetric price for SCA's dam water to vary inversely with storage levels. That is, insofar that the SDP operating rules are tied to dam storage levels, SCA's prices will now reference dam levels. We also note that our price schedule works alongside the 2010 Metropolitan Water Plan, which makes the costs of securing Sydney's water needs more transparent.

We have also aligned the volumetric price for SCA's dam water more closely with SCA's variable costs, which we consider to be consistent with a possible future approach to wholesale scarcity pricing. The NSW Government has stated it will examine the role of scarcity pricing and other drought measures prior to the 2014 review of the Metropolitan Water Plan.[87] We support consideration of scarcity pricing and other potential market-based tools to manage demand and allocate water efficiently in future reviews of the Metropolitan Water Plan. Options for incorporating a separate scarcity value through administered pricing could then be explored in future determinations in addition to the cost of extracting dam water.

85 A 'scarcity rent' represents the marginal value of water in storage and is a separate component added to the volumetric price – ie, it is a component above the marginal direct cost of water – or the variable operating cost of extracting water (short run marginal cost).

86 NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 34.

87 NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 58.

3.5 Requirement to report on output measures

Since the 2005 Determination, we have set output measures for SCA as a starting point for measuring the prudence and efficiency of capital and operating expenditure in our price determinations. In sections that follow, we examine SCA's performance against the output measures established in the 2009 Determination and outline our draft decisions on output measures for the 2012 Determination.

3.5.1 SCA's performance against the current output measures

We developed 6 output measures in the 2009 Determination based on the criticality of SCA's forecast expenditure program. We asked Halcrow[88] to assess SCA's performance against these output measures (Table 3.2).

Of the 6 output measures, Halcrow found that:

- 2 projects have been delivered
- 2 projects are continuing and are on track for delivery in the 2012 Determination
- 2 projects have been delayed (and are to be delivered as part of the 2012 Determination).

We agree with Halcrow's assessment of SCA's performance against its output measures. For the 4 projects that are in progress or have been delayed, we have maintained output measures for the 2012 Determination (see below).

88 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, pp 67–70.

Table 3.2 SCA's performance against current output measures

Output measure	Halcrow's assessment	IPART comment
1. Deliver a strategy for the future of the Upper Canal by June 2013	Continuing project. Halcrow has found that SCA has considered 3 refurbishment and 2 replacement options. A decision on the preferred replacement option has been deferred, subject to further investigation.	Agreed
2. Complete the Prospect Reservoir upstream embankment stabilisation upgrade by April 2013	Project delayed. SCA advised that the project will not be completed by April 2013. Further detailed investigations are yet to be completed.	Agreed
3. Complete the Warragamba Dam crest gates construction project by June 2011	Project delivered. The project is completed and the minimal discrepancy between forecast costs and actual costs suggests effective management.	Agreed
4. Complete the Wingecarribee Dam Safety upgrade project by June 2013	Continuing project. SCA is on track to deliver.	Agreed
5. Complete the Upper Nepean environmental flows works project by April 2010	Project delivered. Halcrow notes there were some increases to costs and some components delivered late. However, it considers the project to be delivered according to IPART's requirements.	Agreed
6. Complete the Metropolitan Dams electrical systems upgrade project by April 2013	Project delayed. Halcrow considers the delay to be prudent as it will allow the project to operate with improved efficiency.	Agreed

Source: Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, pp 67–70.

3.5.2 Output measures for the 2012 Determination

Draft decision

10 IPART's draft decision is to require SCA to monitor and report annually on progress against the output measures described in Box 3.1 throughout the 2012 Determination.

We asked Halcrow to recommend a set of output measures for the 2012 Determination that reflect SCA's current operating environment and forecast capital expenditure program.[89] The SCA did not propose output measures for the coming price path in its submission. It also did not comment on Halcrow's recommended output measures.

89 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 71.

After considering Halcrow's advice, we have introduced a set of draft output measures to assess SCA's progress against the 2012 Determination (Box 3.1.). The number of output measures has increased from 6 to 9, but includes some carryover measures from the 2009 Determination. It therefore remains a focused list relative to lists established for other agencies regulated by IPART.

We have developed the output measures for SCA in conjunction with setting prices for the 2012 Determination. The new output measures reflect our draft decisions on SCA's forecast capital expenditure for the 2012 Determination (see Chapter 6). Four output measures continue from the 2009 Determination as they relate to projects that have been delayed or that are still in progress.

Box 3.1 2012 Determination draft output measures for SCA

Continuation/adjustments to existing output measures

1. Deliver a strategy for the future of the Upper Canal by June 2013.
2. Complete the Prospect Reservoir upstream embankment stabilisation upgrade by June 2014.
3. Complete the Wingecarribee Dam safety upgrade project by June 2013.
4. Complete the Metropolitan Dams electrical system upgrade project by June 2017.

Additional output measures

5. Upper Canal refurbishment – complete refurbishment works by June 2016.
6. Warragamba Dam Environmental Flows – confirm a means of cost-effectively delivering the required environmental flows specified by the NSW Government in the 2014 Metropolitan Water Plan by June 2014, with construction to begin in 2015/16.
7. Warragamba Dam Pipeline Valves and Controls – establish and deliver a 5-year capital program to refurbish, modify and replace all existing valves and associated infrastructure (including controls) on the Warragamba pipeline by December 2012.
8. Warragamba Dam Reliability Upgrade – complete investigations associated with the reliability of Warragamba Dam to sustain the latest estimates of Probable Maximum Flood and seismic impact by June 2013.
9. Shoalhaven Transfers Works – complete preparation and gain approval of a business case for the preferred option specified by the NSW Government in the 2014 Metropolitan Water Plan for the transfer of water from the Shoalhaven River to Sydney by June 2015.

4 Overview of SCA's revenue requirement

We use a building block approach to determine SCA's notional revenue requirement for the 2012 Determination (Chapter 3). The notional revenue requirement represents our view of the total efficient costs required by SCA over the 2012 determination period to meet its service standards and regulatory requirements in the provision of its regulated water services.

This chapter provides:

- an overview of SCA's proposed notional revenue requirement
- our draft decision on SCA's notional revenue requirement
- our draft decision to set the target revenue to the notional revenue requirement.

4.1 SCA's proposed revenue requirement

SCA proposes[90] a revenue requirement of about $203.5 million per year over the 2012 determination period (Table 4.1). This represents about a 3.9% decrease compared to 2011/12 target revenue established in the 2009 Determination.

SCA's proposed revenue requirement for the 2012 Determination is based on:

- maintaining its operating expenditure at levels established in the 2009 Determination, and then adding an allowance for Shoalhaven transfers and the Australian Government's carbon price
- maintaining a $0.4 million-per-year deduction in nominal terms for unregulated income (ie, from the 2009 Determination)
- forecast capital expenditure of $146.1 million
- a real post-tax WACC of 6.0%.

[90] SCA did not submit a real post-tax WACC estimate. We have used SCA's parameters to estimate what its submission may have been on real post-tax terms. SCA proposes a real pre-tax WACC of 7%, which we convert to a real post-tax WACC of 6%.

Table 4.1 SCA's proposed notional revenue requirement under a post-tax WACC of 6.0% ($million, $2011/12)

	2011/12[a]	2012/13	2013/14	2014/15	2015/16
Operating expenditure[b]	87.0	93.4	93.0	93.0	93.1
Deduction for unregulated income	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Depreciation	24.5	22.7	23.2	23.7	24.4
Return on assets	92.4	81.8	82.2	82.7	83.5
Return on working capital	1.3	0.8	0.8	0.8	0.8
Tax allowance	n/a	3.6	3.8	4.0	4.0
Notional revenue requirement	**204.8**	**201.9**	**202.6**	**203.8**	**205.5**
Target revenue	**211.7**	**201.9**	**202.6**	**203.8**	**205.5**
Year-on-year change (%)		**(4.9%)**	**0.3%**	**0.6%**	**0.8%**

d IPART's allowance for 2011/12 is taken from the 2009 Determination.

e We have added back in SCA's $0.4 million-per-year proposed deduction for unregulated income.

Note: We have converted SCA's proposal to a real post-tax WACC basis. SCA's proposal for a 7.0% real pre-tax WACC converts to a 6.0% real post-tax WACC. We have also converted SCA's projected operating and capital expenditure to $2011/12 using IPART's forecast inflation rate.

Source: Based on SCA submission, 17 November 2011, p 57.

4.2 IPART's draft decision

Applying the building block approach results in a draft notional revenue requirement for SCA over the 2012 determination period as shown in Table 4.2. Our draft notional revenue requirement over the 4-year period to 2015/16 is around 4.3% lower than what SCA proposes, and reflects:

- Our acceptance of SCA's operating expenditure with some minor adjustments (Chapter 5).
- The continuation of our approach of deducting 50% of SCA's expected unregulated income from its notional revenue requirement to share these benefits between consumers and SCA. This is a larger deduction than proposed by SCA (see Table 4.2).
- Our acceptance of SCA's capital expenditure with some adjustments (Chapter 6).
- Our application of a post-tax WACC of 5.5%, which is lower than SCA's proposal (Chapter 7).
- Our aggregate pricing approach of setting SCA's target revenue to its notional revenue requirement (Chapter 3).

Table 4.2 Draft decision on SCA's notional revenue requirement for the 2012 Determination ($million, $2011/12)

	2011/12[a]	2012/13	2013/14	2014/15	2015/16
Operating expenditure	87.0	94.1	92.8	92.5	91.8
Deduction for unregulated income[b]	(0.4)	(1.1)	(0.9)	(0.9)	(0.9)
Depreciation	24.5	22.8	23.3	23.7	24.2
Return on assets	92.4	75.2	75.5	75.8	76.0
Return on working capital	1.3	0.8	0.7	0.7	0.7
Tax allowance	n/a	2.9	3.1	3.2	3.2
Notional revenue requirement	**204.8**	**194.6**	**194.4**	**195.0**	**195.1**
Target revenue	**211.7**	**194.6**	**194.4**	**195.0**	**195.1**
Year-on-year change (%)		**(8.1%)**	**(0.1%)**	**0.3%**	**0.0%**

a IPART's allowance for 2011/12 is from the 2009 Determination.

b This deduction represents 50% of SCA's expected unregulated income.

The required revenue remains constant in real terms over the 2012 determination period. For 2012/13 – the first year of the determination period – it is about $17.1 million or 8.1% lower than the 2011/12 target revenue established for the 2009 Determination. The reduction in the required revenue is due to our:

- change in approach to the treatment of company taxation and move to a real post-tax WACC for the 2012 Determination ($10.2 million)
- change in aggregate pricing approach from the 2009 determination period – given that we smoothed price increases in the 2009 Determination ($6.9 million).

We present a breakdown of the reduction in revenue requirement for 2012/13 in Table 4.3, and explain it in more detail below. Our draft decisions on efficient operating and capital expenditure, regulatory asset base and post-tax WACC are outlined in the chapters that follow (Chapters 5 to 7).

Table 4.3 Breakdown of the change in our decisions on the notional revenue requirement from 2011/12 to 2012/13 ($million, $2011/12)

	Total change: Pre-tax 2011/12 to post-tax 2012/13	On a pre-tax basis: Pre-tax 2011/12 to pre-tax 2012/13	The move to post-tax: Post-tax to pre-tax 2012/13
Operating costs	6.4	6.4	0.0
Depreciation	-1.7	-1.8	0.1
Return on assets	-17.2	-4.2	-13.0
Return on working capital	-0.5	-0.4	-0.1
Tax allowance			2.9
Notional revenue requirement	**-10.2**	**0.0[a]**	**-10.2**
Target revenue	**-17.1**	**-6.9**	**-10.2**

a The notional revenue requirement established for 2011/12 under a pre-tax WACC is identical to the notional revenue requirement for 2012/13 under a real pre-tax WACC, primarily because the WACC is unchanged at 6.5%.

Note: The real pre-tax WACC for 2011/12 is 6.5%. The real post-tax WACC for 2012/13 is 5.5%. The real pre-tax WACC conversion for 2012/13 is 6.5%.

4.2.1 Change in approach to our treatment of company taxation

As already noted, we have made a decision to calculate tax as a separate cost building block and to move to a post-tax WACC to calculate SCA's return on assets. Our previous approach used a pre-tax WACC with an assumed statutory tax rate. In most cases, this overstated the tax that would be paid by a comparable commercial business.

SCA's notional revenue requirement for 2012/13 would be about $204.8 million on a pre-tax WACC basis.[91] This is $10.2 million more than the $194.6 million notional revenue requirement we determined under the 5.5% post-tax WACC in Table 4.2. This means that $10.2 million of the $17.1 million decrease in required revenue from 2011/12 is attributable to our change in approach to incorporating company tax in pricing determinations – ie, a move to a post-tax WACC.

The $10.2 million reduction in notional revenue requirement from the move to a real post-tax WACC can be broken down into:

- a lower return on assets due to a lower 5.5% post-tax WACC (compared to the 6.5% pre-tax WACC conversion)
- the inclusion of a new tax allowance of $2.9 million, offsetting the lower return on assets.

91 Our 5.5% real post-tax WACC converts to a 6.5% real pre-tax WACC. We note that the required revenue would be $204.8 million for 2012/13 under the 6.5% pre-tax WACC.

We note that the total reduction in return on assets for 2012/13 is about $17.2 million. $13 million is due to the lower post-tax WACC. The remaining $4.2 million is due to our adjustments to SCA's regulatory asset base (RAB) – see Table 4.3.

4.2.2 Change in aggregate pricing approach

The remaining $6.9 million of the $17.1 million dollar reduction in required revenue for 2012/13 is attributable to the different aggregate pricing approaches adopted for the 2009 and 2012 Determinations (in Table 4.2).

We set prices in the 2009 Determination to limit increases in the first year of that price path. In doing so, the target revenue in 2011/12 was set higher than the notional revenue requirement (by $6.9 million)[92] to ensure that the present value of SCA's target revenue was equal to the present value of its notional revenue requirement over the 2009 determination period ('net present value neutral approach').

In contrast, we set prices for the 2012 determination period so that SCA's target revenue reaches its notional revenue requirement in each year of the determination period. We do not smooth prices over the 2012 determination period, given the modest decrease in required revenue in the first year of the determination period and the relatively small year-on-year changes thereafter.

4.2.3 Treatment of unregulated income

Draft decision

11 IPART's draft decision is to deduct 50% of SCA's expected unregulated income from the notional revenue requirement shown in Table 4.4, consistent with our past practice.

We have decided to maintain the 50% rate deduction of unregulated income as shown in Table 4.4. We consider that this achieves an appropriate balance of benefits between consumers and SCA. The 50% rate deduction is also consistent with that applied to the Sydney Water price review[93] and our previous decisions for other water utilities.

92 We have converted target and notional revenue amounts in the 2009 Determination into 2011/12 dollars. IPART, *2009 SCA Final Determination*, June 2009, p 36.

93 IPART, *2012 Sydney Water Draft Determination*, March 2012, Chapter 4.

Table 4.4 Draft decision on unregulated income for the 2012 Determination ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
SCA forecast unregulated income	2.2	1.9	1.9	1.9
IPART's 50% deduction of unregulated income	(1.1)	(0.9)	(0.9)	(0.9)
Net unregulated income	**1.1**	**1.0**	**1.0**	**1.0**

Note: Figures may not add up due to rounding.

Source: SCA forecasts from SCA submission, 17 November 2011, p 52.

SCA earns income in addition to water sales from unregulated activities, including:

- recovery from mining companies of the cost of rehabilitation and preventative works of SCA's assets caused by mine subsidence
- leasing of agricultural and residential properties, where SCA holds properties for future or current water service
- conference facility rental.

In the 2009 Determination, we deducted 50% of SCA's expected unregulated income from the notional revenue requirement to pass some of the benefits on to customers (via lower prices), while providing SCA with enough incentive to pursue these opportunities.[94] This amounted to about $0.4 million per year – ie, unregulated income was estimated to be $0.8 million per year over the 2009 determination period.

SCA has proposed that the deduction of $0.4 million per year be frozen in nominal terms for the 2012 Determination to allow SCA to make reasonable returns on these activities. This proposed deduction translates to a deduction of about 20% of unregulated income over the 2012 determination period.

We have decided to maintain the 50% rate deduction of unregulated income as we consider this to still achieve an appropriate balance of benefits between consumers and SCA. We note that although the 50% rate deduction of unregulated income is the same rate deduction made in the 2009 Determination, it is larger in dollar terms.[95] This is due to SCA's higher forecasts of unregulated income over the 2012 determination period, which we have accepted. SCA forecasts unregulated income to be about $2 million per year over the 2012 determination period, based on its actual unregulated income over the 2009 determination period.

94 Expenditure on unregulated activities is included in SCA's operating expenditure, given that some of the facilities that generate external income also serve SCA's regulated needs.

95 IPART, *2009 SCA Final Determination*, p 47. We deducted 50% of SCA's expected unregulated income from the notional revenue requirement, which amounted to about $0.4 million per year.

4.2.4 Integrating the operating licence review with the price review

Concurrent to this price review, we are conducting a cost-benefit analysis of proposed changes to SCA's operating licence.[96] The cost-benefit analysis is consistent with the data provided by SCA for the pricing review as it is being considered relative to the 'base case' of the current operating licence and SCA's current business-as-usual practices.

The results of the cost-benefit analysis are expected to be completed by March 2012. Following our draft report we will consider whether there are additional costs to be imposed on SCA and whether these costs should be recovered through SCA's operating expenditure. A decision will be made in our final report in June 2012 (see Chapter 3).

96 We have prepared the cost-benefit analysis in accordance with guidance provided in the *Guide to Better Regulation*, published by the Better Regulation Office (BRO).

5 Revenue requirement for operating expenditure

To determine how much revenue SCA should receive to meet its expected operating expenditure over the 2012 determination period, we assessed the efficient level of operating and maintenance expenditure that it would incur in providing its regulated water services.

As part of our assessment, we engaged Halcrow to review SCA's past and forecast operating expenditure. Halcrow conducted this review in conjunction with its review of SCA's capital expenditure.

We also sought comment from stakeholders in our Issues Paper on:

- the efficiency of SCA's operating expenditure over the current determination period and the efficiency of its projected operating expenditure
- whether there was scope for SCA to achieve further efficiency gains over the 2012 determination period.

The section below summarises our draft decisions on the revenue required for operating expenditure relating to SCA's regulated water services. The following sections discuss our considerations in reaching these decisions.

5.1 Summary of IPART's draft decision

Draft decision

12 IPART's draft decision on the efficient level of operating expenditure that SCA requires to provide its regulated water services over the 2012 Determination are as shown in Table 5.1.

We have accepted for the most part SCA's proposed operating expenditure over the 2012 determination period. Our forecasts represent a reasonable estimate of SCA's efficient operating costs over this period, and include allowances for:

- expected costs of transferring water from the Shoalhaven River
- carbon costs as a result of the Australian Government's legislated carbon price commencing 1 July 2012
- efficiency savings as recommended by Halcrow.

Table 5.1 Draft decision on revenue required for operating expenditure for the 2012 Determination ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
SCA proposed[a]	93.4	93.0	93.0	93.1
Halcrow recommended[b]	98.9	94.8	94.2	92.1
IPART draft decision	**94.1**	**92.8**	**92.5**	**91.8**

a Total operating expenditure from SCA's submission plus carbon costs and proposal for unregulated income (SCA submission, 17 September 2011, p 52–55). We have also converted SCA's projected operating expenditure to 2011/12 dollars using IPART's forecast inflation rate.

b To ensure comparability of our draft decision with Halcrow's recommendations, we have added back the unregulated income that Halcrow removed from its analysis. We treat unregulated income as a deduction from notional revenue and not from operating expenditure (Chapter 4). Halcrow's recommended operating expenditure also includes additional expenditure related to its recommendations to reclassify some of SCA's proposed forward capital expenditure as operating expenditure. We do not accept this recommendation (Chapter 6). Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 48.

5.2 Operating expenditure over the 2009 Determination

SCA reports its operating expenditure in the period 2009/10 to 2011/12 to be $10 million (4.2%) less than the allowance provided in the 2009 Determination.[97] SCA also expects operating expenditure for 2011/12 to be on target at about $87 million.[98] This indicates that SCA has achieved its commitment of reducing base operating expenditure in real terms[99], which we estimate to be about 3.6% over the price path (ie, from the approved $90.3 million in the 2005 Determination (2011/12 dollars)).[100]

SCA excludes expenditure on the Accelerated Sewerage Program to measure its expenditure savings over the 2009 Determination (ie, it reports 'core operating expenditure'). The Accelerated Sewerage Program is excluded from expenditure comparisons because it was included in the 2009 Determination as a NSW Government direction pursuant to section 16A of the IPART Act and separate line item.

Halcrow concludes that SCA's operating expenditure incurred over the current price path is efficient and less than what was allowed for by IPART in the 2009 Determination.[101] We agree with Halcrow's assessment but note that SCA deducts

97 SCA submission, 17 September 2011, p 38.

98 SCA submission, 17 September 2011, p 41. We have converted the $80 million allowance to 2011/12 dollars.

99 SCA's submission to the 2009 SCA Price Review, September 2008, p 5.

100 To calculate the efficiency saving on a comparable basis we have excluded Shoalhaven pumping costs from the 2008/09 operating cost allowance established in the 2005 determination, given the moratorium on Shoalhaven transfers over the 2009 determination period and therefore an absence of these costs. IPART, *2009 SCA Final Determination*, June 2009, p 50.

101 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 46.

unregulated income (ie, with equal recoverable expenditure) from its regulated operating expenditure to estimate savings over the 2009 determination period. SCA's operating expenditure for 2011/12 is about $89.4 million when unregulated income is included, which indicates expenditure above target for that year by 2.7%. Over the 3-year price path, we estimate SCA to be about $2.8 million under target or 1.1% under its total allowance.

SCA's operating expenditure over the 3-year period to 2011/12 is compared against the allowed expenditure established in the 2009 Determination in Table 5.2.

Table 5.2 SCA operating expenditure over the 2009 Determination ($million, $2011/12)

	2009/10	2010/11	2011/12[a]	Total cost
2009 Determination (IPART allowance)				
Total operating expenditure	105.8	87.0	87.0	279.8
Accelerated sewerage program	(18.8)	–	–	(18.8)
Core operating expenditure	**87.0**	**87.0**	**87.0**	**261.0**
SCA actual expenditure				
Total operating expenditure	89.3	88.1	99.6	277.0
Accelerated sewerage program	(4.8)	(3.8)	(10.2)	(18.8)
Core operating expenditure	**84.5**	**84.3**	**89.4**	**258.2**
Variance in core operating expenditure				
Difference	(2.5)	(2.7)	2.4	(2.8)
Difference %	(2.9%)	(3.1%)	2.7%	(1.1%)

[a] SCA's expenditure for 2011/12 is forecast rather than actual expenditure.

Note: We exclude the allowance for the Accelerated Sewerage Program from total operating expenditure to arrive at core operating expenditure and measure savings, as this expenditure was included in the 2009 Determination as a NSW Government direction pursuant to section 16A of the IPART Act. We have converted all figures to 2011/12 dollars using IPART's forecast inflation rate. Figures may not add up due to rounding errors.

Source: IPART, 2009 SCA Final Determination, p 50. SCA annual information return. Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Table 5.1, p 29.

5.3 Forecast operating expenditure over the 2012 Determination

5.3.1 SCA's submission

SCA adopts a top-down approach to estimating its operating expenditure for the coming price path by taking the efficient costs established in the 2009 Determination as the starting point for building up forecast expenditure.[102] SCA considers that by keeping its core operating expenditure at 2008/09 levels it absorbs the $1 million per year increase in the NSW Office of Water licence fee determined by IPART in a separate review.[103]

In addition to core operating expenditure, SCA proposes:

- $2 million per year to account for Shoalhaven pumping costs. SCA proposes a self-insurance premium to cover the expected cost of Shoalhaven water transfers (explained in detail below)
- $1.8 million per year to cover carbon costs as a result of the Australian Government's legislated carbon price starting 1 July 2012.

With these additional expenses, SCA's proposed operating expenditure is about $93 million in 2012/13, which represents about 6.9% above 2008/09 levels and 4.1% above the $89.4 million[104] reported for 2011/12. SCA proposes to hold operating expenditure constant over the 2012 Determination at about $92.6 million per year (see Table 5.3).

Included in SCA's forecast operating expenditure is a proposed deduction of $0.4 million for unregulated income.[105] We make deductions for unregulated income from SCA's notional revenue requirement and not from operating expenditure. Therefore, we add $0.4 million back into SCA's operating expenditure in Table 5.3.

With unregulated income included, SCA's core operating costs for the 2012 Determination are forecast to be around 3.0% greater than 2008/09 levels. This increases to 7.35% when Shoalhaven self-insurance costs and the carbon price costs are included.

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[102] SCA submission, 17 September 2011, p 51.

[103] SCA submission, 17 September 2011, p 51.

[104] We exclude $10.2 million for the Accelerated Sewage Program from SCA's 2011/12 operating expenditure for comparative purposes, as this project does not continue through to the new price path. SCA report expenditure for Accelerated Sewage Program in SCA submission, 17 September 2011, p 41.

[105] SCA shows the gross operating expenditure including the unregulated income and expenditure and then makes a $0.4 million adjustment at the aggregate level. SCA submission, 17 September 2011, table at bottom of p 52.

SCA considers the expenditure in Table 5.3 will allow it to:

- maintain a robust water monitoring program for both quantity and quality
- maintain a strong water modelling capability for the Metropolitan Water Plan
- maintain its assets – including refurbishment of the Upper Canal
- develop its staff members to ensure their skills and expertise meet the organisation's long-term needs.[106]

Table 5.3 SCA's proposed operating expenditure – 2012 Determination ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Operating expenditure[a]	89.6	89.2	89.2	89.2
Shoalhaven pumping costs – self-insurance scheme	2.0	2.0	2.0	2.0
Carbon costs				
Shoalhaven transfers	1.3	1.3	1.3	1.3
Energy costs	0.5	0.5	0.5	0.6
Total operating expenditure	**93.4**	**93.0**	**93.0**	**93.1**
Deduction for unregulated income	(0.4)	(0.4)	(0.4)	(0.4)
Total operating expenditure (incl. proposed deduction)	**93.0**	**92.6**	**92.6**	**92.7**

a We have added SCA's proposed $0.4 million deduction for unregulated income back into core operating expenditure to be able to show the deduction as a separate line item in the table.

Source: Based on SCA submission, 17 September 2011, p 51-52.

SCA proposal for Shoalhaven pumping costs

SCA includes in its operating costs a proposed self-insurance scheme to cover the cost of transferring water from the Shoalhaven River – about $2 million per year. The self-insurance scheme smooths out SCA's estimates of the expected costs of Shoalhaven pumping over time (Table 5.4).

SCA estimates volumes of water that are likely to be pumped from the Shoalhaven River over the 2012 determination period using output from its hydrological model, WATHNET. The WATHNET model estimates Shoalhaven transfers under varying climatic conditions given the current operating rules (2,000 runs of WATHNET).[107]

106 SCA submission, 17 September 2011, pp 6–7.

107 Under the 2010 Metropolitan Water Plan, pumping from the Shoalhaven River commences when dam levels fall to 75% and continues until they rise above 80%. There are also other constraints; for example, the water level in Tallowa Dam has to be within 1 metre of the top water level of the dam. NSW Office of Water, *2010 Metropolitan Water Plan*, August 2010, p 24.

SCA estimates the expected costs of pumping based on an:

- estimated electricity price of about $35/MWh
- MWh per ML conversion factor of 1.9.[108]

SCA also includes an estimate of expected costs of the carbon price related to energy use for Shoalhaven pumping, as part of its proposed self-insurance scheme (Table 5.4).

Table 5.4 SCA's proposed self-insurance scheme ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Expected cost				
Base cost of pumping	2.7	2.2	2.1	1.8
Carbon costs on pumping	1.7	1.4	1.4	1.2
Total expected cost	4.3	3.6	3.5	3.0
Proposed insurance cost				
Base cost of pumping	2.0	2.0	2.0	2.0
Carbon costs on pumping	1.3	1.3	1.3	1.3
Total insurance cost	3.3	3.3	3.3	3.3

Note: Carbon costs are based on a carbon price of $23/tonne of CO2e in 2012/13, and indexed by 2.5% thereafter.
Source: SCA submission, 17 September 2011, p 54.

5.3.2 Halcrow's review of operating expenditure

We asked Halcrow to assess whether SCA's proposed expenditure on providing its water supply services represents the best way of meeting the community's need. Specifically, we asked Halcrow to review the efficiency of SCA's forecast operating expenditure, including the appropriateness of SCA's estimates for Shoalhaven pumping costs.

Overall, Halcrow accepts SCA's forecast operating expenditure for the 2012 Determination, including proposed self-insurance costs associated with Shoalhaven transfers and the Australian Government's carbon price. In addition, Halcrow includes[109]:

- an allowance to expense some capital expenditure related to the Warragamba Dam environmental flows project and the refurbishment of the Upper Canal (see Chapter 6 for Halcrow's capital expenditure review)

[108] SCA's MWh to ML conversion factor is derived from Shoalhaven transfers that occurred in 2007/08 – dividing total electricity used by volume of water pumped. Information supplied to IPART by SCA.

[109] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, pp 47–48.

- an annual efficiency target of 0.3% per year (cumulative) against core operating expenditure over the determination period.

Halcrow's recommended operating expenditure for the 2012 Determination is presented in Table 5.5. To ensure comparability with our draft decision, we have added unregulated income back into Halcrow's analysis. As already noted, we make a deduction for unregulated income from SCA's notional revenue requirement and not from operating expenditure (Chapter 4). Halcrow deducts 100% of SCA's forecast unregulated income from its recommended level of operating expenditure, because it leaves the treatment of SCA's unregulated income to IPART (ie, treatment of recoverable expenditure from SCA's unregulated activities).[110]

Table 5.5 Halcrow's recommended operating expenditure – 2012 Determination ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Operating expenditure[a]	89.6	89.2	89.2	89.2
Shoalhaven pumping costs – self-insurance scheme	2.0	2.0	2.0	2.0
Carbon costs				
Shoalhaven transfers	1.3	1.3	1.3	1.3
Energy costs	0.5	0.5	0.5	0.6
Total operating expenditure (based on SCA proposal)	**93.4**	**93.0**	**93.0**	**93.1**
Efficiency adjustment/target	(0.3)	(0.5)	(0.8)	(1.0)
Capital expenditure to be expensed	5.8	2.3	2.0	0.0
Total operating expenditure	**98.9**	**94.8**	**94.2**	**92.1**

[a] We have added SCA's expected unregulated income back into Halcrow's recommended core operating costs to ensure comparability with our draft decision. We treat unregulated income as a deduction from notional revenue and not from operating expenditure (Chapter 4).

Source: Based on Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 47.

Efficiency adjustments

Halcrow considered the efficiency savings in the level of expenditure forecast by SCA for the 2012 Determination – ie, savings implicit in SCA's proposal to hold core operating expenditure at levels established in the 2009 Determination.

Our allowances for the 2009 Determination were based on 289 full-time equivalent (FTE) staff. Halcrow notes that levels of expenditure reported by SCA over the 2009 Determination are based on a reduction of staff numbers from 289 FTE at the

[110] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, pp 27 and 36.

beginning of the period to 250 FTE by the end. The reduction of 39 FTE staff equates to a saving of approximately $5.3 million per year.[111]

By proposing to maintain 250 FTE staff, Halcrow notes that SCA has not deducted the FTE staff–related savings achieved over the 2009 Determination from its annual forecast operating expenditure for the 2012 Determination. However, Halcrow identifies increases in the following non-labour costs over the 2012 Determination that offset some of the FTE staff–related savings[112]:

- a 1.8% increase in average staff numbers, equating to a cost increase of about $0.6 million and an increase of about 0.9% in the average cost of labour
- recommencement of supply from Fish River at a cost of about $1.1 million
- additional licence fees of $1.1 million payable to Water Administration Ministerial Corporation (NSW Office of Water)
- a $1 million reduction in payments to the Department of Environment and Climate Change (now the Office of Environment and Heritage) for the Special Areas that did not eventuate
- an increase of $0.9 million in customer service costs from 2011/12 to 2015/16, representing a new levy to be imposed by Sydney Water for calibration services.

Halcrow concludes that by absorbing these cost increases and holding core operating at 2008/09 levels over the 2012 Determination, SCA carries forward some of the past savings it has achieved.[113] If SCA had not achieved the past efficiencies (or savings due to reduction of staff numbers) then SCA's operating costs would have increased over the 2012 determination period relative to levels established for the 2009 Determination.

Finally, Halcrow notes that SCA is not proposing a blanket reduction in operating expenditure reflecting additional efficiency savings for the 2012 Determination – like it did for the 2009 Determination. Therefore, Halcrow recommends setting an annual efficiency target of about 0.3% per annum (cumulative) against core operating expenditure over the determination period.[114]

111 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 45.
112 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 47.
113 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 47.
114 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 47.

5.3.3 IPART's draft decision

Our draft decisions on the allowed operating expenditure for the 2012 Determination are shown in Table 5.6. This table reflects our decisions to:

- accept SCA's core operating expenditure (baseline)
- apply a 0.3% efficiency adjustment to SCA's proposed operating expenditure following Halcrow's recommendation
- include SCA's annual expected costs for Shoalhaven pumping based on SCA's methodology and information at late 2011, and not accept SCA's proposal for a self-insurance scheme for Shoalhaven transfers
- include an allowance for carbon costs associated with Shoalhaven transfers and base energy costs,
- reject Halcrow's recommendation to reclassify capital expenditure as operating expenditure related to Upper Canal refurbishment and Warragamba Dam environmental flows (see Chapter 6).

We discuss each of these draft decisions in more detail in the following sections.

As noted in Chapter 4, we are currently conducting a cost-benefit analysis on our proposed changes to SCA's operating licence. We will consider whether there are additional costs to be imposed on SCA and whether these costs should be recovered through SCA's operating expenditure in our final report in June 2012.

Table 5.6 Draft decision on operating expenditure for the 2012 Determination ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Operating expenditure[a]	89.6	89.2	89.2	89.2
Expected Shoalhaven pumping cost	2.7	2.2	2.1	1.8
Carbon costs				
Shoalhaven transfers	1.7	1.4	1.4	1.2
Base energy costs	0.5	0.5	0.5	0.6
Total operating expenditure (based on SCA proposal)	**94.4**	**93.3**	**93.3**	**92.8**
Efficiency adjustment/target	(0.3)	(0.5)	(0.8)	(1.0)
IPART draft allowance	**94.1**	**92.8**	**92.5**	**91.8**

[a] We have added SCA's forecast unregulated income and excluded SCA's Shoalhaven transfer self-insurance scheme to its core operating expenditure.

Note: Figures may not add up due to rounding errors.

Efficiency adjustment

We have accepted Halcrow's recommendation to apply a 0.3% efficiency target to SCA's operating expenditure. We have rejected Halcrow's recommendation to reclassify capital expenditure as operating expenditure related to the Upper Canal refurbishment and Warragamba Dam environmental flows project (discussed in Chapter 6).

Shoalhaven pumping costs

Our draft decision is to accept SCA's expected costs for Shoalhaven pumping (set out in Table 5.4). We have not accepted SCA's self-insurance scheme as a mechanism to manage the uncertain costs of Shoalhaven pumping over the 2012 determination period. For the Final Determination, we request that SCA update these expected costs to reflect current dam storage levels.

Estimating Shoalhaven pumping costs is a difficult issue that we considered in our 2005 and 2009 Determinations. SCA reported that unforeseen costs of pumping water from the Shoalhaven River over the 2005 determination period amounted to $31 million (2008/09 dollars).[115] For the 2009 Determination[116], Shoalhaven pumping costs were less of an issue because of the Ministerial moratorium on Shoalhaven pumping in place for most of the determination period.[117]

In both reviews SCA sought a pass-through of actual costs for Shoalhaven pumping. However, in 2009 we decided not to provide a mechanism for these costs, as it would have added unnecessary complexity to the regulatory regime, especially given the low likelihood of transferring water from the Shoalhaven over the 2009 determination period.[118]

With the ministerial moratorium expiring in November 2011, we recognised that Shoalhaven pumping costs would be an important issue for the 2012 Determination. Therefore, we asked that SCA provide information on the probability of Shoalhaven transfers occurring, so that the materiality of these transfers could be assessed and future efficient levels of costs could be developed and considered as part of SCA's notional revenue requirement.[119]

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115 SCA submission, 17 September 2008, p 23.

116 IPART, *2009 SCA Final Determination*, June 2009, p 39.

117 The moratorium on Shoalhaven pumping was announced by the NSW Government on 7 November 2008, and was based on water storage levels at the time, the impacts of recycling projects underway by Sydney Water and the commissioning of SDP in 2009/10. IPART, *2009 SCA Final Determination*, June 2009, p 40.

118 IPART, *2009 SCA Final Determination*, June 2009, p 41.

119 IPART, *2009 SCA Final Determination*, June 2009, p 42.

As requested, SCA has provided modelling on the probability and expected costs of Shoalhaven transfers for the 2012 Determination. This modelling closer reflects dam storage levels of late 2011. SCA's expected costs for Shoalhaven pumping comprise around 2.4% of total operating expenditure over the 2012 determination period.[120]

SCA proposes a self-insurance scheme to manage these expected costs (Table 5.4). Under the self-insurance scheme, SCA seeks to include a $2 million per year insurance premium as part of its operating cost allowance as a regular contribution to a fund. SCA proposes to hold this fund as a separate account (ie, ring fenced) and not spend it on other projects or return it to shareholders as additional revenue.[121]

We consider that a self-insurance scheme for Shoalhaven transfers would introduce complexity to the regulatory framework that is not justified for such a small amount of SCA's operating costs. We welcome views from stakeholders on whether the proposal could be improved.

We also consider that a self-insurance scheme would reduce the transparency of cost recovery over each determination. The amount in the fund would need to be checked over time against the premiums charged, which would have the effect of removing the link between actual costs incurred with the recovery of those costs. For this reason, we consider it more appropriate to include Shoalhaven pumping costs as part of SCA's general operating expenses, rather than to create a self-insurance scheme.

However, we recognise Shoalhaven transfers represent an uncertain operating cost for SCA in terms of volume and price risk.[122] Therefore, we have decided to include SCA's expected costs for Shoalhaven pumping as part of its total operating costs and revenue requirement. Halcrow reviewed SCA's modelling of Shoalhaven transfers and we agree with Halcrow that the estimates are reasonable given the information available at that time.[123] For the Final Determination, we request that SCA update these expected costs based on more recent information on dam storage levels.

Finally, we note that in Chapter 3, we made a draft decision to change the price structure to an 80:20 fixed to variable split, which we consider to be an adequate approach for managing any remaining revenue risk from Shoalhaven transfers.

Carbon price

We have made a draft decision to include an allowance for the Australian Government's carbon price scheme based on SCA's proposed methodology. We

[120] If carbon costs are included then expected costs of Shoalhaven pumping contribute about 3.9% to total operating expenditure over the 2012 Determination.

[121] SCA submission, 17 September 2011, p 55.

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

[123] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 39.

provide allowances for carbon costs associated with SCA's energy use for general business activities and Shoalhaven transfers (Table 5.7).

We consider SCA's approach to estimating its carbon price costs to be reasonable. The Australian Government's carbon price scheme will commence on 1 July 2012, with a price that will be fixed for the first 3 years. The price will be fixed at $23 per tonne in 2012/13 and will increase by 2.5% each year in real terms. On 1 July 2015, the fixed carbon price will transition to a fully flexible price under an emissions trading scheme, with the price determined by the market.[124]

SCA estimates carbon costs for the 2012 Determination using[125]:

- a carbon price of $23 per tonne in 2012/13, inflated by 2.5% each year thereafter
- an emissions intensity of 0.9564 tonnes of CO2 emissions per MWh.[126]

Carbon costs add on average about 30% to SCA's annual base energy costs and 65 % to expected annual costs for Shoalhaven pumping.[127] Our allowance for carbon costs, however, represents a relatively small proportion of SCA's total operating costs – on average about 2.1% in each year.

We will ensure that in indexing prices to the consumer price index (CPI) to maintain the real value of the price path during the period of the determination, we remove any impact of carbon pricing on the CPI to avoid possible double-counting. The indexation of the regulatory asset base should also use the carbon-adjusted CPI. We will adopt this approach in all industries that we regulate where prices are based on revenue requirements.

Table 5.7 Draft decision on SCA's expected carbon costs ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Carbon costs for base energy use	0.5	0.5	0.5	0.6
Carbon costs for Shoalhaven transfers	1.7	1.4	1.4	1.2
IPART's draft allowance for carbon costs	**2.2**	**1.9**	**1.9**	**1.8**

124 http://www.cleanenergyfuture.gov.au/clean-energy-future/carbon-price/#content01

125 SCA submission, 17 November 2011, p 55.

126 The SCA's emissions intensity of 0.9564 tonnes of CO2 emissions per MWh is based on the average intensity factor of the National Electricity Market (NEM).

127 We note that SCA's expected energy for Shoalhaven pumping is about 2.5 times more than its forecast of base energy use (in terms of MWh per annum). However, the per unit energy cost of Shoalhaven pumping is about half that of SCA's base energy use (in terms of $/MWh). The difference in per unit energy costs is due to the different load shapes for Shoalhaven pumping and energy used for SCA's general business activities. Therefore, carbon costs represent a much higher proportion of expected energy costs for Shoalhaven pumping than base energy use.

6 Review of capital expenditure

To determine what revenue SCA needs to fund its capital works program over the 2012 Determination, we assessed the efficient and prudent level of capital expenditure that it requires in order to provide its regulated water services.

As part of our assessment, we engaged Halcrow to review SCA's past and forecast capital expenditure. We also asked Halcrow to review SCA's management systems to determine whether they are sufficiently robust and consistent with good industry practice. In our Issues Paper we sought comment from stakeholders on:

- the prudence of SCA's capital costs over the current determination period and the efficiency of its projected capital works program
- whether there was scope for SCA to achieve further efficiency gains over the 2012 Determination.

The section below summarises our draft decisions on the revenue required for capital expenditure relating to SCA's water services. The following sections discuss our considerations in reaching these decisions.

6.1 Summary of IPART's draft decision

Draft decisions

13 IPART's draft decision is that the prudent level of capital expenditure that SCA required to provide its water services over the 2009 Determination is shown in Table 6.1.

14 IPART's draft decision is that the efficient level of capital expenditure that SCA requires to provide its water services over the 2012 Determination is shown in Table 6.2.

Table 6.1 Draft decision on prudent capital expenditure for the 2009 Determination ($million, $2011/12)

	2009/10	2010/11	2011/12[c]	Total
SCA's actual[a]	53.8	27.2	18.7	99.6
Halcrow's recommendation[b]	50.9	26.8	17.7	95.4
IPART's draft decision	**53.0**	**27.1**	**18.6**	**98.7**

[a] SCA's submission, September 2011, p 44.

[b] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p vi.

[c] SCA's capital expenditures for 2011/12 are forecast only.

Table 6.2 Draft decision on efficient capital expenditure for the 2012 Determination ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
SCA forecast[a]	31.3	32.7	36.4	45.6	146.1
Halcrow's recommendation[b]	24.8	29.5	29.1	20.7	104.0
IPART's draft decision	**30.5**	**31.7**	**31.1**	**31.7**	**125.1**

[a] Based on SCA's submission, September 2011, p 48. We have converted SCA's projected capital expenditure to $2011/12 using IPART's forecast inflation rate.

[b] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p vi. We have adjusted Halcrow's capital expenditure to $2011/12 using IPART's forecast inflation rate.

6.2 Capital expenditure over the 2009 Determination

6.2.1 SCA's submission

SCA reports an underspend in capital expenditure over the period 2009/10 to 2011/12 of $39 million (Table 6.3). This is 28.1% less than what we allowed in the 2009 Determination.

The underspend mainly relates to SCA's decision to defer expenditure on the replacement of the Upper Canal ($30 million). SCA notes that the Upper Canal will be subject to further investigation to fit within the NSW Government's broader infrastructure priorities. The other large project that has not progressed as planned is the upgrade works for the Bendeela Camping Ground ($2.9 million).[128]

[128] SCA submission, 17 September 2011, p 44.

Table 6.3 SCA actual versus allowed capital expenditure for the 2009 Determination ($million, $2011/12)

	2009/10	2010/11	2011/12	Total
IPART allowance for 2009 Determination	67.6	36.4	34.7	138.7
SCA actual expenditure[a]	53.8	27.2	18.7	99.7
Difference to 2009 Determination	(13.8)	(9.2)	(16.0)	(39)
Difference to 2009 Determination (%)	(20.4%)	(25.3%)	(46.1%)	(28.1%)

[a] SCA's submission, September 2011, p 44. These figures have been adjusted to $2011/12.

Note: SCA capital expenditure values for 2011/12 are forecast only.

Source: Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 49.

6.2.2 Halcrow's review of SCA's past capital expenditure

Halcrow assessed the prudence of SCA's capital expenditure over the 2009 Determination. It also examined SCA's performance against its output measures (see Chapter 3).

Halcrow recommends a $4.3 million reduction to SCA's capital expenditure for the 2009 determination period.[129] Halcrow identifies some projects as not being delivered as efficiently as they could be, and that these factors may have contributed to the historical underspend reported by SCA (see Table 6.3 above).[130] It has also recommended reclassifying some expenditure undertaken on investigation and project scoping as operating expenditure and not capital expenditure.

Halcrow assessed 15 capital expenditure projects in detail, including projects that were completed in the current period and some that continue through to the 2012 determination period.[131] The projects selected for review represent 71% of SCA's total capital expenditure over the 2009 Determination.[132] We summarise Halcrow's recommended adjustments to capital expenditure in Table 6.4.

[129] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 73.

[130] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 72.

[131] Halcrow uses a selection criterion that at least 10% of all projects selected for review exceed the $1 million materiality threshold.

[132] Halcrow estimates the selected projects represent 67% of the current program in terms of capital value from 2008/09. Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 50.

Table 6.4 Halcrow's recommended adjustments to SCA's capital expenditure

Project	Halcrow's key findings	Halcrow's recommendation
Minor asset renewals program		
Ongoing program replacing minor civil, mechanical and electrical assets that are approaching the end of their economic life.	Individual procurements are not the most efficient delivery model for this project. SCA did not show evidence of prioritisation of expenditure towards assets that are integral to maintaining supply and those that are ancillary to bulk water supply.	Apply efficiency adjustment of 2% per annum.
Hydrometric renewals		
Rolling 5-year program of renewals to maintain reliability and accuracy of hydrometric monitoring sites.	SCA's delivery model is not efficient, given that each renewal project is separately procured.	Efficiency adjustment of 3% per annum.
Upper Canal replacement		
Investigation of options for replacement of Upper Canal, which transfers water from Upper Nepean dams to Prospect and is over 120 years old.	Expenditures on investigation and project scoping should classify as operating expenditure and not capital expenditure.	Reclassify this capital expenditure ($2.1m) as operating expenditure.[a]
Upper Canal refurbishment		
Refurbishment work to extend the life of the Upper Canal, prior to its replacement.	Expenditure relates to the maintenance of an existing asset to maintain current levels of serviceability rather than offset the need to replace the asset.	Reclassify the capital expenditure ($0.5m) as operating expenditure, given that it is essentially for routine maintenance.[a]
Warragamba e-flows		
Investigate scope and feasibility of provision of environmental flow regime at Warragamba Dam. The project is driven by the 2010 Metropolitan Water Plan requirement to ensure that an environmental flow regime for Warragamba Dam is included in the 2014 Metropolitan Water Plan.	Expenditure on investigation should be recorded as operating expenditure, not capital expenditure. Especially since the expenditure relates to early investigation and project scope definition, as opposed to project delivery.	Reclassify the capital expenditure for investigation ($0.7m) to operating expenditure.[a]
Upper Nepean e-flow works		
Capital works to Upper Nepean dams and weirs to allow passage of environmental flows. The works are required by both the 2004 and 2006 Metropolitan Water Plans.	This project was over budget and there were some delays in the implementation. The delays in implementing the project appear reasonable; however, the project suffered in technical design and management.	Apply efficiency adjustment ($0.8m). Halcrow recommends that the excess costs (compared to budget) related to project management and technical services be excluded when determining the efficient cost of the works.

[a] We have rejected these recommendations and discuss our reasons for doing so in Section 6.2.3 below.

Source: Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011 from p 52.

6.2.3 IPART's draft decision

Our draft decision is to reduce SCA's capital expenditure by $1 million for the current determination period. While we did not receive any detailed stakeholder comments on capital expenditure, we have considered Halcrow's independent advice in our review.

Our view is that Halcrow has robustly assessed SCA's capital expenditure proposals to enable it to form a view of the prudence of SCA's past capital expenditure. Where Halcrow has accepted SCA's expenditure as prudent, we have adopted Halcrow's recommendation.

We have also adopted Halcrow's recommendations to reduce SCA's capital expenditure in relation to 3 of the 6 capital projects that Halcrow recommended adjusting (Table 6.5). In relation to the 3 remaining projects, we reject Halcrow's recommendation to expense part of SCA's proposed capital expenditure. Our decisions relating to these capital projects are discussed in some detail below.

Table 6.5 Draft decisions on SCA's past capital expenditure

Project	Halcrow's recommendation	IPART's draft decision
Minor asset renewals	Efficiency adjustment of 2% per annum	Accept
Hydrometric renewals	Efficiency adjustment 3% per annum	Accept
Upper Canal replacement	Capital expenditure on investigations should be reclassified as operating expenditure ($2.1 million)	Reject
Upper Canal refurbishment	Expenditure to maintain existing assets at existing service levels should be classified as operating expenditure rather than capital expenditure ($0.5 million)	Reject
Warragamba environmental flows	Capital expenditure related to investigations should be classified as operating expenditure rather than capital expenditure ($0.7 million)	Reject
Upper Nepean environmental-flows works	Costs incurred above budget for project management and technical services ($0.8 million)	Accept

Upper Canal replacement

SCA is investigating replacement options for the Upper Canal. The Upper Canal is a raw water conduit used to transfer approximately 500ML of water per day from the Upper Nepean dams to Prospect Reservoir and is an integral component of the Greater Sydney water supply system. It is approximately 130 years old and is considered to be approaching the end of its engineering life.[133]

We note that much of SCA's underspend of capital expenditure for the 2009 Determination relates to its decision to defer expenditure on the replacement of the Upper Canal ($30 million). We consider this to be reasonable given that the replacement of the Upper Canal is subject to further investigation to fit within the NSW Government's broader infrastructure priorities. We note that SCA is on track to deliver a strategy for the future of the Upper Canal by June 2013, as specified in the current output measures (Chapter 3).

Halcrow considers that the expenditure undertaken by SCA on investigation and project scoping of options for the Upper Canal is prudent, but that it should be reclassified as operating expenditure, rather than capital expenditure. We consider SCA's accounting treatment for this project to be consistent with prior treatments reviewed by the Auditor-General (as stated at the SCA Public Hearing[134]). Therefore, we reject Halcrow's recommendation to expense the $2.1 million spent on investigation.

Upper Canal refurbishment

SCA deferred capital expenditure allocated in the 2009 Determination for replacement work on the Upper Canal. It proposes to undertake essential refurbishment work over the 2012 Determination on the basis that a full replacement will be required in the near future (we assess the prudence and efficiency of this expenditure below with the rest of SCA's forward capital program).

A small amount of refurbishment expenditure occurred in the final 2 years of the 2009 Determination (about $0.5 million).[135] Halcrow considers that this expenditure was to maintain the Upper Canal's existing service standards (essentially routine maintenance), and therefore should be classified as operating expenditure. SCA considers that the refurbishment expenditure represents an increase in the asset's service capacity, quality or useful life. SCA also notes that its capital expenditure over the 2009 Determination has been independently audited by the Auditor-

[133] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 50.

[134] SCA notes that "our Chief Financial Officer provides advice as to the appropriateness of projects being capitalised or expensed; that we seek advice from KPMG about the application of the accounting standards, and those decisions are subject to scrutiny by the Auditor-General's office each financial year". SCA public workshop transcript, 17 November 2011, p 64.

[135] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 51.

General.[136] We agree with SCA and therefore reject Halcrow's recommendation to expense this capital expenditure.

Warragamba Dam environmental flows investigation

SCA is undertaking a detailed investigation to assess the scope and feasibility for the provision of an environmental flow regime for Warragamba Dam. This project is driven by the 2010 Metropolitan Water Plan requirement, and will inform the NSW Government's decision on the optimal regime for releases from Warragamba Dam for the 2014 Metropolitan Water Plan.[137] The Government notes that implementing new flows from Warragamba Dam could require major investment in infrastructure.[138]

Halcrow considers that the investigation expenditure associated with this project over the 2009 Determination should be allocated as operating expenditure rather than capital expenditure. This is because the Warragamba environmental flows project is in the early investigation stage and a solution has not yet been identified.[139] Halcrow also notes that there is a high level of uncertainty over the extent of the environmental flow and nature of the required solution.

We consider that the costs associated with the investigation of this project should be capitalised into the asset base, rather than expensed, because SCA is required by the NSW Government under the 2010 Metropolitan Water Plan to complete the investigation on this project. In addition, we consider that the investigation expenditure on this project is related to future capital expenditure once a decision is made on this project in the 2014 Metropolitan Water Plan.

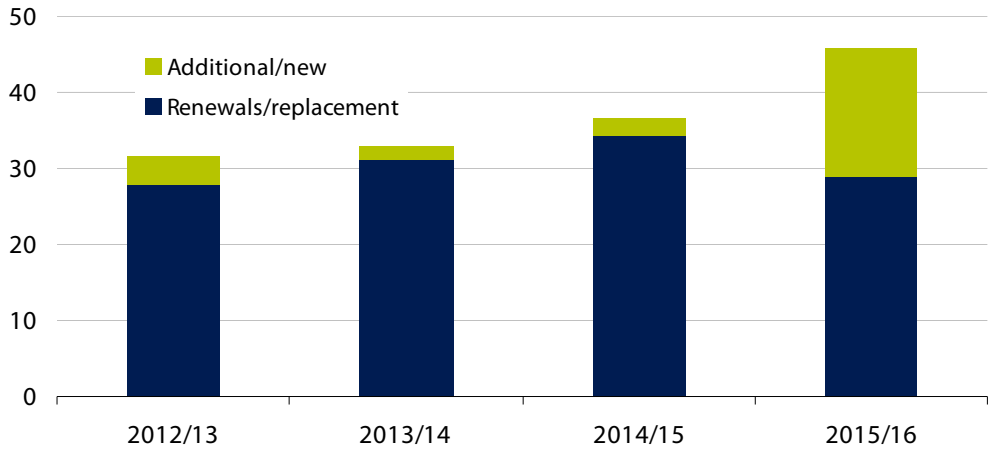
6.3 Forecast capital expenditure over the 2012 Determination

6.3.1 SCA's submission

SCA is proposing a capital expenditure program of $146.1 million over the 4-year price path.[140] This translates to about $36.5 million per year over the 2012 determination period, compared to an average expenditure of about $33.2 million per year over the 2009 period. We provide a breakdown of SCA's total capital expenditure into renewals and/or replacement of existing assets and additional new assets in Figure 6.1.

136 SCA public workshop transcript, 17 November 2011, p 64.
137 NSW Government, *2010 Metropolitan Water Plan*, August 2010, p 50.
138 NSW Government, *2010 Metropolitan Water Plan*, August 2010, p 50.
139 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 47.
140 SCA submission, 17 September 2011, p 8.

Figure 6.1 Forecast capital expenditure ($million, $2011/12)



Note: The 2011/12 forecast is the final year of the 2009 Determination.
Data source: SCA's Special Information Return.

Most of SCA's capital expenditure proposed for the 2012 Determination relates to the renewal and/or replacement of existing assets. However, there is a significant increase in capital expenditure on additional new assets in 2015/16, relating to the Warragamba Dam environmental flows project (about $17 million).

Other major projects proposed by SCA over the coming price path include the:

- Upper Canal refurbishment to ensure its integrity and continued operation until a replacement option has been identified
- Warragamba Dam reliability upgrade
- Upgrade of electrical systems on the metropolitan dams and Burrawang pumping station.[141]

[141] SCA annual information return – estimates supplied on commercial in confidence basis.

6.3.2 Halcrow's recommended capital expenditure over the 2012 Determination

Halcrow recommends a $42.1 million reduction to SCA's proposed capital expenditure for the 2012 Determination.[142] In particular, Halcrow recommends:

- deferring $29.0 million of SCA's forecast capital expenditure
- adjusting SCA's capital expenditure by $3.0 million for efficiency and prudence
- reclassifying $10.1 million of SCA's forecast capital expenditure to operating expenditure.[143]

As part of its strategic analysis, Halcrow reviewed SCA's management systems to determine whether they are sufficiently robust and consistent with good practice. Halcrow considers there is a lack of scope, definition and clear costing of SCA's proposed expenditure projects, but notes that SCA is improving its business processes.[144]

As already noted, Halcrow assessed in detail 15 of SCA's planned capital expenditure projects for the upcoming price path, including some projects that continue from the 2009 Determination. The projects selected for detailed review represent 83% of SCA's proposed capital expenditure for the 2012 Determination.[145] We summarise Halcrow's recommended reductions by project in Table 6.6, but note that Halcrow's key recommendations relate to the following projects:

- Warragamba Dam reliability upgrade (42.8% of the recommended adjustment)
- Warragamba Dam environmental flows (28.4% of the recommended adjustment)
- Upper Canal refurbishment (21.6% of the recommended adjustment).

We outline Halcrow's findings on these 3 capital projects in some detail below.

[142] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p vi.
[143] We have categorised Halcrow's adjustments in Table 6.6.
[144] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 72.
[145] Adapted from Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 51.

Table 6.6 Halcrow's recommended reductions to capital expenditure over the 2012 Determination ($million, $2011/12)

Project	Adjustment	% of total adjustment
Deferment of expenditure		
Warragamba Dam reliability upgrade	18.0	42.8%
Warragamba Dam environmental flows	11.0	26.2%
Sub-total	*29.0*	*68.9%*
Efficiencies/prudence		
Burrawang Pumping station	0.6	1.4%
Minor assets renewal program	0.1	0.2%
Hydrometric renewals	0.1	0.2%
Metropolitan Dams electrical system	2.3	5.4%
Sub-total	*3.0*	*7.2%*
Reclassify capital expenditure to operating expenditure		
Warragamba Dam environmental flows	1.0	2.3%
Upper Canal refurbishment	9.1	21.6%
Sub-total	*10.1*	*23.9%*
Total	**42.1**	**100%**

Source: Adapted from Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011.

Warragamba Dam reliability upgrade

SCA recently completed capital improvement and upgrades to Warragamba Dam to enable the dam to pass dam safety standards – ie, the Probable Maximum Flood.[146] The delivery of the combined projects took 13 years, starting in about 1998.[147] In that time, revisions to dam safety standards and the Probable Maximum Flood means further investigation/improvements to Warragamba Dam are required, which is the purpose of this project.

Halcrow considers that the scope of work for this project is yet to be clearly defined, and cost estimates are of low level of confidence. Given the long lead time for this type of capital works, Halcrow recommends deferring most of the capital expenditure to the next price determination period.[148] In Halcrow's view, this should allow SCA to undertake further investigations and clearly define the scope of work before making significant capital allowances for construction. Halcrow

[146] The Probable Maximum Flood is the largest flood that could conceivably occur at a particular location. http://library.ema.gov.au/emathesaurus/tr1929.htm

[147] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 13.

[148] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 57.

recommends minimal capital expenditure during the upcoming determination, in order to complete investigations and commence the procurement process for the delivery of the defined scope – about 14.2% of proposed expenditure to 2015/16.

Halcrow considers that deferring expenditure on this project poses little risk to the structural integrity of Warragamba Dam, given the nearing completion of a significant suite of projects (expenditure totalling approximately $160 million) designed to upgrade the capability of Warragamba Dam.[149]

Warragamba Dam environmental flows

Under the 2010 Metropolitan Water Plan, the SCA was required to complete investigations of the scope and feasibility of allowing environmental flows from Warragamba Dam. These investigations are expected to inform the NSW Government's decisions on the environmental flow regime in the 2014 Metropolitan Water Plan. As noted, the Government considers that implementing new flows from Warragamba Dam will require a major investment in infrastructure.[150]

SCA proposes nominal expenditure for investigation in the first 3 years of the 2012 Determination, and significant expenditure for construction works in 2015/16, the last year of the 2012 Determination. Halcrow considers it prudent to defer the majority of anticipated capital expenditure to the next pricing period, given that there is still a high level of uncertainty over the extent of the environmental flows for Warragamba Dam and nature of the required solution.[151]

Halcrow recommends making some allowance for nominal capital expenditure during the upcoming determination period, over and above the initial allowance for investigation. Halcrow recommends the capital expenditure relating to investigation to be funded as operating expenditure.

Upper Canal refurbishment

SCA proposes to refurbish sections of the Upper Canal in need of critical structural repairs over the 2012 Determination to keep the asset operational, while delaying the need for its replacement.

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149 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 57.

150 NSW Government, *2010 Metropolitan Water Plan*, August 2010, p 50.

151 SCA's estimate for capital works is based on a high level Public Works Department estimate to modify the inlet and outlet structures of the existing hydro-electricity outlet pipe that already passes through the dam wall. Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 48.

Whilst Halcrow considers SCA estimates to be reasonable, it is of the view that most of the proposed expenditure to refurbish the Upper Canal relates to routine maintenance and therefore should be reclassified as operating expenditure – ie, because the expenditure does not increase the asset's economic value nor extend its useful life.[152] Halcrow accepts some elements of the proposed expenditure to be capital in nature. In particular, expenditure related to the rehabilitation of penstocks and the replacement of the chlorine dosing facility. Therefore, Halcrow recommends capitalising about 31.4% of SCA's proposed expenditure and expensing the remainder.

6.3.3 IPART's draft decision

Our draft decision is to provide SCA a capital allowance of $125.1 million for the 2012 Determination (Table 6.2). This represents a $21.0 million reduction to SCA's proposed expenditure over the 4 years. It is $21.1 million less than Halcrow's recommended reduction.

While we did not receive any detailed stakeholder comments on capital expenditure, we have considered Halcrow's independent advice in our review.

Our view is that Halcrow has robustly assessed SCA's capital expenditure proposals. Where Halcrow has accepted SCA's expenditure as prudent and efficient, we have adopted Halcrow's recommendation.

We also accept the adjustments Halcrow makes to SCA's proposed capital expenditure (Table 6.7), with the exception of those relating to the following 2 projects:

- Warragamba Dam environmental flows
- Upper Canal refurbishment.

We note that most of the $21.0 million reduction that we make to SCA's forward capital program relates to expenditure proposed for the reliability upgrade of Warragamba Dam.

We explain our draft decisions on these capital projects in detail below. An explanation of all the adjustments we make to SCA's forecast capital expenditure is provided in Appendix G. To monitor SCA's progress on its capital expenditure program we have also updated our output measures to reflect our draft decisions on SCA's allowed capital expenditure for the 2012 Determination (see Chapter 3).

[152] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 52.

Table 6.7 Draft decision on adjustments to SCA capital expenditure over the 2012 Determination ($million, $2011/12)

Project	Halcrow's recommended adjustment	IPART's draft decision
Deferment of expenditure		
Warragamba Dam reliability upgrade	18.0	Accept
Warragamba Dam environmental flows	11.0	Reject
Sub-total	*29.0*	
Efficiencies/prudence		
Burrawang Pumping station	0.6	Accept
Minor assets renewal program	0.1	Accept
Hydrometric renewals	0.1	Accept
Metropolitan Dams electrical system	2.3	Accept
Sub-total	*3.0*	
Reclassify capital expenditure as operating expenditure		
Warragamba Dam environmental flows	1.0	Reject
Upper Canal refurbishment	9.1	Reject
Sub-total	*10.1*	
Total	**42.1**	

Warragamba Dam reliability upgrade

We agree with Halcrow that it is prudent to defer most of the expenditure proposed for this project. This will allow SCA to undertake further investigations and define the actual scope of work, before making significant capital allowances for construction. We consider that deferring expenditure on this project poses little risk to the structural integrity of Warragamba Dam, given the significant improvement works already completed on the dam. We also note that there is a long lead time to complete this type of project, with previous upgrades of Warragamba Dam taking almost 13 years in total to complete.

Warragamba Dam environmental flows project

We reject Halcrow's decision to defer capital expenditure for the Warragamba Dam environmental flows project to the next pricing period. Therefore, we accept SCA's proposed expenditure for this project over the 2012 Determination.

We agree with Halcrow that there is uncertainty with this project in respect of the extent of the environmental flow and the nature of the required solution. However, under the existing commitments specified in the 2010 Metropolitan Water Plan, a capital expenditure project is expected to be delivered from 2018.[153] SCA's estimates are the best available and this draft decision allows SCA to deliver on a NSW Government requirement.[154]

Our draft decision to allow construction expenditure in 2015/16 will allow SCA to commence this project as soon the Government decides on the optimal flow regime for Warragamba Dam in the 2014 Metropolitan Water Plan. We note that if there is a delay to the project and construction does not commence in 2015/16, we can reconsider expenditure on this project in the roll-forward of the regulatory asset base (RAB) in the next determination period.

Upper Canal refurbishment projects

We agree with Halcrow that SCA's proposal to refurbish the Upper Canal is prudent and its expenditure estimates are efficient. However, we reject Halcrow's recommendation to reclassify most of the proposed expenditure as operating expenditure.

As noted in the 2010 Metropolitan Water Plan, the Upper Canal is integral to Sydney's water supply network.[155] SCA proposes refurbishment work to this failing asset prior to replacement. The proposed works focus on areas of the Upper Canal that are in critical condition.[156] We agree with SCA that this project will improve the Upper Canal's service capacity and quality and that the expenditure does not offset the need to replace the asset.

SCA notes that its capital expenditure is also subject to financial audit by the Auditor-General, and therefore complies with accounting standards.[157] Therefore, we accept SCA's accounting treatment for this project and do not consider that it requires reclassification.

We note that options for the rehabilitation and/or replacement of the Upper Canal are currently being assessed. Consequently, the concerns we raised about the potential large capital expenditure on the Upper Canal and its impacts for customer affordability in our Issues Paper[158] are no longer relevant for the 2012 Determination.

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153 NSW Government, *2010 Metropolitan Water Plan,* August 2010, p 19.

154 As noted in the NSW Government's submission, under section 3.1.2 of the Joint submission for the Office of Environment and Heritage and the Environment Protection Authority, Attachment B, October 2011, p 32 of pdf document.

155 NSW Government, *2010 Metropolitan Water Plan,* August 2010, p 24.

156 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 51.

157 SCA public workshop transcript, 17 November 2011, p 64.

158 IPART, *2012 SCA Issues Paper*, June 2011, p 74–77.

SCA's current estimates indicate that expenditure on the replacement of the Upper Canal will recommence from 2017/18. Therefore, we will consider the need for capital incentives and methods to deal with intergenerational equity in our next determination. Similarly, as the Upper Canal is a working heritage asset, questions about the funding of heritage assets will become important when the Upper Canal is replaced.

7 Revenue requirement for capital investment

The revenue required for capital investment comprises 2 cost components:

- an allowance for a return on assets
- an allowance for a return of assets (regulatory depreciation).

Together, these allowances make up over 50% of SCA's notional revenue requirement for the 2012 Determination, and so have a significant impact on prices. We determine a value for each of these allowances by undertaking 4 steps:

- establishing the opening value of SCA's regulatory asset base (RAB) at the start of the 2012 Determination (1 July 2012)
- calculating the annual value of the RAB over the 2012 Determination by rolling the opening value forward to the end of this period (30 June 2016)
- deciding an appropriate rate of return on assets for SCA, and multiplying the annual value of the RAB by this rate to give the allowance for a return on assets
- deciding on the appropriate depreciation method and asset lives for SCA's existing and new assets, and then calculating the allowance for regulatory depreciation by dividing the RAB by the weighted average asset lives.

The section below summarises our decisions on the allowances for a return on assets and regulatory depreciation. The subsequent sections explain how we reached these decisions by discussing each of the above steps.

7.1 Summary of IPART's draft decisions

Draft decisions

15 Use a real post-tax WACC of 5.5% for the purposes of calculating an allowance for a return on assets.

16 Maintain the current asset life of 60 years for both new and existing assets.

17 Provide a resulting allowance for regulatory depreciation in Table 7.1.

18 Provide a return on working capital and tax allowance in Table 7.1.

Table 7.1 Draft decisions on SCA's revenue building block ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Return on assets	75.2	75.5	75.8	76.0
Depreciation (regulatory)	22.8	23.3	23.7	24.2
Tax allowance	2.9	3.1	3.2	3.2
Return on working capital	0.8	0.7	0.7	0.7

7.2 Calculation of the annual values of the Regulatory Asset Base

The regulatory asset base is the basis for determining the return *on* and *of* capital in the revenue requirement calculation based on the 'building block' approach.

We determine the value of SCA's RAB by:

- establishing the opening value of the RAB to reflect our findings on prudent capital expenditure over the 2009 Determination
- rolling forward the RAB to the end of the 2012 Determination to reflect our draft decisions on efficient forecast capital expenditure, asset disposals and indexation over the 2012 Determination.

The next sections outline our findings on the methodology used in rolling forward SCA's RAB and the resulting values for the RAB over the 2012 Determination.

7.2.1 Establishing the opening RAB for 1 July 2012

Our roll forward of the RAB over the 2009 Determination is presented in Table 7.2. As in past reviews we have determined the value of SCA's opening RAB at 1 July 2012 by:

- rolling forward SCA's RAB from 1 July 2009 to 30 June 2012 on the basis of actual prudent capital expenditure over this period (as discussed in Chapter 6)
- deducting regulatory depreciation as allowed for by the 2009 Determination
- indexing the annual closing RAB for actual or forecast inflation.[159]

[159] In making this calculation we assume that half the capital expenditure occurs at the beginning of the year, therefore receiving a full-year indexation. The remaining half of capital expenditure is assumed to occur at the end of the period and is not indexed.

Table 7.2 Draft decision on roll forward of RAB over the 2009 Determination ($million, nominal)

	2009/10	2010/11	2011/12
Opening RAB value	1,269.5	1,322.2	1,363.5
Capital expenditure	50.2	26.3	18.7
Regulatory depreciation	(22.6)	(24.2)	(25.4)
Asset disposals	(5.0)	(2.2)	(2.1)
Indexation	30.1	41.3	34.3
Closing RAB value	1,322.2	1,363.5	1,389.0

7.2.2 Calculating the annual value of the RAB over the 2012 Determination

Using the opening RAB at 1 July 2012, we calculate the annual values for the RAB over the 2012 Determination (see Table 7.3) by:

- adding our draft allowances for SCA's efficient capital expenditure (Chapter 6)
- deducting regulatory depreciation (see below)
- deducting the value of assets that were sold during the year.

We note that indexation is not required because values are presented in real terms (2011/12 dollars).

Table 7.3 Draft decision on annual values for SCA's RAB for the 2012 Determination ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Opening RAB value	1,389.0	1,394.7	1,400.4	1,405.5
Capital expenditure	30.5	31.7	31.2	31.7
Regulatory depreciation	(23.4)	(23.9)	(24.4)	(24.9)
Asset disposals	(1.4)	(2.1)	(1.7)	(2.2)
Indexation	–	–	–	–
Closing RAB value	1,394.7	1,400.4	1,405.5	1,410.1

7.3 IPART draft decision on an appropriate rate of return

Our draft decision is to apply a real post-tax WACC of 5.5% to calculate the allowance for a return on assets. We consider that the industry weighted average cost of capital is in the range of 4.0% to 5.5%. We will recalculate the rate of return for the final determination to take account of changing market conditions.

There are several approaches for deciding on an appropriate rate of return. As we have done in previous reviews, we use the weighted average cost of capital approach. However, as noted in Chapter 3, this time we adopt a real post-tax

estimate and a separate allowance for the cost of company tax. In previous reviews we have used a real pre-tax WACC.

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

The WACC parameters used to calculate our draft WACC of 5.5% are presented in Table 7.4. We note that our draft decision introduces a range for the debt margin due to the volatility of the market. We are seeking feedback on this draft decision, and it is discussed in more detail in Appendix E.

Table 7.4 Draft decision on the rate of return and the parameters used to calculate the WACC

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

[a] Reflects market data sampled over the 20 days to 9 January 2012. Due to volatility in the market, we have introduced a range for the debt margin. This is discussed in more detail in Appendix E.

7.3.1 Calculating the tax allowance

Our tax allowance for the 2012 Determination is shown in Table 7.5. As discussed in Chapter 3, this tax allowance is a separate building block and is calculated on the same parameters used for the WACC. The tax allowance is intended to more accurately reflect the tax liability for a comparable commercial business. In this determination, the amount allowed for tax is lower than the amount SCA expects to pay, primarily because SCA's actual gearing and interest expense is lower than the benchmarks used for the WACC.

Table 7.5 Draft decision on an allowance for tax ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Tax allowance	2.9	3.1	3.2	3.2

7.4 Calculating the allowance for regulatory depreciation and asset lives

We have made a draft decision to maintain the current asset life of 60 years for SCA's new and existing assets, to calculate the allowance for regulatory depreciation.

For the 2009 Determination we accepted SCA's proposed asset lives of 60 years for both new and existing assets. SCA proposes to maintain this asset life for the 2012 Determination. These asset lives were extensively reviewed in the 2009 Determination.[160]

As in previous determinations, we continue to use the straight-line depreciation method to calculate depreciation.[161] We consider that this method is superior to alternatives in terms of simplicity, consistency and transparency. Our resulting draft allowance for regulatory depreciation is presented in Table 7.1.

[160] WorleyParsons, *Review of Asset Life Determination*, Sydney Catchment Authority (2009 Determination), January 2009.

[161] Under this method, the assets in the RAB are depreciated by an equal value in each year over their economic life, so that their 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.

8 SCA forecast water sales

Once we decide the revenue requirement for SCA, the next step is to set SCA's prices. In doing so, we forecast SCA's customer numbers and water sales.

SCA's primary role is to capture, store and supply raw water. In this context SCA acts as a water 'wholesaler'. SCA sells bulk raw water predominantly to Sydney Water, in addition to the 3 local councils and few bulk raw and unfiltered water customers. For this reason, forecasting SCA's customer numbers is straightforward.

Forecasting water sales is more difficult. This is because there are many factors that can influence water demand. These range from population growth to structure and level of retail water prices; demand-management programs; weather conditions; NSW Government policies regarding water usage and restrictions; and supply augmentation projects. One significant change to SCA's operating environment that impacts our forecasts of SCA's water sales is the uncertain operation of the Sydney Desalination Plant (SDP) over the 2012 Determination. We have made a draft decision to address this source of sales risk through SCA's price structure to Sydney Water.

The section below summarises our draft decisions on SCA's forecast water sales to its customers. The sections that follow discuss these decisions in more detail. Price structures are discussed in Chapter 9.

8.1 Summary of IPART's draft decision

Draft decision

19 IPART's draft decision is to use the forecast water sales listed in Table 8.1 below, for the purpose of calculating draft prices.

Table 8.1 Draft decision on SCA's forecast water sales for the 2012 determination period (ML)

Customer	2012/13	2013/14	2014/15	2015/16
Sydney Water – SDP "off"	487,516	489,651	491,807	495,395
Wingecarribee Shire Council	4,100	4,100	4,100	4,100
Shoalhaven City Council	100	100	100	100
Goulburn Mulwaree Council	500	500	500	500
Unfiltered water customers	220	220	220	220
Bulk raw water customers	30	30	30	30
Total water sales – SDP "off"	**492,466**	**494,601**	**496,757**	**500,345**
SDP water supply[a]	(90,000)	(90,000)	(90,000)	(90,000)
Total water sales – SDP "on"	**402,466**	**404,601**	**406,757**	**410,345**
Sydney Water – SDP "on"	397,516	399,651	401,807	405,395

[a] SDP can provide up to 90GL per year to Sydney Water.

Note: Water sales based on SCA's annual information return.

8.2 Forecast sales to Sydney Water

We have made a draft decision to adopt sales forecasts to Sydney Water that are consistent with the sales forecasts used in the Sydney Water pricing review.[162]

As noted in Chapter 3, a considerable source of revenue risk for SCA over the 2012 Determination is the uncertainty over the operation of SDP.[163] Implicit in SCA's forecast sales to Sydney Water is the assumption that SDP operates at full capacity over the entire determination period.[164] This sales forecast assumption would have an upward impact on SCA's volumetric charge to Sydney Water, as a higher price would be needed to offset reduced annual sales of 90GL and recover SCA's required revenue.

Instead of locking in an assumption regarding the operation of SDP over the entire determination period as proposed by SCA, we have decided to manage this risk through a price schedule with one price to account for lower water sales when SDP is "on" and another when SDP is "off". Our water sales estimates for both SDP "on" and SDP "off" are presented in Table 8.1.

[162] IPART, *2012 Sydney Water Draft Determination*, Chapter 7.
[163] SCA submission, 17 September 2011, p 60.
[164] SCA submission, 17 September 2011, p 60.

SCA's forecast water sales in Table 8.2 show Sydney Water's initial demand forecast, based on its proposed usage charges.[165] However, our draft usage charges for Sydney Water's retail customers are lower than Sydney Water's initial submission. Sydney Water re-ran its demand forecasting model at price levels that reflect our decision on Sydney Water's usage charges. Our lower usage charges resulted in Sydney Water's demand that is on average 3GL per year higher than Sydney Water's submission. This increase is directly reflected in our forecast sales to Sydney Water from SCA.

Table 8.2 Difference between SCA's forecast sales and IPART's draft forecast sales to Sydney Water (ML)

	2012/13	2013/14	2014/15	2015/16
SCA's forecast sales[a]	397,141	396,044	397,830	401,311
IPART's forecast sales – SDP "on"	397,516	399,651	401,807	405,395
Difference	375	3,607	3,977	4,084

[a] SCA's forecast sales assume SDP operating at full capacity for the duration of the 2012 determination period.

Note: The forecast sales to Sydney Water include water for Sydney Water's North Richmond plant – see Table 8.3.

Source: SCA submission, 17 September 2011 and email from Sydney Water, 23 November 2011.

8.2.1 Releases for North Richmond

SCA is required to release water for Sydney Water's North Richmond plant under the NSW Government's Greater Metropolitan Water Sharing Plan. This incorporates North Richmond in the SCA network of regulated supply. We have made a draft decision to apply the volumetric charge to Sydney Water to these water releases.

The quantity of water allocated for release under the water-sharing plan for use at North Richmond is 7.7GL per year.[166] SCA has, however, accepted Sydney Water's demand forecasts for North Richmond, which include a lesser quantity of about 5.5GL per year (Table 8.3). We accept SCA's forecast sales to North Richmond as it is consistent with our review of Sydney Water's prices. The forecast sales to Sydney Water in Table 8.2 above include the forecast sales to North Richmond.

Table 8.3 Draft decision on SCA's forecast sales to North Richmond (ML)

	2012/13	2013/14	2014/15	2015/16
IPART's forecast sales – North Richmond (Sydney Water)	5,453	5,441	5,461	5,500

Source: SCA submission, 17 September 2011, p 60.

[165] Sydney Water submission to Sydney water price review, 16 September 2011, p 110.

[166] NSW Office of Water, *Draft Water Sharing Plan, Greater Metropolitan Region unregulated river water sources*, background document, p 34.

8.3 Forecast sales to local councils

We have accepted SCA's forecast water sales to 3 local councils. While SCA has not provided detailed rationale for these forecasts, they appear reasonable in light of historical consumption levels. These forecasts have also undergone a consultative process conducted by SCA with the local councils.

SCA's actual and forecast sales to the 3 local councils are presented in Table 8.4. SCA expects a slight increase in average sales to Wingecaribee and Shoalhaven councils over the 2012 determination period relative to the 2009 determination period. Goulburn Mulwaree Council is a new customer to SCA for the 2012 determination period now that the pipeline from SCA's Wingecarribee Reservoir to Goulburn is completed.

In its submission to this review, Goulburn Mulwaree Council noted that SCA's estimate of forecast water sales to Goulburn Mulwaree Council is derived from information provided to SCA by the Council. Goulburn Mulwaree Council went on to state that once its Operational Plan is complete it will be in a better position to comment on the forecast water sales.[167]

Table 8.4 SCA's actual and forecast sales to the local councils (ML)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Wingecarribee Shire Council	3,652	3,477	3,900	4,100	4,100	4,100	4,100
Shoalhaven City Council	87	71	80	100	100	100	100
Goulburn Mulwaree Council				500	500	500	500

Note: 2009/10 and 2010/11 reflect actual sales. The remaining years reflect forecast sales.

Source: SCA's submission, 17 September 2011, p 60 and SCA's 2011 annual information return to IPART.

We note that our decision to implement fully distributed cost pricing for the local councils emphasises the need to be precise in setting forecast water sales. This is because the fixed charge for each local council is based on its usage share of SCA's assets. Table 8.5 shows the difference between our forecast water sales and actual sales over the 2009 Determination. In the 2012 Determination, the difference between forecast water sales and actual sales may result in a possible cross-subsidy in the fixed charge between the local councils.

[167] Goulburn Mulwaree Council submission, 12 October 2011.

Table 8.5 SCA's forecast sales compared to actual sales for the local councils over the 2009 determination period (ML)

	2009/10	2010/11	2011/12
Wingecarribee Shire Council			
Forecast sales	4,100	4,100	4,100
Actual sales	3,652	3,477	3,900[a]
Difference	448	623	200
Difference (%)	10.9%	15.2%	4.9%
Shoalhaven City Council			
Forecast sales	80	80	80[a]
Actual sales	87	71	80
Difference	(7)	9	0
Difference (%)	(8.8%)	11.3%	0.0%

[a] 2011/12 sales figures represent forecasts.

Source: IPART, *2009 SCA Final Determination*, June 2009, p 72 and SCA's 2011 annual information return.

8.4 Forecast sales to bulk raw and unfiltered water customers

We have accepted SCA's forecast water sales to bulk raw and unfiltered water customers, as they appear reasonable.

SCA confirmed the forecast water sales to bulk raw and unfiltered water customers are as per its 2011 Annual Information Return, and not its submission. SCA forecasts an increase in average annual sales to these customers relative to the 2009 determination period (Table 8.6). Unfiltered and bulk raw water customers represent approximately 0.05% to 0.06% of SCA's total sales, depending on whether SDP is operating or not.

Table 8.6 SCA's actual and forecast sales to bulk raw and unfiltered water customers (ML)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Bulk raw water customers	27	18	30	30	30	30	30
Unfiltered water customers	181	186	220	220	220	220	220
Total water sales to small customers	208	204	250	250	250	250	250

Note: 2009/10 and 2010/11 reflect actual sales. The remaining years reflect forecast sales.

Source: SCA's 2011 annual information return to IPART, confirmed by a personal communication with SCA on 23 December 2011.

9 Pricing decisions for SCA's water services

Using the draft decisions on aggregate pricing approach, price structures and forecast water sales, we have set draft prices for SCA's services for the 2012 Determination. The section below provides a summary of these pricing decisions. The following sections discuss the decisions on SCA's prices to Sydney Water, the 3 local councils, and bulk raw and unfiltered water customers in detail. All figures (prices and costs) are presented in 2011/12 dollars, while prices in the Draft Determination are in 2012/13 dollars.

9.1 Summary of IPART's draft decision

Draft decision

20 IPART's draft decision is that SCA can charge the maximum prices shown in Table 9.1 for its services over the 2012 determination period.

Table 9.1 Maximum draft prices SCA can charge for its services for the 2012 Determination ($2011/12)

	2012/13	2013/14	2014/15	2015/16
Charges to Sydney Water				
Volumetric charge to Sydney Water – SDP "off" ($/ML)	79.23	78.79	78.71	78.16
Volumetric charge to Sydney Water – SDP "on" ($/ML)	97.17	96.54	96.34	95.51
Fixed charge to Sydney Water ($million p.a.)	154.5	154.3	154.8	154.9
Charges to local councils				
Volumetric charge to local councils ($/ML)	197.11	197.11	197.11	197.11
Fixed charge to Wingecarribee Shire Council ($ p.a.)	269,386	269,386	269,386	269,386
Fixed charge to Shoalhaven City Council ($ p.a.)	6,570	6,570	6,570	6,570
Fixed charge to Goulburn Mulwaree Council ($ p.a.)	32,852	32,852	32,852	32,852
Charges to bulk raw and unfiltered water customers				
Volumetric charge to bulk raw water customers ($/kL)	0.63	0.63	0.63	0.63
Fixed charge to unfiltered water customers – for 20mm meter ($ p.a.)	1,152	1,152	1,152	1,152
Volumetric charge to unfiltered water customers ($/kL)	1.08	1.08	1.08	1.08
Fixed charge to unfiltered water customers – for meter size above 20 mm ($ p.a.)	$(\text{Meter size})^2$ x 20mm fixed charge/400	$(\text{Meter size})^2$ x 20mm fixed charge/400	$(\text{Meter size})^2$ x 20mm fixed charge/400	$(\text{Meter size})^2$ x 20mm fixed charge/400

Note: Prices are shown in different units because sales to Sydney Water are 99% of total sales, and sales to other customers are much smaller.

9.2 Draft prices to Sydney Water

SCA's draft prices to Sydney Water are presented in Table 9.2 and reflect our draft decisions to:

- set prices so that SCA's target revenue reaches its notional revenue requirement in each year of the determination period
- set SCA's prices to Sydney Water using an 80:20 split between the percentage of revenue recovered through fixed charges and the percentage recovered through variable charges
- set different volumetric charges when the SDP is "on" (ie, operating) and "off" (ie, in any of the various shutdown or restart modes)

- use sales forecasts consistent with our review of Sydney Water's prices as the basis for the volumetric charge
- not introduce a scarcity price at the wholesale level for SCA
- not set a separate volumetric charge for SCA supply to Sydney Water's North Richmond plant.

SCA's draft prices to Sydney Water under the 2012 Draft Determination differ from prices under the 2009 Determination due to our decisions to introduce 2 categories of prices to manage the uncertain operation of SDP and move to an 80:20 fixed-to-variable price structure. We considered a range of options for SCA's prices to Sydney Water, including those proposed by SCA and other stakeholders (see Chapter 3).

We have also changed the structure of SCA's prices to Sydney Water to more accurately reflect the split between SCA's fixed and variable operating costs, and give SCA greater revenue certainty should water sales significantly differ to our forecasts. We note that the current 40:60 split between the percentage of revenue recovered through fixed charges and the percentage recovered through variable charges was a 'holding' option only for the 2009 Determination, given that SCA's operating environment was in a state of transition due to the development of SDP's operating rules and the NSW Government's 2010 Metropolitan Water Plan.[168]

While the move to an 80:20 pricing split is consistent with SCA's submission and stakeholder views, SCA does not propose a schedule of prices to manage SDP's variable output over the 2012 Determination. Instead, SCA proposes a volumetric charge to Sydney Water based on sales forecasts that assume SDP operates at full capacity over the 2012 determination period.

We consider that the price schedule, with one volumetric charge when SDP is "on" and another price when it is "off", better manages SCA's revenue risk over the 2012 Determination. The price schedule compensates SCA for any foregone sales arising from the operation of SDP. This means there is an inverse relationship between the price charged and the volume of sales to Sydney Water. The price schedule ensures that SCA does not over- or under-recover revenue resulting from SDP operation.

The price schedule also ensures that customers do not pay more than what is necessary for SCA's dam water when SDP is "off".[169] Therefore, our price schedule removes the need to consider complicated adjustment mechanisms to account for this source of revenue risk.

168 IPART, *2009 SCA Final Determination*, June 2009, p 85.

169 If prices were set on the assumption that SDP operates at full capacity over the 2012 Determination, then it would result in a higher volumetric charge for SCA's dam water. Should SDP then turn "off" and not operate for a period of time, SCA would over-recover revenue and over-charge customers.

We set SCA's 2 volumetric charges to Sydney Water so that the target revenue reaches the notional revenue requirement in each year of the determination period. This aggregate pricing approach is consistent with SCA's pricing proposal. SCA's actual charges to Sydney Water will reflect the volume of sales each year when SDP is "on" and "off", using the price schedule.

Total revenue to be paid by Sydney Water to SCA in 2012/13 – the first year of the 2012 Determination – is forecast to decrease by about 8.1% compared to the allowance for 2011/12. The main reason for the reduction in revenue, and prices based on that revenue, is our change in approach to the incorporation of company taxation in our pricing determinations. Customer impacts of the draft prices are presented in Chapter 10.

Table 9.2 Draft prices to Sydney Water for the 2012 Determination ($2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Volumetric charge – SDP "off"($/ML)		79.23	78.79	78.71	78.16
Volumetric charge – SDP "on"($/ML)	284.38	97.17	96.54	96.34	95.51
Annual change (%)			-0.7%	-0.2%	-0.9%
Fixed charge ($million p.a.)	86.0	154.5	154.3	154.8	154.9
Annual change (%)			-0.1%	0.3%	0.0%
Forecast sales revenue ($million p.a.)	210.3	193.1	192.9	193.5	193.6
Annual change (%)		-8.1%	-0.1%	0.3%	0.0%

9.3 Draft prices to local councils

The draft prices to the 3 local councils are presented in Table 9.3 and reflect our draft decisions to:

- move to fully distributed cost pricing for the local councils
- set prices so that SCA recovers the required revenue from the local councils in each year of the determination period
- set the SCA's charges to the local councils using a 25:75 fixed-to-variable price structure
- set the fixed charge such that it is based on each council's demand as a proportion of yield of the assets used to deliver water to the local councils
- have the same volumetric charge for the 3 local councils
- use SCA's forecast water sales to the local councils.

Since the 2005 Determination, we have been transitioning SCA's volumetric prices to local councils such that water prices move towards full cost recovery. For the 2012 Determination we have made a decision to move to prices based on fully distributed costs.

The draft prices to the 3 local councils reflect the asset cost allocation proposed by SCA in its submission.[170] We have decided to adopt SCA's proposed approach and its forecast water sales. By doing so we honour the outcome of the consultative process SCA was asked to conduct with its customers in the 2009 Determination. The prices based on fully distributed costs use the cost of assets identified by SCA to supply water to the local councils, apportioned to each council based on their water demand.

The move to prices based on fully distributed costs also removes the existing cross-subsidy between the local councils and Sydney Water. This is reflected in the 3.3% decrease in target revenue from the local councils from current levels, which is less than the comparable 4.8% decrease for Sydney Water.

We have also made a decision to move from the 100% volumetric charge to the local councils and changed the structure of SCA's prices to the local councils to a 25:75 fixed-to-variable price structure. The 25:75 price structure also reflects the outcome of consultation between the local councils and SCA. The local councils consider this price structure to better align with their end-cost structure.

The combination of fully distributed cost pricing and the new price structure ensures that water prices to the local councils move in a manner consistent with Sydney Water. This is consistent with the 2009 Determination.

Table 9.3 Draft charges to the local councils for the 2012 Determination ($2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Volumetric charge to the 3 local councils ($/ML)	268.87	197.11	197.11	197.11	197.11
Fixed charge to Wingecarribee Shire Council ($/pa)		269,386	269,386	269,386	269,386
Fixed charge to Shoalhaven City Council ($/pa)		6,570	6,570	6,570	6,570
Fixed charge to Goulburn Mulwaree Council ($/pa)		32,852	32,852	32,852	32,852

[170] SCA submission, 17 September 2011, p 62.

9.4 Draft prices to bulk raw and unfiltered water customers

The draft prices to bulk raw and unfiltered water customers are presented in Table 9.1. These reflect our draft decision to accept SCA's proposal on the price structure and level of prices to bulk raw and unfiltered water customers.

Our draft decision is to maintain a fixed availability charge based on meter size and a single volumetric charge for all unfiltered water customers at current levels. For bulk raw water customers we have decided to maintain a 100% volumetric charge also at the current level. We consider that the current levels of prices ensure bulk raw water and unfiltered water customers adequately contribute to the recovery of SCA's costs.

10 Customer impacts

In making the 2012 Determination, we considered all the matters we are required to under the IPART Act. Appendix A lists these matters and indicates where each is discussed in this report. We are satisfied that the 2012 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 our 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. All dollar figures presented in this chapter are in real terms (2011/12 dollars) and corresponding figures in nominal dollars are presented in Appendix F.

10.1 Implications for water customers

In reaching our pricing decisions, we considered the implications of these prices for Sydney Water and its customers, the 3 local councils supplied by SCA and their customers, and SCA's retail (bulk raw and unfiltered water) customers.

10.1.1 Implications for Sydney Water and its customers

Our analysis indicates that changes in SCA prices from the 2012 Draft Determination will have no real impact on Sydney Water's customers. This is because the cost of purchasing water from the SCA is only a small proportion of Sydney Water's total efficient costs. We calculated SCA's charges as a percentage of Sydney Water's total efficient costs as set in our Draft Determination of Sydney Water's prices from 1 July 2012 (see Table 10.1).

Table 10.1 Purchase cost of SCA water as a percentage of Sydney Water's total efficient costs ($million, $2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Total purchase cost of SCA water	202.5	193.1	192.9	193.5	193.6
Total efficient costs of Sydney Water (notional revenue requirement)[a]	2,292.9	2,197.5	2,237.1	2,273.2	2,299.0
SCA water costs as a percentage of Sydney Water's efficient costs	8.8%	8.8%	8.6%	8.5%	8.4%

a Sydney Water's notional revenue requirement as set in the *2008 Sydney Water Final Determination* and the *2012 Sydney Water Draft Determination*.

Table 10.1 indicates that the cost of purchasing water from the SCA is approximately 8.5% of Sydney Water's total costs throughout the 2012 determination period. This shows that even considerable changes in SCA's prices would have only a small effect on Sydney Water customers' bills. The operation of the Sydney Desalination Plant (SDP) has no impact on SCA's sales revenue from Sydney Water and hence on Sydney Water's prices to its customers. We have allowed SCA to recover its total costs in either instance via the SDP price schedule, and these costs are passed on in full to Sydney Water customers.

To examine the impacts on Sydney Water customers, we estimated the annual change in typical Sydney Water customers' bills from our 2012 Draft Determination of Sydney Water's prices and the contribution to this change that the 2012 Determination for SCA will have (see Table 10.2).

Our draft SCA prices to Sydney Water are estimated to cause a minor decrease to all Sydney Water customers' bills in 2012/13, the first year of the determination period. There are no real impacts in subsequent years. All bills shown are based on customers that consume an average amount of water for their meter size.

For example, under our 2012 Draft Determinations for both SCA's and Sydney Water's prices, the annual water and sewerage bill for a typical 40mm meter non-residential customer is estimated to increase by $209.51 in 2012/13. This includes a decrease of $23.30 due to our 2012 Draft Determination for SCA. In other words, if we exclude the impact of our 2012 Draft Determination for SCA, the water and sewerage bill for this customer would have increased by $232.81 in 2012/13.

We compared average water and sewerage residential bills for Sydney Water customers with average earnings in NSW since 1996/97. We estimated that over the 2012 determination period, these bills remain a very small proportion of average earnings (1.8% to 2%)[171]. We conclude that SCA prices from our 2012 Draft Determination for SCA will have no real impact on the proportion of average earnings allocated to water services.

[171] Average annual earnings for NSW sourced from the Australian Bureau of Statistics - 6302.0 - Average Weekly Earnings, Australia, November 2011.

Table 10.2 Annual impact on typical Sydney Water customers' bills attributable to the 2012 SCA Draft Determination[a] ($, $2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Res: 20mm meter and 200 kL pa					
Typical water and sewerage bill from 2012 Sydney Water Draft Determination	1,105	1,086	1,074	1,061	1,048
Annual change in bill		(18.73)	(12.55)	(13.11)	(12.87)
% change in bill		(1.7%)	(1.2%)	(1.2%)	(1.2%)
SCA impact on bill from the 2012 Draft Determination		(4.88)	(0.11)	0.30	0.03
SCA impact as a percentage of bill		(0.4%)	0.0%	0.0%	0.0%
Non-Res: 20mm meter and 300 kL pa					
Typical water and sewerage bill from 2012 Sydney Water Draft Determination	1231	1212	1200	1187	1174
Annual change in bill		(18.91)	(12.55)	(13.11)	(12.87)
% change in bill		(1.5%)	(1.0%)	(1.1%)	(1.1%)
SCA impact on bill from the 2012 Draft Determination		(5.44)	(0.12)	0.33	0.03
SCA impact as a percentage of bill		(0.4%)	0.0%	0.0%	0.0%
Non-Res: 40mm meter and 1000 kL pa					
Typical water and sewerage bill from 2012 Sydney Water Draft Determination	4,977	5,186	5,419	5,686	5,997
Annual change in bill		209.51	232.56	267.49	310.19
% change in bill		4.2%	4.5%	4.9%	5.5%
SCA impact on bill from the 2012 Draft Determination		(23.30)	(0.59)	1.59	0.16
SCA impact as a percentage of bill		(0.4%)	0.0%	0.0%	0.0%

[a] We calculate the change in the cost of purchasing SCA water as a percentage of Sydney Water's target revenue. We then apply this percentage on typical Sydney Water customers' bills. The result represents the change in Sydney Water customers' bills that is attributable to the *2012 Sydney Water Draft Determination*.

10.1.2 Implications for local councils and their customers

The 2012 Determination will have a small-to-negligible impact on household water bills for customers of each of the 3 local councils.

Wingecarribee Shire Council, the largest of SCA's council customers, has advised that the current average household water bill for its customers is approximately $411 per year, and that the proportion of this bill attributable to SCA's costs is about $62 (15%).[172] Table 10.3 shows that the 2012 Draft Determination would decrease a typical household water bill from $411 in 2011/12 to $402 in 2014/15. This is a decrease of 2.3% for a typical household's water bill, or 0.9% for the household's combined water and sewerage bill.

[172] Email to IPART from Selva Selvaratnam, Asset Manager, Wingecarribee Shire Council, 23 December 2011.

Table 10.3 Impact of the 2012 SCA Draft Determination on Wingecarribee Council customers' annual household bills ($, $2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Typical household water bill[a]	411[b]	402	402	402	402
Typical household water and sewerage bill[b]	1,026[c]	1,017	1,017	1,017	1,017
Year-on-year % change in water bill		(2.3%)	0.0%	0.0%	0.0%
Year-on-year % change in water and sewerage bill		(0.9%)	0.0%	0.0%	0.0%

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 We have held the average sewerage bill constant across the determination period. According to Wingecarribee Shire Council, a typical water bill is currently about $411 per year, and the cost of purchasing bulk water from SCA accounts for approximately 15% ($62) of this bill (email to IPART, 23 December 2011).

c Wingecarribee Shire Council advised that residents are currently paying approximately $615 per year in sewerage charges (email to IPART, 23 December 2011). Therefore, assuming a typical water bill is $411 per year, a typical household water and sewerage bill is $1,026 per annum.

We expect that the 2012 Draft Determination will have a negligible impact on Goulburn Mulwaree Council customers once the Highlands Source Pipeline begins operation. This is because the cost of purchasing SCA water contributes only a small amount to the total cost of providing water to Goulburn Mulwaree Council customers. We estimate that the cost of SCA water during the 2012 determination period is only 1.1% of the Council's present (2011/12) revenue from water and sewerage bills.

We expect that the 2012 Draft Determination will also have a negligible impact on Shoalhaven City Council's water customers, as Shoalhaven purchases a very low proportion of its water from SCA. The National Water Commission indicates that Shoalhaven City Council purchased between 0.5% and 0.6% of its water from SCA over 2006/07 and 2009/10.[173]

10.1.3 Implications for bulk raw and unfiltered water customers

SCA supplies water to about 64 retail customers, comprising 56 unfiltered water customers and 8 bulk raw water customers. Under the 2012 Draft Determination, SCA's bulk raw and unfiltered water customers' water bills will remain constant in real terms over the determination period. We consider that over this period, these prices ensure that bulk raw and unfiltered water customers adequately contribute to the recovery of SCA's costs.

[173] National Water Commission, *National Performance Report 2009–2010, urban water utilities, Part B – Utility by Utility performance results,* p 121.

10.2 Implications for SCA's service standards

It is important that our 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. We consider that prices under the 2012 Draft Determination will allow SCA to continue to meet all of its service standards and other requirements during the 2012 determination period, and the efficiency targets we included in estimating SCA's efficient operating and capital expenditure are reasonable and achievable. Furthermore, we require SCA to report against output measures over the 2012 determination period, which links expenditure with projects that are important to the effective functioning of SCA.

10.3 Implications for SCA and its shareholders

We are satisfied that the 2012 Draft Determination will not adversely affect SCA's ability to operate, maintain, renew and develop the assets required to deliver its regulated services. In particular, we are satisfied that the 2012 Draft Determination will enable SCA to earn a reasonable rate of return. Our preliminary modelling shows that SCA will also achieve an investment grade credit rating as required by the NSW Government.[174]

10.3.1 Rate of return

Our draft decisions on pricing mean that SCA is able to achieve at least the total revenue requirement in each year of the determination period. Hence, the real post-tax rate of return on SCA's Regulatory Asset Base is expected to be at least the target rate of 5.5% in each year of the 2012 Determination. This calculation is based on the assumptions in our modelling of the financial impacts of our draft pricing decisions, and depends on SCA achieving the efficiency targets we have set.

10.3.2 Financeability

For most determinations, we base prices on our estimate of the revenue that the regulated business will require to meet its efficient costs over the determination period. The 'building block' approach gives the business the opportunity to recover its costs and remain financially viable in the long term. However, it does not necessarily ensure that it will be able to finance its operating and capital costs over the 4 years of the determination period. Therefore, before we finalise our pricing decisions we apply a financeability test to understand how our decisions are likely to affect a business's short-term viability.[175]

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[174] NSW Treasury, *Capital Structure Policy for Government Businesses*, September 2002, p 2.
[175] IPART, *Financeability tests and their role in price regulation*, January 2011.

Our financeability test involves calculating notional credit ratings and comparing them with a benchmark of an investment grade credit rating of BBB+ as a minimum to be achieved across the determination period. If we identify potential financeability issues, we then consider likely causes of these issues and the options for addressing them.

Our methodology uses a range of financial ratios that are commonly used by credit rating agencies to assess an entity's financial strength and ability to service and repay debt. The ratios are compared with ratio targets that depend on the underlying business risk of the entity. For the 2012 Draft Determination, we assumed that SCA has a 'low-risk' business risk profile, which is the lowest level of risk and the same profile that NSW Treasury assigned to SCA and Sydney Water in 2010.[176]

The ratios are calculated using actual gearing ratios and forecast cash flows based on our pricing decisions. Previously we have used the interest rates assumed for the WACC in calculating interest expense. Because our objective is to provide a cross-check on the financeability as an external stakeholder (eg, lender or rating agency) would view the business, we consider that the analysis should reflect actual interest expense. Hence, we have used the business's actual and projected interest rates in calculating interest expense.[177]

We assessed the impact of our draft determination on SCA's financial viability using the methodology outlined in our 2011 financeability policy[178]. Our methodology incorporates inputs provided by NSW Treasury which, however, are no longer available. As an interim measure, we have undertaken our financeability assessments using previous approach. We will obtain further information and update our analysis of SCA's financeability before the Final Determination.

Our preliminary modelling for the Draft Determination shows that SCA remains well above investment grade for the determination period.

SCA's submission argued that we should determine prices at an adequate rate of return so that SCA retains its credit rating.[179] SCA noted that its funding requirements will increase considerably in coming years when the Upper Canal replacement project is approved. This expenditure will occur in the next determination period and is not a factor in our analysis for the 2012 Determination.

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176 NSW Treasury provided information on the business risk category of SCA in 2010. We have used that information in our analysis of financeability for this Draft Determination. We have requested assistance from NSW Treasury to update our financeability methodology to reflect its current approach.

177 Our paper on the financeability tests (*Financeability tests and their role in price regulation*, January 2011) did not discuss the interest rate to be used in calculating the financial ratios. We will set out the options and their relative merits, along with our preferred approach when we update this paper for the change to the post-tax WACC.

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

179 SCA submission, 17 November 2011, p 67.

10.3.3 Dividend payments

Based on the prices in the 2012 Draft Determination, our preliminary financial modelling indicates that SCA will be able to maintain a 70% dividend payout ratio, consistent with NSW Treasury policy[180], and achieve an investment-grade credit rating in each year of the determination period.

10.3.4 Impact on the Consolidated Fund if SCA does not increase prices to maximum levels allowed under the 2012 Determination

Under section 16 of the IPART Act, we are required to report on the likely impact on the Consolidated Fund if SCA's prices are not increased to the maximum levels permitted by the 2012 Determination.

As a government-owned business, SCA's distributions to the NSW Government comprise tax equivalent payments and dividends. If SCA's prices were set at lower than the maximum allowed, the level of tax equivalent payments and dividends paid to the Consolidated Fund would decline. The extent of this decline would depend on Treasury's application of its financial distribution policy.

Our financial modelling is based on a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit. A $1 decrease in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 49 cents in total, which is 70% of the decrease in after-tax profit of 70 cents.

10.4 Implications for general inflation

Under section 15 of the IPART Act, we are required to consider the effect on general price inflation. Water and sewerage, for Sydney, currently contributes 0.29% towards the consumer price index (all groups, 8 capital cities).[181] For the typical residential Sydney Water customer consuming 200kL per year, the real average annual decrease to a water and sewerage bill from 2011/12 to 2015/16 as a result of the 2012 Determination is about 0.11%. Therefore, the approximate annual impact on general price inflation is -0.00032% points (above changes in the CPI).[182]

10.5 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.

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[180] NSW Treasury, *Financial Distribution Policy for Government Businesses*, TPP 09-06, p 5.

[181] From IPART, *2012 Sydney Water Draft Determination,* March 2012 – based on Australian Bureau of Statistics, Consumer Price Index 16th Series Weighting Pattern (cat. no. 6471.0).

[182] -0.11% x 0.29% = -0.00032%

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 discussed in Chapter 2, several government agencies are responsible for regulating the environmental performance of SCA, including the Department of Primary Industries and the Office of Environment and Heritage.

We expect that our price decisions will enable SCA to meet its environmental performance standards and encourage sustainable water management and consumption. SCA is able to recover the costs it efficiently incurs in fulfilling its catchment management and water supply functions and in meeting its environmental obligations.

Appendices

A Matters to be considered by IPART under section 15 of the IPART Act

In making determinations, IPART is required, under Section 15 of the IPART Act, to have regard to the following matters (in addition to any other matters IPART considers relevant):

a) the cost of providing the services concerned

b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services

c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales

d) the effect on general price inflation over the medium term

e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers

f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment

g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets

h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body

i) the need to promote competition in the supply of the services concerned

j) considerations of demand management (including levels of demand) and least cost planning

k) the social impact of the determinations and recommendations

l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

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 4 to 7
b) the protection of consumers from abuses of monopoly power	Chapters 2 and 3
c) the appropriate rate of return and dividends	Chapters 7 and 10 and Appendix D
d) the effect on general price inflation	Chapter 10
e) the need for greater efficiency in the supply of services	Chapters 4 to 7
f) ecologically sustainable development	Chapter 10
g) the impact on borrowing, capital and dividend requirements	Chapter 10
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	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	Chapter 10
l) standards of quality, reliability and safety	Chapter 10

B SCA's 2010/11 water balance for total supply system

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[a]			1,501,500	
Changes in operating storage capacity			26,880	
Volume in storages at end of year[b]			1,973,140	
Changes in storages			498,520	26%
Storages net evaporation			93,447	5%
Inflows				
All dams and weirs	1,880,958	100%		
Groundwater	–	0%		
Fish River water supply purchases	224	0%		
Sub-total	1,881,182	100%		
Water supplied to customers				
Sales to Sydney Water			413,192	22%
Sales to Wingecarribee Shire Council			3,477	0%
Sales to Shoalhaven City Council			71	0%
Sales to retail customers			204	0%
Sub-total			416,944	22%
Water released under water management licence				
Releases to Shoalhaven City Council (Tallowa)			16,419	1%
Riparian releases			10,202	1%
Environmental releases[c]			293,085	16%
Other system releases to river[d]			2,916	0%
Sub-total			322,622	17%
Reservoir or weir spills			552,828	29%
Unaccounted difference[e]	3,179	0.20%		
Total	**1,884,361**	**100%**	**1,884,361**	**100%**

a Note that storage volume is listed in the distribution column as storage levels increased over the 2010/11 financial year. In accounting terms, storages were used to capture inflows rather than being used as a source of water supply releases downstream.

b Due to updated survey data and changes in operating rules, operating storage capacity was reduced by 26880ML on 1 July 2010.

c Only environmental releases that leave the system boundary are included in the balance.

d 'Other system releases to river' are releases additional to the required environmental releases due to limitation of release mechanism.

[e] The 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.

Source: http://www.sca.nsw.gov.au/_data/assets/pdf_file/0004/25078/SCA-Water-Balance-for-2010-11.pdf.

C SCA's compliance with its operating licence over 2010/11

IPART employed a risk-based approach for the 2010/11 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.

This year SCA demonstrated that it continues to manage its resources and operations well. The auditor awarded full compliance for 71 of 85 obligations audited. This level of compliance is an improvement on that of the previous audit.

While there are some areas where compliance has been assessed as 'moderate' (1 obligation) or 'high' (13 obligations), no significant issues were identified concerning SCA's core responsibilities or its performance against key provisions of its operating licence. In summary, for the audited clauses we found that SCA achieved:

- Moderate-to-full compliance with requirements relating to raw bulk water quality. The 1 moderate-compliance grade related to water quality planning. While it was apparent that actions to improve water quality had been undertaken, the auditor did not see evidence that the impacts of the actions had been assessed. The 5 high-compliance grades related to minor deficiencies in reporting of water quality data, implementation of improvements to the Water Monitoring Program and reprioritisation of actions after assessments had been made.
- Full compliance with its requirements relating to catchment management and protection activities.
- Full compliance with its obligations relating to the environment.
- Full compliance with its obligations relating to management of catchment infrastructure works.
- High-to-full compliance with its obligations relating to asset management. Four high-compliance grades were awarded because a lifecycle cost methodology had not been implemented for some assets (eg IT), although it is well implemented for the water supply assets.

In addition, SCA provided evidence of compliance with all of the operating licence conditions that were not subject to audit.

The full report on the 2010/11 audit of SCA's performance against its operating licence is available on IPART's website <www.ipart.nsw.gov.au>.

D Weighted average cost of capital

An important step in our review is determining the allowance for a return on assets to be included in SCA's notional revenue requirements. As part of our new approach to incorporation of company tax, we decided to use a real post-tax weighted average cost of capital (WACC). This is the first time we have used a real post-tax WACC; the decision to do so was made in December 2011.[183]

The WACC for a regulated business is the expected cost of its various classes of capital (debt and equity) over the determination period, weighted to take into account the relative share in its capital structure. To determine this cost for SCA, we used our usual approach for price setting purposes. This approach involves 2 steps:

1. Estimating the possible range for the WACC, by calculating values for each of the parameters that influence the cost of debt and the cost of equity in the regulated business.
2. Making a judgement on the appropriate point estimate for the regulated business's WACC within this range.

The assumptions and parameters used in estimating the WACC are consistent with those used in commercial corporate valuation.

We then calculated the return on assets by multiplying the regulated asset base by this point estimate.

We consider a real post-tax WACC more accurately estimates the tax liability for a similar well-managed, privately owned business. Under this approach, tax will be included as a separate cost building block. We consulted with SCA as part of the decision-making process.

The section below summarises our decisions on the WACC for SCA. The subsequent sections outline the key inputs we considered in making these decisions, including SCA's proposed WACC, submission comments, our previous WACC decisions, our analysis and decisions, and the effect of our decision to adopt a real post-tax WACC.

[183] IPART, *The incorporation of company tax in pricing determinations*, December 2011.

D.1 Summary of our draft decision on the WACC

We estimated an appropriate range for the industry WACC of between 4.0% and 5.5% with a midpoint of 4.6%. Due to current market uncertainty and historically low parameter estimates, we decided an appropriate point estimate for the WACC is the upper bound of our range – 5.5%. Our draft decisions on parameters are shown in Table D.1 below.

Table D.1 Rate of return range and parameters – IPART's decision for the Draft Determination

WACC parameters	Long term averages	Draft decisions (market values)
Nominal risk-free rate	5.4%	3.3%
Inflation	2.5%	2.6%
Market risk premium	5.5% to 6.5%	5.5% to 6.5%
Debt margin	2.0%	3.5% to 4.8%
Debt to total assets	60%	60%
Gamma	0.25	0.25
Equity beta	0.6 to 0.8	0.6 to 0.8
Cost of equity	8.7% to 10.6%	6.6% to 8.5%
Cost of debt	7.4%	6.8% to 8.1%
WACC range (real pre-tax)[a]	6.3% to 7.2%	4.7% to 6.5%
WACC midpoint[b] (real pre-tax)[a]	6.7%	5.5%
WACC range (real post-tax)	5.3% to 6.0%	4.0% to 5.5%
WACC midpoint[b] (real post-tax)	5.6%	4.6%
WACC point estimate (real post-tax)	n/a	5.5%

[a] These estimates are not used by IPART; they are included for comparison to SCA's submission and our previous decisions.

[b] The midpoint WACC is calculated using the midpoint of each of the parameters.

We determined the values for the parameters of the WACC based on market conditions over the 20 days to 9 January 2012.

The risk-free rate and the debt margin have been affected by market volatility and the prolonged weak market conditions. The change in these factors has potentially created a disparity between these parameters (for which we use short-term average data) and the market risk premium (for which we use long-term average data). In the current market circumstances, there is some evidence to support the view that expectations for the market risk premium have risen as bond yields have fallen. However, it is difficult to measure these short-term variations in expectations for the market risk premiums.

In this draft decision we have adopted a range for the debt margin. We are seeking comment from stakeholders regarding this decision. This issue is discussed further in Appendix E.

To guide our decision making on the point estimate for the WACC, we estimated the long-term averages of the risk-free rate, inflation rate and the market risk premium. We found that using these long-term averages, the WACC would have a midpoint of 5.6%. This midpoint is 100 basis points higher than the midpoint of the range we determined for the WACC.

In light of this, we consider it appropriate to use the upper bound of our WACC range – 5.5% – in setting prices for SCA for the next 4 years. We consider that this WACC addresses the higher level of market uncertainty at this time, and SCA's concerns in relation to the risk-free rate, equity beta and the market risk premium. We note that this WACC is lower than SCA's proposed WACC.

D.2 SCA's proposed WACC

In its submission, SCA proposes a real pre-tax WACC of 7.0% be applied for the coming price path. SCA considered this increase from 6.5% in the previous determination was necessary due to the new competitive environment, with the Sydney Desalination Plant (SDP) now a competing bulk water supplier. SCA considered the higher WACC would allow SCA to build an appropriate capital structure and provide financial sustainability. SCA supported its proposal with advice from Deloitte Touche Tohmatsu (Deloitte).

Table D.2 compares SCA's proposal with our draft decision. The major differences between SCA's proposal and our draft decision at current market rates are the nominal risk-free rate and the equity beta. Our decisions on the WACC parameters are discussed in Section D.4 below.

Table D.2 Comparison of SCA's proposal for the rate of return and parameters to calculate the WACC and our draft decision

WACC parameters	SCA's proposal	IPART market values
Nominal risk-free rate	4.5%	3.3%
Inflation	2.8%	2.6%
Market risk premium	6%	5.5% to 6.5%
Debt margin	2.5% to 3.5%	3.5% to 4.8%
Debt to total assets	60%	60%
Gamma	0.25	0.25
Tax rate	30%	n/a
Equity beta	0.8 to 1.0	0.6 to 0.8
Cost of equity (nominal post-tax)	9.3% to 10.5%	6.6% to 8.5%
Cost of debt (nominal pre-tax)	7.0% to 8.0%	6.8% to 8.1%
Cost of debt (nominal post-tax)	4.9% to 5.6%	6.6% to 8.5%
WACC range (real pre-tax)	6.1% to 7.2%	4.7% to 6.5%
WACC midpoint[a] (real pre-tax)	6.7%	5.5%
WACC range (real post-tax)	5.0% to 6.1%	4.0% to 5.5%
WACC midpoint[a] (real post-tax)	5.5%	4.6%
WACC point estimate (real post-tax)	**5.9%**[b]	**5.5%**

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

[b] SCA did not submit a real post-tax WACC estimate. We have converted SCA's parameters to estimate what their submission may have been in real post-tax terms. This is used as a guide only.

Source: SCA submission, 17 November 2011, p 91. IPART analysis.

D.3 Comparison of our past WACC decisions under a pre- and post-tax framework

Table D.3 shows the real pre-tax WACC decisions for our most recent water determinations. This includes the 2012 SDP Determination, 2010 State Water Determination, 2009 Hunter Water Determination, 2009 SCA Determination and 2008 Sydney Water Determination. We have also included a comparison of what these pre-tax WACC decisions would likely have been if they were made under our current post-tax WACC approach.

Table D.3 shows:

- There has been a wide variation in the WACC range that we have determined over the years. This reflects changes in the prevailing market conditions at the time of the decision.
- The real post-tax WACC is lower than the real pre-tax WACC and this is due to the inclusion of a more accurate estimation for company tax.
- We have expanded the range to estimate the gamma and equity beta in our 2012 SDP Determination. This was based on the best available information at the time.

Table D.3 Rate of return parameters – draft decision compared to IPART's past decisions[a]

	Draft decision	2012 SDP	2010 State Water	2009 Hunter Water	2009 SCA
Nominal risk free rate[a]	*3.3%*	*3.9%*	*5.8%*	*4.6%*	*4.3%*
Inflation[b]	*5.5%*	*2.6%*	*3.0%*	*2.5%*	*2.5%*
Market risk premium	5.5% to 6.5%	5.5% to 6.5%	5.5% to 6.5%	5.5% to 6.5%	5.5% to 6.5%
Debt margin[b]	*3.5% to 4.8%*	*3.5%*	*1.8% to 3.8%*	*2.7% to 3.5%*	*2.8% to 3.5%*
Debt to total assets	60%	60%	60%	60%	60%
Gamma	**0.25**	**0 to 0.5**	0.3 to 0.5	0.3 to 0.5	0.3 to 0.5
Tax rate	n/a	30%	30%	30%	30%
Equity beta	**0.6 to 0.8**	**0.6 to 0.8**	0.8 to 1.0	0.8 to 1.0	0.8 to 1.0
Cost of equity (nominal post-tax)	6.6% to 8.5%	7.1% to 9.1%	10.2% to 12.3%	9.0% to 11.1%	8.7% to 10.8%
Cost of debt (nominal pre-tax)	6.8% to 8.1%	7.4%	7.6% to 9.6%	7.3% to 8.1%	7.1% to 7.8%
WACC range (real pre-tax)	4.7% to 6.5%	5.1% to 6.9%	6.2% to 8.7%	6.0% to 7.8%	5.7% to 7.5%
WACC (real pre-tax) point estimate	**6.5%**	**6.7%**	**7.4%**	**6.5%**	**6.5%**
WACC range (real post-tax)	4.0% to 5.5%	4.6% to 5.3%	5.5% to 7.4%	5.3% to 6.6%	5.1% to 6.3%
WACC point estimate (real post-tax)	**5.5%**	**5.3%[a]**	**6.4%[a]**	**5.7%[a]**	**5.7%[a]**

a These reviews did not use a real post-tax WACC estimate. We have converted those WACCs to estimate what the decisions may have been in real post-tax terms. This is used as a guide only.

b These parameters reflect market data at the time of the decision.

D.4 Our analysis on WACC parameters

D.4.1 Nominal risk-free rate

The risk-free rate is used as a point of reference in determining both the return on equity and the cost of debt within the WACC. In both the capital asset pricing model (CAPM) and the cost of debt calculation, the risk free rate is the base to which a premium or margin is added to reflect the riskiness of the specific business for which the rate of return is being derived.

SCA and Deloitte note that we have used the 20-day average of 10-year Commonwealth Government Bond yield for the risk-free rate in the 2009 SCA Determination, the 2010 Country Energy Determination and the IPART WACC paper.[184] SCA proposes a nominal risk-free rate of 4.54%, based on the 20-day trading period to 23 August 2011 of the 10-year Australian Government Bond yield.

In April 2011, we decided to shorten the term to maturity from 10 years to 5 years for estimating the nominal risk-free rate, debt margin and inflation.[185] We have decided to continue this approach for estimating the nominal risk-free rate to maintain regulatory consistency.

D.4.2 Inflation rate

The inflation rate is used to convert nominal parameters into real parameters. SCA proposes an inflation rate of 2.8%. This forecast is based on the average inflation rate forecast by the Economist Intelligence Unit.[186]

To estimate inflation we use a 5-year market-based swap model to predict a forward inflation rate. We consider that the use of swap market data is objective, replicable and transparent. It does not require the subjective selection of data, unlike the use of Economist Intelligence Unit forecasts.

D.4.3 Debt margin

The debt margin represents the cost of debt that a company has to pay above the nominal risk-free rate. The debt margin is related to current market interest rates on corporate bonds, the maturity of debt, the assumed capital structure and the credit rating.

SCA and Deloitte propose a debt margin of 250 to 350 basis points above their selected risk-free rate of 4.54%, which implies a cost of debt of 7% to 8%.[187] SCA's proposal is based on SCA's interest expense and loan obligation, our 2009 SCA Determination, our 2010 Country Energy Determination and our Debt Margin paper.[188]

[184] SCA submission, 17 November 2011, p 91.
[185] IPART, *Developing the approach to estimating the debt margin – Final Decision*, April 2011, p 19.
[186] Of the Economist Group.
[187] SCA submission, 17 November 2011, p 91. IPART analysis.
[188] IPART, *Developing an approach to estimating the debt margin – Final Decision*, April 2011.

Our current debt margin approach is based on 20-day averages of fair value yield curve data obtained for BBB rated Australian corporate bonds with a maturity of 5 years, as well as actual bond yields for BBB and BBB+ rated securities issued by Australian firms in both Australian and US markets.[189] We calculate a debt margin that represents the margin over the risk-free rate for BBB/BBB+ rated debt, without specifying the source of this rating. We determine the debt margin from our sample of BBB/BBB+ rated corporate bonds.

In setting the margin, we determined the interquartile range from this sample and added 20 basis points for debt-raising costs. This resulted in a debt margin range of 3.5% to 4.8%.

D.4.4 Equity beta and business risk

The equity beta is a business-specific parameter that measures the extent to which the return of a particular security varies in line with the overall return of the market. It represents the systematic or market-wide risk of a security that cannot be avoided by holding it as part of a diversified portfolio. It is important to note that the equity beta does not take into account business-specific, or diversifiable, risks.

SCA and Deloitte recommended a range of 0.8 to 1.0 for SCA's equity beta.[190] SCA and Deloitte argued that:

- SCA is no longer a monopoly supplier of water into the Sydney region with competition from WICA licensees and SDP. SCA considers this increase its earnings risk.
- SCA has a high fixed-cost base compared to other water utilities, and is therefore more exposed to economic cycles, has systematic risk and requires a higher beta than other water utilities.
- Deloitte estimates SCA's asset beta to be in the range of 0.3 to 0.4, and estimates an equity beta of 0.74 to 0.88 using a Blume transformation.191 Without the Blume transformation, Deloitte's estimate of the equity beta is 0.61 to 0.82.

We note SCA's arguments that SDP has increased its revenue risks. We consider this risk to be a business-specific or diversifiable risk. Therefore we have addressed this risk through our decisions on price structure (Chapter 3).

We agree with SCA and Deloitte that SCA has higher fixed costs than other utilities. However, we note that under our draft decision of an 80:20 ratio between fixed and variable charges, a 1% decrease in demand will lead to a 0.2% decrease in revenue. Most other water utilities have higher revenue risks.

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189 IPART, *Developing an approach to estimating the debt margin – Final Decision*, April 2011, p 9.
190 SCA submission, 17 November 2011, p 91.
191 The Blume formula adjusts the beta to reflect the tendency of betas to move towards 1 in the long term. We have previously rejected this approach.

In making our decision, we considered the information provided by the Strategic Finance Group (SFG) and Professor Davis in the SDP review. The SFG report examined empirical estimates of beta for other water utilities in Great Britain and the United States. The empirical estimates suggested that the water utility industry beta has a mean of 0.52 to 0.55. SFG preferred to consider a 'downmarket' beta. This is only calculated when the market's returns are lower than the risk-free rate, which has a mean of 0.61 to 0.69.[192] Professor Davis recommended that we do not use the downmarket beta and that the beta estimates were otherwise robust.[193] We have discussed the principle of exclusion of diversifiable risk further in the SDP report.[194]

Our draft decision is to use a beta estimate of 0.6 to 0.8. We consider that this is the most appropriate range. This is consistent with the best available quantitative evidence on the equity beta for traded water companies.

D.4.5 Market risk premium

The market risk premium (MRP) is the expected return over the risk-free rate that investors would require to invest in a diversified portfolio of risky securities.

SCA and Deloitte considered that a MRP of 6% is appropriate, based on market practice in Australia and regulatory decisions.[195]

Our current approach is to estimate the MRP based on the long-term historical arithmetic average market returns over the risk-free rate. SCA's proposed MRP is consistent with our midpoint MRP of 6%.

D.4.6 Gearing

The gearing ratio is the ratio of debt to total assets in a business's capital structure. In determining this ratio, our current practice is to adopt a benchmark capital structure (rather than the actual financial structure of the regulated entity) to ensure that customers will not bear the costs associated with an inefficient financial structure. SCA's proposal of a debt to total assets ratio of 60% is consistent with our standard regulatory practice.

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192 Strategic Finance Group, *Cost of capital parameters for Sydney Desalination Plant*, August 2011, p 5.

193 K. Davis, *Cost of capital parameters by Sydney Desalination Plant: by SFG Consulting, An initial review for IPART*, August 2011, pp 4–5.

194 IPART, *Review of water prices for Sydney Desalination Plant Pty Ltd – Final Report*, November 2011.

195 SCA submission, 17 September 2011, Appendix 9, p 4.

D.4.7 Dividend imputation credits (gamma)

Gamma is the dividend imputation factor. Under the Australian dividend imputation system, investors receive a tax credit (franking credit) for the company tax paid before the dividend. This recognises the fact that companies have already paid tax on profits from which the dividends are paid. Since July 2000, imputation credits in excess of personal tax liabilities have been available as a cash rebate. International investors cannot utilise imputation credits.

The value of imputation credits is represented in the CAPM by 'gamma'. The rationale for including the value of gamma in the CAPM is that if investors are receiving a lower return than if there were no tax credits attached to this investment.

SCA and Deloitte noted the Australian Competition Tribunal's decision in 2011 to reduce the gamma to 0.25. This is consistent with the Strategic Finance Group's advice to us during the SDP Determination. In the SDP Determination we concluded that the gamma should move from a range of 0.3 to 0.5 to a range of 0 to 0.5.[196] SCA and Deloitte consider a gamma of 0.25 is appropriate for SCA.[197]

We are currently completing a review on the appropriate estimate for gamma. As the gamma is used to estimate the tax liability under a post-tax WACC, we now have to use a point estimate of gamma rather than a range. Our draft decision is to use 0.25 as our gamma estimate. It is the midpoint of our range for SDP and is consistent with SCA's proposal.

D.5 Our decisions on a pre-tax WACC basis

This section shows our draft decisions, which use a separate tax allowance and a real post-tax WACC, on the basis of our former pre-tax WACC approach. Our draft decisions use a real post-tax WACC of 5.5% and, using the same parameters, we estimate a pre-tax WACC of 6.5%.

D.5.1 Notional revenue requirement on a pre-tax WACC basis

Table D.4 shows our draft decisions on SCA's notional revenue requirement using a pre-tax WACC of 6.5%.

196 IPART, *Review of water prices for Sydney Desalination Plant Pty Limited – Determination and Final Report, November 2011,* p 93.
197 SCA submission, 17 September 2011, Appendix 9, p 9.

Table D.4 SCA draft revenue requirement: pre-tax WACC ($ million, $2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Operating costs	87.0	94.1	92.8	92.5	91.8
Non-regulated revenue	(0.4)	(1.1)	(0.9)	(0.9)	(0.9)
Depreciation	24.5	22.7	23.1	23.6	24.1
Return on assets	92.4	88.2	88.6	88.9	89.2
Return on working capital	1.3	0.9	0.9	1.0	1.0
Tax allowance	n/a	n/a	n/a	n/a	n/a
Notional revenue requirement	**204.8**	**204.8**	**204.5**	**205.1**	**205.2**
Target revenue requirement	**211.7**	**204.8**	**204.4**	**205.1**	**205.2**
Year-on-year change (%)		-3.3%	-0.1%	0.3%	0.0%
Indicative credit rating	**A+**	**A+**	**A+**	**A+**	**A+**

The decrease in 2012/13 – the first year of the 2012 Determination – compared with 2011/12 reflects the 'glide path' effect; that is, our changed approach to the timing of price increases within each determination period. Chapter 3 provides more information. Because tax is included in the pre-tax WACC, SCA remains at an A+ indicative credit rating throughout the 2012 determination period.

Table D.5 shows the tax implied under a real pre-tax WACC by comparing the difference in the notional revenue requirement under a real pre-tax WACC and a real post-tax WACC with separate tax allowance. The new approach to tax results in a reduction in notional revenue of $40.3 million – the different treatment of tax under the two approaches.

Table D.5 Tax implied in a real pre-tax WACC and tax allowance approach ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Notional revenue: real pre-tax WACC	204.8	204.5	205.1	205.2	819.6
Notional revenue: real post-tax WACC and separate tax allowance	194.6	194.4	195.0	195.1	779.2
Difference in notional revenue	**-10.2**	**-10.1**	**-10.0**	**-10.1**	**-40.5**

Table D.6 shows how each building block is affected by our new approach to tax. The $10.2 million reduction in 2012/13 is due to a decrease in the return on assets of $13.0 million, partially offset by our $2.9 million estimate of SCA's tax allowance.

Table D.6 Rate of return under a pre-tax and post-tax WACC framework

	2012/13 Pre-tax 6.5%	2012/13 Post-tax 5.5%	Difference
Return on assets	88.2	75.2	(13.0)
Return on working capital	0.9	0.8	(0.1)
Tax allowance	–	2.9	2.9
Total	**89.1**	**78.8**	**(10.3)**

E Debt margin

Our draft decision on the cost of capital is explained in Appendix D. As part of our draft decision on the cost of capital, we are proposing to change the way we express the debt margin from a point estimate to a range.

Our debt margin estimate is based on the yields of bonds in our proxy bond portfolio. The inclusion of bonds into this portfolio is determined according to a set of criteria outlined in an earlier decision (the April 2011 decision).[198] The April 2011 decision also specified that the debt margin is set as a point estimate based on the median of the yields of the bonds in our proxy bond portfolio.

We are concerned that the impact of current market uncertainties is not fully reflected in a point estimate of the debt margin. We believe that a range better takes into account current market uncertainties than a point estimate. There is now a significantly larger sample of bonds in our proxy bond portfolio. We have therefore decided to determine the debt margin for this draft decision using the interquartile range of our proxy bond portfolio. The median of the bond yields is still used to estimate the debt margin in calculating the midpoint WACC estimate.

We are not proposing any changes to how we calculate the debt margin.

A change to using a range for the debt margin will be applied to future pricing decisions, and we seek comment from stakeholders on the following:

1 Do you agree that using a range for the debt margin is appropriate given market uncertainty and consistency with our other WACC parameters?

2 Will applying a range for the debt margin have any ramifications on future pricing decisions in water and other industries?

3 How do we address fluctuations in the sample size used to calculate the debt range?

4 Do you agree with using the interquartile range for the debt margin? If you do not agree, why?

A final decision on the appropriate range and/or point estimate of the debt margin will be released as part of our 2012 final SCA Determination.

[198] IPART, *Developing the approach to estimating the debt margin – Final Decision,* April 2011.

This appendix outlines:

- reasons why we propose to use a range estimate for the debt margin
- the methodology we use to estimate the debt margin range
- likely implications for future decisions.

E.1 Why use a range for the debt margin?

This section addresses the reasons why we propose using a range for the debt margin and what other regulators do.

E.1.1 Market uncertainty

In our April 2011 decision we considered a number of statistical approaches to derive a range of values or a point estimate for the debt margin. Our final decision was that the median is the most suitable statistical approach to estimate the debt margin. This approach has several advantages over our previous approach of using the average of the highest and lowest yields in our proxy bond sample. Importantly, it removes weight from outliers and indicates the central tendency of a small sample.

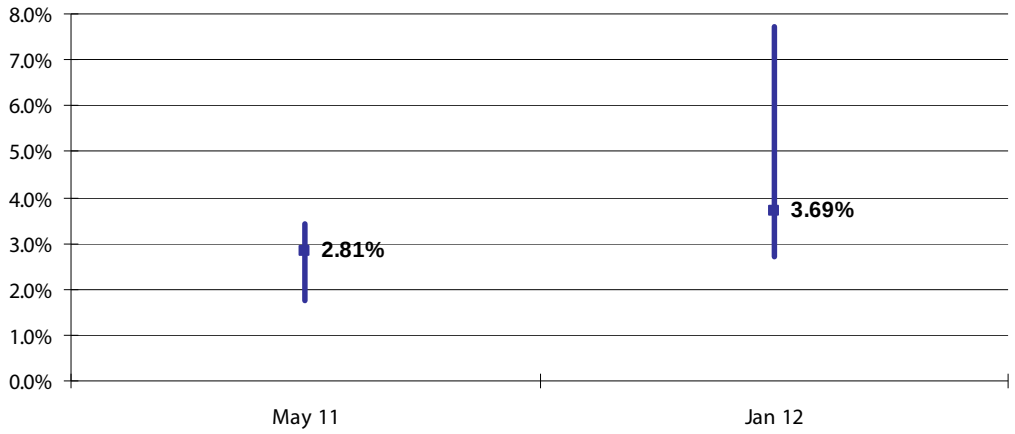
Prior to the April 2011 decision, our approach of using the upper, lower and midpoint values in our WACC calculator placed weight on extreme observations, which can introduce distortion to the debt margin estimate. Therefore, we considered that it did not result in values that reflect the commercial cost of capital for the benchmark firm.

We are concerned that our current methodology of using the median to estimate the debt margin does not fully reflect the recent increases in uncertainty in the debt market. Figure E.1 shows that the range of yields of bonds in our proxy portfolio widened significantly between May 2011 and January 2012, with the following basis point increases:

- the median increased by 90 basis points
- the range increased by 337 basis points.

This may indicate some repricing of risk in the debt market, which is not reflected in the median.

Figure E.1 Debt margin total range and median



Source: Bloomberg, IPART analysis.

E.1.2 Larger sample size

At the time of our 2011 decision on the debt margin, a limited number of bonds met the selection criteria for our proxy bond portfolio:

- Prior to April 2011, bonds had to be issued in Australia by an Australian company under a BBB+ to BBB credit rating with a maximum term-to-maturity of 10 years.
- After our 2011 decision, we relaxed our selection criteria by including Australian BBB+ to BBB rated bonds issued in the US market with a maximum term-to-maturity of 5 years.

This change in methodology resulted in a larger sample size. For example, in April 2011:

- the Australian bonds-only sample portfolio included 10 bonds
- our new sample portfolio included 22 bonds.

The proxy bond portfolio used for this draft decision includes 25 bonds.

Given that we have a larger sample of bonds in our sample portfolio, we consider that it is appropriate to use a range for the debt margin.

We will monitor our proxy bond portfolio and in the future may reconsider our decision to use a debt margin range if the number of bonds included in the portfolio declines significantly.

E.1.3 Consistency with other WACC parameters

We use ranges rather than point estimates for many of our WACC parameters, such as the market risk premium (MRP) and the equity beta. We do this to account for the uncertainty involved in their estimation.

In our April 2011 decision on the debt margin, we noted that the use of the median may not be consistent with our approach to setting other WACC parameters. We use a range and midpoint valuation for other WACC that are inherently uncertain in their estimation (the MRP, gamma and equity beta).

Using a range for the debt margin ensures that the WACC parameters are estimated in a consistent manner and reflect the uncertainty involved in their estimation.

E.1.4 What do other Australian regulators do?

Table E.1 summarises current practice of other Australian regulators.

Table E.1 Australian regulatory decisions on the debt margin

Regulator / industry	Debt margin estimate	Methodology
Australian Energy Regulator (AER) / Gas Access Envestra (2012, final, Australian Competition Tribunal decision)	Point estimate	On appeal: BBB 7-year Bloomberg fair value curve with maturity adjustment to 10-year maturity
Essential Services Commission of South Australia (ESCOSA) / Water (2011, draft)	Point estimate	BBB 7-year Bloomberg fair value curve with maturity adjustment to 10-year maturity
Economic Regulation Authority of Western Australia (ERAWA) / Gas Access Dampier to Bunbury natural gas pipeline (2011, final)	Point estimate	Simple average of 4 different bond portfolios with different term-to-maturities
Queensland Competition Authority (QCA)/ Gladstone Water Board (2010, final)	Point estimate	BBB 5-year Bloomberg fair value curve with maturity adjustment to 10-year maturity
Essential Services Commission, Victoria (ESC) / Metropolitan Melbourne water price review (2009, final)	Range	Based on advice from the Treasury Corporation of Victoria for credit ratings between BBB to AA+

Source: Different regulatory decisions.

Table E.1 shows that most Australian regulators use a point estimate for the debt margin. Regulators who tend to use a point estimate rather than a range tend to estimate all WACC parameters as point estimates.

E.2 What methodology do we use to estimate the range?

We currently use the median of the total sample of bonds included in our proxy bond portfolio. Prior to our April 2011 decision on the debt margin, we used the average of the highest and the lowest yields of our proxy bond portfolio.

For this draft decision we use the interquartile range for the upper and lower bound of the debt margin and the median to establish the midpoint.

The interquartile range is the difference between the first (or the lower quartile) and the third (or the upper quartile). The upper quartile represents the top 25% of values in a set of data and the lower quartile represents the bottom 25%. The interquartile is a measure of statistical dispersion and describes the middle 50% of data values. It is generally preferred to the total range as it removes the effect of extreme outliers.

To establish the interquartile range we used the Microsoft Excel function:

- =QUARTILE(array,1) for the first quartile
- =QUARTILE(array,3) for the third quartile.

We then used the median as the midpoint of the range.

E.3 What are the implications for future decisions?

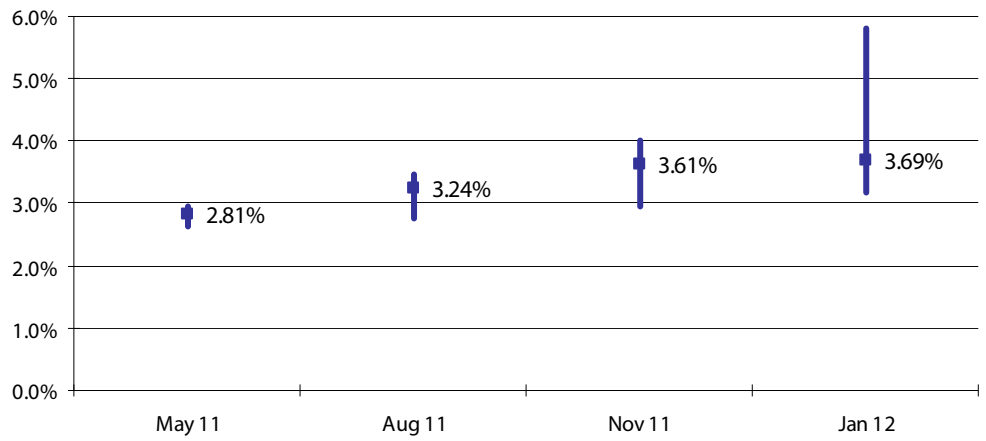
We believe that using a range instead of a point estimate will produce a debt margin which more accurately reflects the uncertainty involved in its estimation. A debt margin range is also consistent with the way we estimate other WACC parameters such as the equity beta and the market risk premium.

Under our proposed methodology we will still be using the median to establish the midpoint. This will result in no change in the midpoint compared to our current methodology, but we will add a wider range to the WACC estimate by introducing the interquartile range for the debt margin.

E.3.1 Impact on WACC decisions

Figure E.2 shows the interquartile ranges and the medians in May, August and November 2011 and January 2012.

Figure E.2 Debt margin interquartile range and median



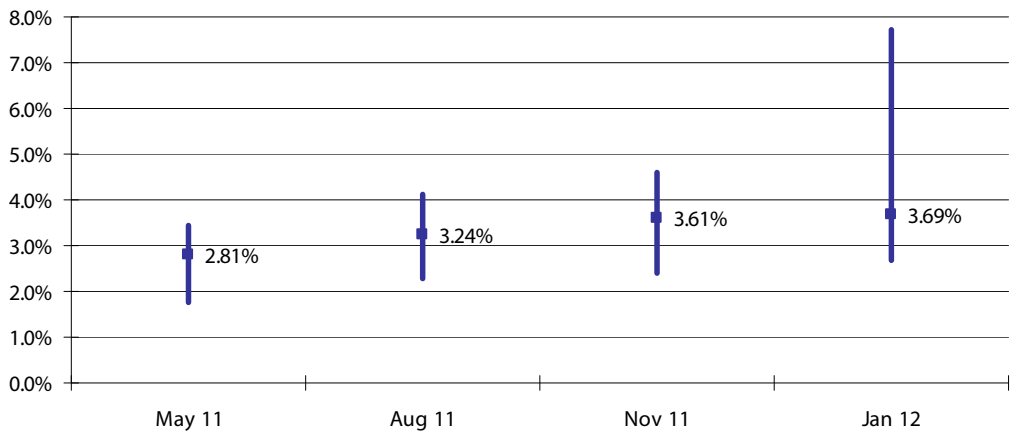
Data source: Bloomberg, IPART analysis.

Figure E.2 shows that the interquartile range increased from a range of 2.6 to 3.0, to a range of 3.2 to 5.8% between May 2011 and January 2012. There is little change in the median during the same period.

The widening of the range between November 2011 and January 2012 can be explained by the fact that 6 new bond issues of Australian companies in the US market have been included in our sample bond portfolio. These bonds were included according to our selection criteria outlined in our April 2011 decision.

Figure E.3 shows the total debt margin range, or the high and low of all the bonds in our proxy bond portfolio and the median of the highest and lowest estimate.

Figure E.3 Debt margin range of proxy bond portfolio and median



Data source: Bloomberg, IPART analysis.

Figure E.3 shows that using the total range of our sample portfolio of bonds results in a significantly wider range than the range generated using the interquartile range in Figure E.2.

Advantages and disadvantages of methodologies

Table E.2 compares the advantages and disadvantages of using the median as a point estimate or a range.

Table E.2 Advantages and disadvantages of methodologies

	Current methodology	**Previous methodology**	**Proposed methodology**
	Point estimate (median debt margin)	**Total range high and low and average**	**Interquartile range and median**
Advantages	Takes into account all observations.	Reflects full range.	Reflects changes in the widths of the range (see Figure E.2). Excludes outliers.
Disadvantages	Does not fully reflect a widening or narrowing of the range.	May place too much weight on outliers (see Figure E.3).	Outliers may be important if there is a structural shift in risk pricing.

Source: Various regulatory decisions.

For the purpose of calculating the debt margin for our draft decision, we used:

- the interquartile range of our proxy bond portfolio for the upper and lower bounds
- the median of the yields for the portfolio of bonds as the midpoint.

We believe that this methodology:

- reflects changes in the widths of the range
- removes extreme outliers from the estimate
- is generally consistent with the methodology we use to estimate other WACC parameters.

F Customer impacts data in nominal terms

Table F.1 Annual impact on typical Sydney Water customers' bills attributable to the 2012 SCA Draft Determination ($, nominal)

	2011/12	2012/13	2013/14	2014/15	2015/16
Res: 20mm meter and 200 kL pa					
Typical water and sewerage bill from 2012 Sydney Water Draft Determination	1105	1113	1128	1142	1156
Annual change in bill		8.42	14.65	14.08	14.35
% change in bill		0.8%	1.3%	1.2%	1.3%
SCA impact on bill from the 2012 Draft Determination[a]		(2.54)	2.25	2.70	2.44
SCA impact as a percentage of bill		(0.2%)	0.2%	0.2%	0.2%
Non-Res: 20mm meter and 260 kL pa					
Typical water and sewerage bill from 2012 Sydney Water Draft Determination	1231	1242	1260	1278	1296
Annual change in bill		11.39	17.88	17.39	17.74
% change in bill		0.9%	1.4%	1.4%	1.4%
SCA impact on bill from the 2012 Draft Determination		(2.84)	2.51	3.02	2.73
SCA impact as a percentage of bill		(0.2%)	0.2%	0.2%	0.2%
Non-Res: 40mm meter and 1000 kL pa					
Typical water and sewerage bill from 2012 Sydney Water Draft Determination	4977	5316	5693	6124	6619
Annual change in bill		339.16	377.23	430.39	495.49
% change in bill		6.8%	7.1%	7.6%	8.1%
SCA impact on bill from the 2012 Draft Determination		(12.15)	11.34	14.48	13.95
SCA impact as a percentage of bill		(0.2%)	0.2%	0.2%	0.2%

[a] We calculate the change in the cost of purchasing SCA water as a percentage of Sydney Water's target revenue. We then apply this percentage on typical Sydney Water customers' bills. The result represents the change in Sydney Water customers' bills that is attributable to the 2012 Draft Determination.

Table F.2 Impact of the 2012 SCA Draft Determination on Wingecarribee Council customers' household bills ($, nominal)

	2011/12	2012/13	2013/14	2014/15	2015/16
Typical household water bill[a]	411[b]	412	422	433	443
Typical household water and sewerage bill[b]	1,026[c]	1,042	1,068	1,095	1,122
Year-on-year % change in water bill		0.2%	2.4%	2.4%	2.4%
Year-on-year % change in water and sewerage bill		1.6%	2.4%	2.4%	2.4%

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 $411 per year, and the cost of purchasing bulk water from SCA accounts for approximately 15% ($62) of this bill (email to IPART, 23 December 2011).

c Wingecarribee Shire Council advised that residents are currently paying approximately $615 per year in sewerage charges (email to IPART, 23 December 2011). Therefore, assuming a typical water bill is $411 per year, a typical household water and sewerage bill is $1,026 per annum.

G Detailed summary of IPART's capital expenditure recommendations

Table G.1 IPART's draft decision on capital expenditure over the 2012 Determination ($million, $2011/12)

Project	Halcrow recommended adjustment from SCA's proposal ($million, $2011/12)	Halcrow's findings	IPART's draft decision
Burrawang pumping station	0.6	Current system does not meet statutory standards including OH&S requirements. Some assets are in poor condition and have limited remaining life. Halcrow recommends delaying the project by 1-year and that it be completed over 3 rather than 4 years. This will allow scope for efficiencies. Efficiency adjustment represents a reduction of 7.0% of forecast capital expenditure.	Agree with Halcrow.
Minor assets renewal program	0.1	Each project is separately procured and therefore not considered to be the most efficient delivery model. Halcrow has applied an efficiency adjustment of 2.1% of forecast capital expenditure.	Agree with Halcrow.
Hydrometric renewals	0.1	Each project is separately procured and therefore not considered to be the most efficient delivery model. Halcrow has applied a 2.6% efficiency adjustment.	Agree with Halcrow.
Metropolitan Dams electrical system	2.3	NSW Government has a policy of encouraging the undergrounding of electrical cable. This represents 20% of the total cost of the project. Expenditure related to the undergrounding of overhead cables is not considered prudent as it is not mandatory and assets have not reached the end of their useful life. Halcrow has reduced expenditure by 26.5% of forecast capital expenditure.	Agree with Halcrow.
Warragamba Dam environmental flows	11.0	Halcrow considers $0.958 million of capital expenditure to be investigation/scoping expenditure that should be expensed. The remainder of Halcrow's recommended adjustment is the deferral of expenditure due to uncertainty.	We disagree with Halcrow that the scoping/investigation expenditure should be expensed. We consider SCA's accounting treatment for this

Project	Halcrow recommended adjustment from SCA's proposal ($million, $2011/12)	Halcrow's findings	IPART's draft decision
		Halcrow's adjustments represent a 70.7% reduction of forecast capital expenditure.	project to be consistent with prior treatments reviewed by the Auditor-General (as stated at the SCA Public Hearing).
Upper Canal refurbishment	9.1	Halcrow believes that most of SCA's proposed expenditure on the Upper Canal refurbishment is not extending the life of the asset, but simply repairing the Upper Canal to maintain its current service level. Therefore this expenditure should be recorded as part of operating expenditure. Halcrow considers the expenditure related to the chlorine dosing facility and rehabilitation of penstocks as reasonable capital expenditure. Halcrow's adjustment represents a reduction of 31.4% of forecast capital expenditure.	We reject Halcrow's recommendation as we consider SCA's accounting treatment for this project to be consistent with prior treatments reviewed by the Auditor-General (as stated at the SCA Public Hearing
Warragamba Dam reliability upgrade	18.0	Deferment of expenditure as the scope of works is yet to be defined. Halcrow considers this appropriate as SCA has only recently completed various upgrades dealing with dam safety requirements, which partly accounts for the increase in standards. There is also a long lead time on the project and it is considered prudent to complete further investigations before providing capital allowances. Halcrow's adjustment represents an 85.8% reduction of forecast capital expenditure.	Agree with Halcrow.

H List of draft decisions

Glossary

2009 Determination	*Review of prices for the Sydney Catchment Authority from 1 July 2009 - Determination and Final Report*, June 2009
2012 Draft Determination	*Review of prices for the Sydney Catchment Authority from 1 July 2012 – Draft Determination and Draft Report*, March 2012
determination period	The period from 1 October 2012 to 30 June 2016, as set in the Draft Determination.
2012 Draft Sydney Water Determination	*Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2012 – Draft Determination and Draft Report*, March 2012.
Act	*Sydney Water Catchment Management Act 1998*
Catchment	Sydney drinking water catchment
current determination period	The period from 1 July 2009 to 30 June 2012, as set in the 2009 Determination.
CPI	Consumer Price Index
EPA	Environment Protection Authority
GL	gigalitre
Halcrow	Halcrow Pacific Pty Ltd
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	*Independent Pricing and Regulatory Tribunal Act 1992*
kL	kilolitre
Minister	Minister for Primary Industries
ML	megalitre

NPV	Net Present Value
OEH	Office of Environment and Heritage
RAB	Regulatory Asset Base
REP	Regional Environmental Plan
SCA	Sydney Catchment Authority
SDP	Sydney Desalination Plant
Sydney Water	Sydney Water Corporation
upcoming determination period	the period commencing 1 July 2012
WICA	*Water Industry Competition Act 2006*
WACC	Weighted Average Cost of Capital