IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Review of prices for the Sydney Catchment Authority

From 1 July 2012 to 30 June 2016

Water — Final Report
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ISBN 978-1-922127-05-1

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1 Introduction and executive summary

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) has determined the maximum prices for that the Sydney Catchment Authority (SCA) can charge for providing water services to its customers 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.

We released a Draft Determination and Report in March 2012, to which we received 6 submissions.[1] This followed our release of an Issues Paper in June 2011, the receipt of 11 submissions to the Issues Paper in October 2011, and the holding of a public workshop at IPART's offices in November 2011. We have considered all issues raised in submissions to this review in determining final prices.

This report explains our Final Determination of SCA's prices, including the analysis that underpins our final decisions.

1.1 Summary of IPART's decisions

Revenue required by SCA to deliver its water supply services will decrease by 8.9%[2] in 2012/13 (or $18.9 million), compared with the target revenue we established for 2011/12, the last year of the 2009 Determination. This is because of SCA's restraint in expenditure over the period, and our final decisions on efficient costs. SCA's required revenue, and prices based on that revenue, will then increase in real terms over the remainder of the 2012 determination period, but remain below 2011/12 levels.

1 Sydney Water made comments on the SCA draft report in its submission to the Sydney Water price review.

2 Prices in our final report are expressed in real terms (ie, 2011/12 dollars) and therefore exclude inflation. Prices in our media release and fact sheet are expressed in nominal terms and therefore include inflation. We assume an inflation rate of 1.6% for 2012/13 and 2.5% per annum over the remainder of the 2013 determination period. The 8.9% real decrease in SCA's required revenue in 2012/13 is therefore equivalent to about a 7.5% decrease in nominal prices.

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

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 introduced a mechanism to apportion the fixed charge between Sydney Water and any entrants to the water market that are of significant size. This will ensure that Sydney Water pays only for water that it purchases should a new entrant emerge, and new entrants purchasing services from SCA pay a fair price.

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 bulk raw and unfiltered water customers from the 2009 Determination.

1.2 Our decisions on required revenue

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)[3]. This rebasing of SCA's required revenue explains 5.3 percentage points of the 8.9% decrease in real terms in the first year of the determination period.

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.

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

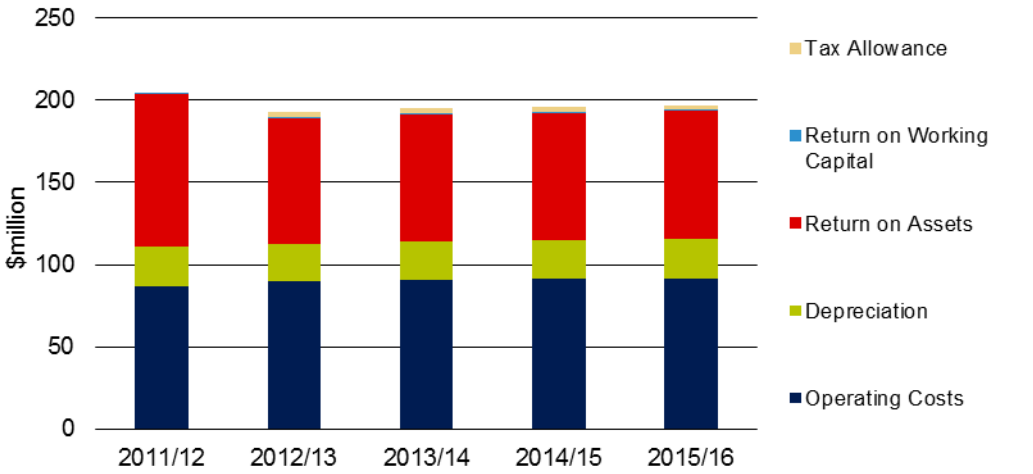
There has been a net increase in SCA's required revenue from the draft report of about 0.3% each year. Required revenue has increased due to our decisions to:

- update the post-tax WACC from the draft level of 5.5% to 5.6% for the final report, reflecting the most recent market based input parameters
- update the inflation forecast for 2012 from 2.50% to 2.85% for indexation of the RAB roll forward, to reflect the most recent 1-year inflation rate implied by swap market data
- include indirect carbon costs in SCA's operating costs
- include operating costs associated with changes made to SCA's operating licence of about $0.3 million over the 4 year price path
- reinstate $3.3 million of expenditure adjustments made to 2 capital projects.

Most of these cost increases however have been offset by our decision to revise Shoalhaven pumping cost estimates downward to reflect current storage levels. We discuss each of these changes to SCA's required revenue in detail in Chapters 4 to 6.

Figure 1.1 shows our 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 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 notional 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.[4] SCA's allowance for operating expenditure increases from about $87 million in 2011/12 to $91 million per year over the 2012 determination period. This increase is due largely to our decision to allow SCA to recover efficient costs associated with:

- expected water transfers from the Shoalhaven River (about 1.4% of total operating costs)
- the Federal Government's carbon price scheme which will commence on 1 July 2012 (about 1.9% of total operating costs[5]).

We have applied an annual efficiency target of 0.3% to SCA's operating expenditure to encourage SCA to continue achieving efficiencies.

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 $17.8 million, taking into account concerns that Halcrow identified with some of SCA's capital works. The main adjustment is to defer about $15 million in 2015/16, which is most of the proposed capital expenditure on the Warragamba Dam reliability upgrade.

Our decision on an adequate return on SCA's assets is a real post-tax WACC of 5.6%. This is lower than the return of 6.0% proposed by SCA,[6] and is consistent with, and similar to, the recent decision for Sydney Desalination Plant.[7] Our final decision reflects updated market parameters that are used to calculate the cost of debt and equity components of the WACC. Like our decision about SDP'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 – see Appendix D.

4 We engaged an independent engineering consultant, Halcrow Pacific Pty Ltd (Halcrow), to review SCA's actual and forecast operating and capital expenditure.

5 Australian Treasury has estimated that carbon pricing will increase the CPI by 0.7% in 2012-13. However, cost impacts will vary by industry. Carbon price costs are proportionately higher for SCA because of Shoalhaven pumping – this activity increases SCA's energy use and thus direct carbon price costs (ie, SCA is more energy intensive than average businesses).

6 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%.

7 The real pre-tax WACC for Sydney Desalination Plant is 6.7%. The real pre-tax WACC for SCA would be approximately 6.6% using the same input parameters, as shown in Table 7.4. For more information about these parameters see Appendix D.

1.3 Our decisions on prices to SCA customers

1.3.1 Prices to Sydney Water

SCA's prices to Sydney Water are presented in Table 1.1 and compared to current prices. We have set separate volumetric prices to account for when SDP is "off" " (ie, in any of the various shutdown or restart modes) and "on"(ie, operating). 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 have also changed the structure of SCA's prices to Sydney Water so that 80% of its required revenue is recovered through fixed charge and 20% from the volumetric charge. This is considered appropriate because it better reflects SCA's underlying cost structure, given that SCA is largely a fixed-cost business. The 80:20 price structure will also give SCA greater revenue certainty over the 2012 determination period, given that almost all of SCA's sales come from one large customer, Sydney Water.

Table 1.1 SCA prices to Sydney Water for the 2012 Determination ($2011/12)

	2011/12[a]	2012/13	2013/14	2014/15	2015/16
Volumetric charge ($/ML) – SDP plant "off"	284.38	78.57	79.12	79.22	79.02
Volumetric charge ($/ML) – SDP plant "on"	284.38	96.36	96.94	96.96	96.57
Fixed charge ($million/pa)	86.0	153.2	155.0	155.8	156.6

a 2011/12 sales revenue is based on the 2009 target revenue requirement for Sydney Water. We did not set different volumetric charges over the 2009 determination to account for when the Sydney Desalination Plant (SDP) was operating and when it was not. For the 2012 determination, 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 3 shutdown modes or in restart model.

We have made a 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 different volumetric price 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.[8] 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.

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

SCA's price changes have a minimal impact on an average water and sewerage bill for a typical Sydney Water customer - see Table 1.2. This is because the cost of water supplied by SCA is a small component of the notional revenue requirement allowed for Sydney Water in our final determination of Sydney Water's prices (about 8.4%).

Table 1.2 Impact of SCA's prices on Sydney Water's customers

	2011/12	2012/13	2013/14	2014/15	2015/16
Real ($2011/12)					
Average annual household bill (200 kL water and waste water)	1,105	1,099	1,092	1,084	1,076
% change in bill		-0.5%	-0.7%	-0.7%	-0.7%
% change due to SCA Determination		-0.6%	0.1%	0.0%	0.0%
Nominal[a]					
Average annual household bill (200 kL water and waste water)	1,105	1,117	1,137	1,157	1,177
% change in bill		1.1%	1.8%	1.7%	1.7%
% change due to SCA Determination		-0.4%	0.3%	0.3%	0.2%

a We assume an inflation rate of 1.6% for 2012/13 and 2.5% per annum over the remainder of the 2013 determination period.

1.3.2 Prices to local councils

We have accepted SCA's proposal to set prices to its 3 local council customers for the 2012 Determination on a fully distributed cost basis and to replace the current 100% variable charge with a new 25:75 fixed to variable price structure– see Table 1.3.

SCA assessed the cost of assets that provide water to its 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.

The average cost of supplying water to the 3 local councils is forecast to decrease by 1.3% 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 1.3 Prices to SCA's 3 local council customers for the 2012 Determination ($2011/12)

	2012/13	2013/14	2014/15	2015/16
Volumetric charge – all 3 councils ($/ML)	199.06	199.06	199.06	199.06
Fixed charge for each council ($/pa)				
Wingecarribee Shire Council	245,512	248,829	252,147	255,465
Shoalhaven City Council	6,635	6,635	6,635	6,635
Goulburn Mulwaree Council	6,635	6,635	13,271	19,906

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 for these 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 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. The results of the cost-benefit analysis, completed in March 2012[9], show that the proposed changes to SCA's operating licence are not material, and therefore their inclusion in SCA's operating costs have had little impact on final prices.

We also considered whether the price determination period should coincide with the period of SCA's next operating licence. 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.

9 IPART, *End of Term Review for Sydney Catchment Authority's Operating Licence – Final Report*, April 2012, Appendix C.

1.6 What does the rest of the report cover?

This report explains in detail our decisions for the 2012 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 decisions related to the regulatory framework
- Chapter 4 provides an overview of our decisions on the notional revenue requirement
- Chapters 5, 6 and 7 discuss our 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 decisions on SCA's forecast water sales
- Chapter 9 discusses our decisions on SCA's price structure and price levels
- Chapter 10 outlines the implications of our 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 Determination, and the notional revenue requirement and prices on a real pre-tax basis
- 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 maximum 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 given us the opportunity to consider the cost-benefit implications of changes we make to SCA's operating licence. We have included efficient costs imposed on SCA from its new operating licence in operating expenses to be recovered through SCA's prices. We have not had the opportunity to do this so transparently in the past.

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 maximum 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[10]
- inviting interested parties to make submissions in response to our issues paper and SCA's submission[11]

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

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

- 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.
- Releasing a draft determination and report in March 2012, and inviting stakeholders to make submissions in response to these drafts.

Our issues paper, draft determination and report, 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>.

Having considered all stakeholder submissions, we have completed our investigation and made a final determination for SCA's new maximum prices that will apply from 1 July 2012. SCA's new operating licence will apply from 1 July 2012.[12]

2.3 Matters considered

We are empowered to review and make determinations on the maximum 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.
- **Environmental protection** – the need to maintain ecologically sustainable development through appropriate pricing policies.

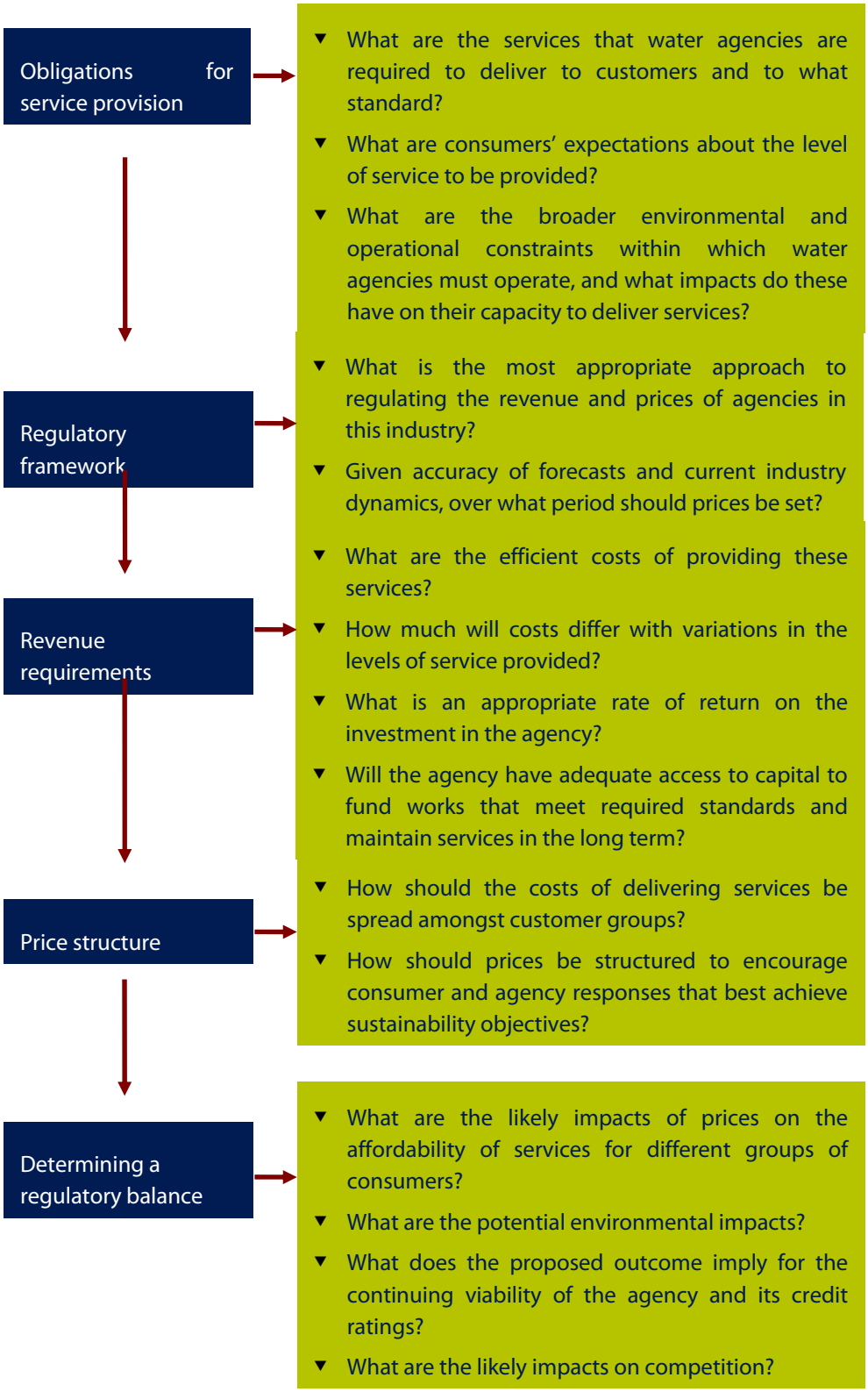
12 IPART, *End of Term Review for Sydney Catchment Authority's Operating Licence – Final Report*, April 2012.

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.[13]

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.

[13] 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

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[14] water retail customers who have direct off-takes from pipelines, canals and storages.

[14] 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[15] approved plans to build a pipeline from SCA's Wingecarribee Reservoir to Goulburn, to supply the Goulburn community with up to 7.5 ML of water per day in times of drought.[16] The total cost of the 80km pipeline 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.[17] 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 cover around 16,000km^2, including 3,700km^2 of 'special areas', which comprise bushland surrounding SCA's storages.[18] 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.
- Using comprehensive water-quality monitoring programs.[19]

15 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

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

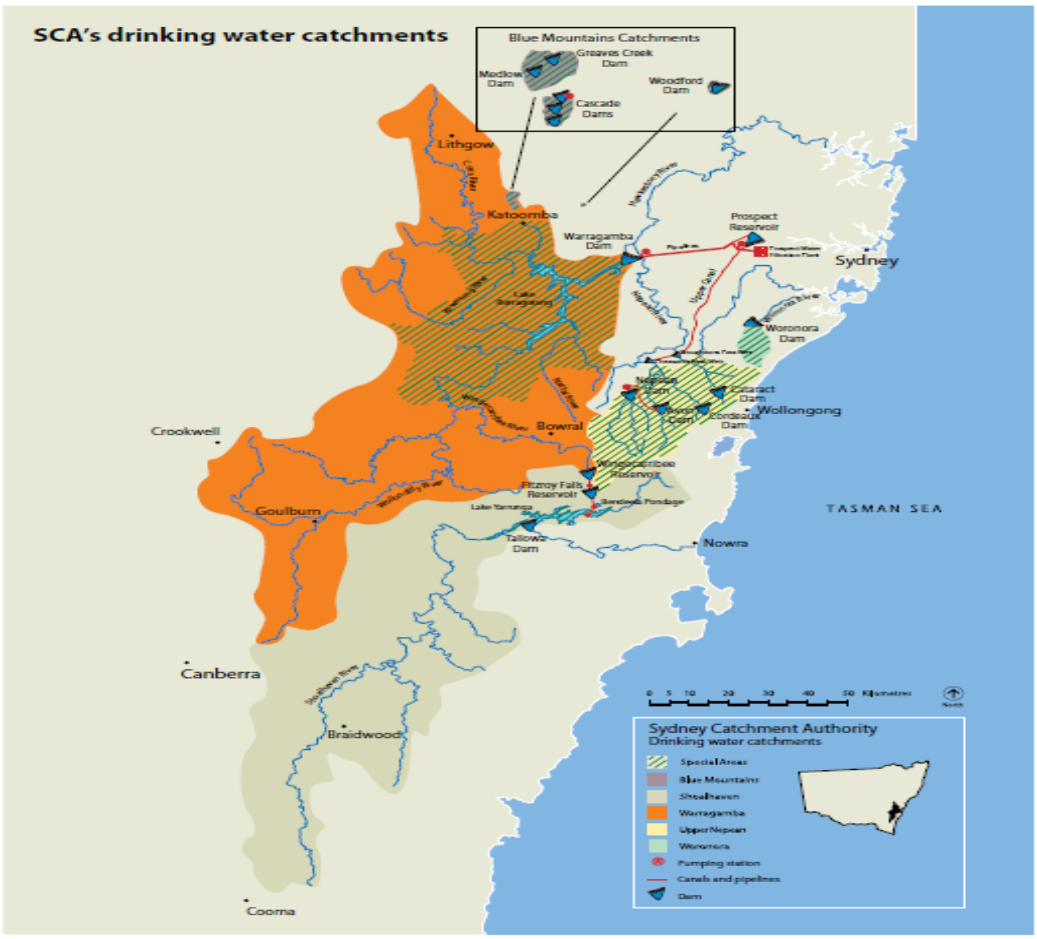
17 http://www.highlandsourceproject.com.au/, accessed 22 June 2011.

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

19 As advised by SCA.

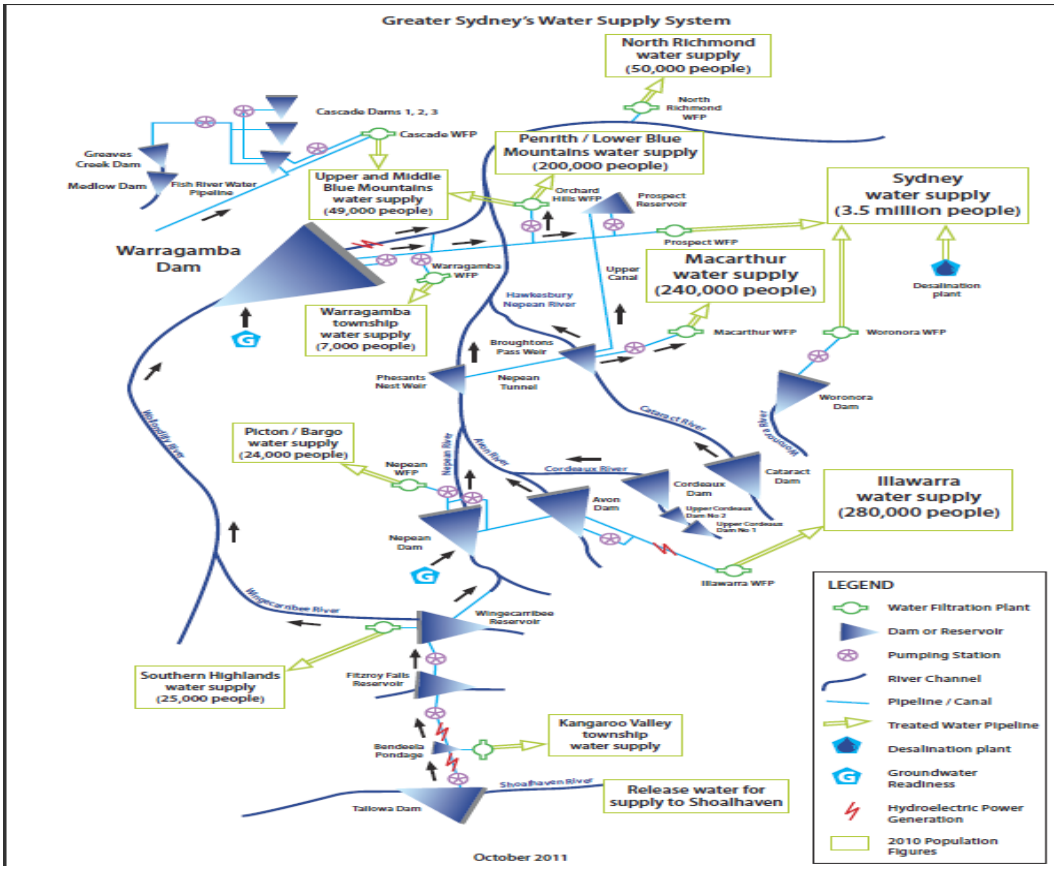
Figure 2.2 shows the catchment area extends from the headwaters of the Coxs River north of Lithgow to the Shoalhaven River south of Braidwood. A schematic representation of the water storages and infrastructure under SCA's control is shown in Figure 2.3. SCA's water balance, which lists its inflows and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

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 SCA's Regulatory framework

IPART is only one of SCA's regulators. 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. Box 2.2 summarises SCA's regulatory context. Key aspects of SCA's regulatory framework are discussed in more detail below.

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*.[20] IPART makes recommendations about the granting, amendment or cancellation of the operating licence.[21]

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.[22]

The current licence started on 8 April 2011 and expires on 30 June 2012. A new licence will apply from 1 July 2012 and will expire on 30 June 2017.

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.[23]

20 Section 25 of the Act.
21 Section 30A of the Act.
22 See section 1.1 of SCA's operating licence.
23 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.[24] 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.[25] 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 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.

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

25 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.[26]

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 7.5 GL per year, based on a climatically representative period of 1993–1999. In the plan, an additional 8 GL has been allowed for the long-term average extraction limit for consumptive purposes below Warragamba Dam.[27]

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.

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26 http://www.sca.nsw.gov.au/news/ministerial-media-releases/sydney-cuts-reliance-on-shoalhaven-for-drinking-water---minister-phillip-costa-mp

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

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.

Desalination plant operating rules

SDP is a back-up water supply system for Sydney that can provide 90 GL per year if required. The plant will operate in line with operating rules set out in the 2010 Metropolitan Water Plan.[28]

2.5.6 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.[29] 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.[30]

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.[31]

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28 NSW Office of Water, *2010 Metropolitan Water Plan*, p 36.
29 NSW Office of Water, *2010 Metropolitan Water Plan*, p 24.
30 There is some indication that the cost could reach $1 billion.
31 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.[32] 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.[33]

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[34], 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.[35] In doing so, we apply our forecast inflation rate, which differs slightly to that submitted by SCA.

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32 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.

33 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).

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

35 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 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.[36]

2.6.1 SCA's review of the 2009 determination period

SCA reports that it has experienced over the current price path a revenue shortfall of $27 million relative to forecasts made for the 2009 Determination. SCA attributes the revenue shortfall to lower than forecast water sales of about 7% over the determination period – see Table 2.1.[37] 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.

According to SCA, demand failed to rebound beyond the lifting of water restrictions because of 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.[38] 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.[39]

Table 2.1 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
% difference to 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).

SCA also reports lower than forecast operating expenditure of $10 million and capital expenditure of $38 million over the current price path. We note this underspend offsets at least $10 million of the $27 million under-recovery of revenue reported for the 2009 determination period.

36 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.

37 SCA submission, 17 September 2011, p 38.

38 SCA submission, 17 September 2011, p 37.

39 IPART, *Review of prices for Sydney Water Corporation's water, sewerage, drainage and other services from 1 Jul 2012 to 30 June 2016 – Draft Report*, March 2012, Chapter 7.

SCA attributes most of the reduction in operating expenditure to organisational change, which has led to lower employee-related costs.[40] SCA expects operating expenditure for 2011/12 to be on target at about $87 million.[41] This indicates 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 SCA's reported $87 million by the end of the 2009 Determination).[42]

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).[43]

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[44]:

- 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
- 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.

40 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.

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

42 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.

43 SCA submission, 17 September 2011, p 44.

44 SCA submission, 17 September 2011, p 5.

2.6.2 SCA's pricing proposal for the 2012 determination period

Operating expenditure

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).[45]

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.[46] 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.[47]

SCA's operating expenditure includes a proposed yearly deduction of $0.4 million to share the benefits of its unregulated income with water consumers.[48] We estimate this deduction translates to about 20% of SCA's expected annual unregulated income over the 2012 determination period.[49]

In addition to the $89.2 million core operating expenditure, SCA seeks to include[50]:

- $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.

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[51] reported for 2011/12.

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45 SCA submission, 17 September 2011, p 51.

46 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.

47 SCA submission, 17 September 2011, pp 52-53.

48 SCA submission, 17 September 2011, p 39.

49 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.

50 SCA submission, 17 September 2011, pp 54–55.

51 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.

Capital expenditure and return on assets

SCA proposes a capital expenditure program of $146.2 million over the 4-year price path.[52] SCA reports that its capital expenditure continues to be dominated by work required to meet mandatory standards, particularly dam safety work.[53] 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.[54]

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 2.2). 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 2.2 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.

52 SCA submission, 17 September 2011, p 8.

53 SCA submission, 17 September 2011, p 49.

54 We asked SCA to provide a list of capital projects or activities that it plans to undertake over the upcoming determination period. IPART, *Review of the Operating Licence and review of prices for the Sydney Catchment Authority from 1 July 2012 – Issues Paper*, June 2011, p 54.

Pricing approach and price levels

SCA's pricing approach to the upcoming price path is driven by changes in its operating environment and possible continuing volatility in water demand.[55] In particular, SCA considers that it could be exposed to a significant loss in revenue from the uncertain operating regime of the SDP.[56] 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.[57]

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.[58] 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.[59] 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 90 GL.

SCA's proposed charges to Sydney Water on a post-tax WACC basis are presented in Table 2.3. 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 2.3 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/pa)	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.

55 SCA submission, 17 September 2011, p 7.
56 SCA submission, 17 September 2011, p 61.
57 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%.
58 SCA submission, 17 September 2011, p 61.
59 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 2.4.

Table 2.4 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 2.5).

Table 2.5 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 ($/Period)	96.0	96.0	96.0	96.0	96.0
Fixed charge to unfiltered water customers – for meter size > 20mm ($)	(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.

2.7 Overview of SCA's submission to our Draft Determination

SCA notes that our draft determination and report has largely allowed the expenditure allowance that SCA requested in its initial submission.[60]

In relation to operating expenditure, SCA supports our decision to allow for the cost recovery of Shoalhaven pumping based on expected cost. Since the draft report, SCA has revised its Shoalhaven pumping cost estimates downward to about $8.8 million over the 4 years (including the carbon cost component) to reflect current system storage levels of around 97%.[61]

SCA seeks removal of the efficiency target applied in its operating expenditure, especially if it is made to absorb indirect carbon costs.[62] SCA considers that it is achieving efficiency savings by holding operating expenditure at 2008/09 levels and absorbing additional costs, including increased licence fees. Further, SCA notes that it will not be compensated for the indirect carbon costs it incurs over the determination because its future prices are being indexed with a carbon-adjusted CPI.[63]

SCA also seeks an additional $0.3 million over 2012 Determination period to recover the direct unavoidable financial costs from its new operating licence requirements.[64] SCA proposes to absorb the remaining portion of ongoing maintenance cost by reprioritising other development and management programs in the organisation.

In relation to capital expenditure, SCA asks that we reconsider expenditure adjustments made in the draft report to the Minor Asset Renewals Program and Hydrometrics Renewals Program. It also proposes a more limited deferral of the Warragamba Reliability Upgrade Project, to allow for works on the integrity and reliability of the crest gates. SCA's revised expenditure profile adds about $3 million to the capital allowance proposed in the draft report.[65]

SCA supports the selection of a WACC that is the upper bound of the range in recognition of market uncertainty and low parameter estimates. However, it notes that as a result of IPART's decision to apply a post-tax WACC from December 2011 onwards, SCA's return is calculated on a different basis to SDP Ltd, which is the other bulk water supplier to Sydney Water.[66]

60 SCA submission, 17 April 2012, p 1.
61 SCA submission, 17 April 2012, p 4.
62 SCA submission, 17 April 2012, p 3.
63 SCA submission, 17 April 2012, p 3.
64 SCA submission, 17 April 2012, p 7.
65 SCA submission, 17 April 2012, p 5.
66 SCA submission, 17 April 2012, p 3.

Finally, SCA supports our draft prices to all its customers.[67] In particular, it supports the draft decision to set prices to Sydney Water on an 80:20 fixed to variable recovery ratio, as well as the introduction of different volumetric prices that accommodate the operation of SDP. However, SCA agrees with Sydney Water[68] that the fixed payments recovered from Sydney Water should be spread across all potential retailers in proportion to the volume of water sold to each retailer. SCA notes that this cost sharing arrangement would be consistent with IPART's 2011 SDP Determination.[69]

67 SCA submission, 17 April 2012, p 1.
68 Sydney Water submission to IPART's 2012 review of prices for Sydney Water – Draft Report, 13 April 2012, Appendix p 22.
69 SCA submission, 17 April 2012, p 2.

3 IPART's price setting approach

In this chapter we outline our price setting approach, including the rules and methodologies we use to determine 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.

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

3.1 Length of the determination period

Final decision

1 IPART's 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.[70] Sydney Water expressed support for SCA's proposed 4-year determination period for similar reasons.[71]

70 SCA submission, 17 September 2011, p 46.
71 SCA public workshop transcript, 17 November 2011, p 83.

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. The building block approach 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, and is consistent with the approach we use in regulating other water businesses and industries in NSW.

To apply the building block approach, we made decisions on the revenue SCA will require for efficient operating expenditure and capital investment over the 2012 determination period.

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.[72] Our previous approach used a pre-tax WACC with an assumed statutory tax rate. In most cases, this overstated the tax that would be paid by a comparable commercial business. In this Determination, the amount allowed for tax is lower than the amount 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 on a real pre-tax basis. Appendix E outlines our calculation of SCA's tax allowance.

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. Appendix D explains our changes.

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

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

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 the 2012 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, and ensures that customers pay no more than necessary.

We adopt sales forecasts to Sydney Water that are consistent with the sales forecasts used in our 2012 Determination of Sydney Water's maximum prices from 1 July 2012. We subtract 90 GL from our 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.

For local councils, we noted in the draft report that over the 2009 determination period SCA's sales forecasts to local councils were overestimated. We also noted that the move to fully distributed cost pricing requires more precision in setting sales forecasts.

As requested, local councils have revised their demand estimates to better reflect historic data.[73] SCA supports these revised forecasts. We also consider them to be reasonable and have remodelled council prices accordingly. To set prices for SCA's other customers, we adopt SCA's sales forecasts to these customers.

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

3.3.2 Price structure

Basis of prices to Sydney Water

Final decision

2 IPART's decision is to set the basis of SCA's maximum 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.
- Introducing a mechanism that apportions the fixed charge between Sydney Water and new entrants of a significant size based their demand share (volumes). New entrants include licensed water retailers, persons with access to Sydney Water's infrastructure, water supply authorities and councils (other than Wingecarribee Shire Council, Shoalhaven City Council and Goulburn Mulwaree Council).

Implicit in SCA's forecast sales to Sydney Water is the assumption that SDP operates at full capacity over the entire determination period.[74] 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. Stakeholder submissions[75] 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.

73 Wingecarribee Shire Council and Goulburn Mulwaree Council submissions, 12 April 2012.
74 SCA submission, 17 September 2011, p 60.
75 Sydney Water submission, 26 October 2011, p 2; NSW Government submission, 4 November 2011, p 3.

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 are likely to apply to only one large customer – Sydney Water. In addition, the price schedule has only 2 categories that would change infrequently. SCA supports the price schedule and has confirmed that it can be implemented without significant changes to its current billing arrangements with Sydney Water.[76]

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 (ie, it closer reflects the costs of supplying water from SCA's dams). 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.[77]

In particular, the 80:20 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.[78] 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, given SCA's dependence on one customer, Sydney Water. 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.

76 SCA submission, 17 April 2012, p 2.

77 SCA submission, 17 September 2011, p 61.

78 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, *Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012 – Final Decision*, December 2011.

Since the draft report, Sydney Water and SCA propose that the fixed charge to Sydney Water for the 2012 Determination should be spread across all potential retailers in proportion to the volume of water sold to each retailer. We accept this proposal and have decided to introduce a cost-sharing mechanism that apportions the fixed charge between Sydney Water and any entrants to the water market that are of significant size.

The cost-sharing mechanism will ensure that Sydney Water pays only for water that it purchases should a new entrant emerge, and new entrants purchasing services from SCA pay a fair price. This is consistent with the third party access undertaking that Sydney Water has submitted to IPART for approval under the *Water Industry Competition Act* 2006.

We discuss our pricing approach and the risks to SCA revenue in greater detail below. Our prices to Sydney Water are presented in Chapter 9.

Basis of prices for releases for North Richmond

Final decision

3 IPART's 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.[79]

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[80]:

- 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.[81] 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).

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79 IPART, *Review of the Operating Licence and review of prices for the Sydney Catchment Authority from 1 July 2012 – Issues Paper*, June 2011, p 78.

80 SCA submission, 17 September, p 62.

81 Sydney Water submission, 26 October 2011.

Basis of prices to local councils

Final decision

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

We have made a 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 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%. The fixed charge is based on the usage share of SCA's assets used to deliver water to local councils.

Our prices to local councils are presented in Chapter 9.

Basis of prices to bulk raw and unfiltered water customers

Final decision

5 IPART's 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.[82]

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

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

3.3.3 Price levels and target revenue

We have set maximum 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.

Our target revenues and aggregate pricing approach are shown in Table 3.1. SCA's prices are set to achieve revenue in 2012/13 that is 8.9% lower than the target established for 2011/12. Target revenue increases slightly in real terms over the remainder of the 2012 determination period, but remains below 2011/12 levels.

The main reason for the overall reduction in target revenue, and maximum 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 5.3 percentage points of the 8.9% 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 most of the remaining decrease in target revenue for 2012/13 compared with the 2011/12 allowance.

There has been a net increase in SCA's required revenue from the draft report of about 0.3% each year. Required revenue has increased due to our decisions to:

- update the post-tax WACC from the draft level of 5.5% to 5.6% for the final report, reflecting the most recent market based input parameters
- update the inflation forecast for 2012 from 2.50% to 2.85% for indexation of the RAB roll forward, to reflect the most recent 1-year inflation rate implied by swap market data
- include indirect carbon costs in SCA's operating costs
- include operating costs associated with changes made to the operating licence of about $0.3 million over the 4 year price path
- reinstate $3.3 million of expenditure adjustments made to 2 capital projects.

Most of these cost increases however have been offset by our decision to revise Shoalhaven pumping cost estimates downward to reflect current storage levels. We discuss each of these changes in detail in Chapters 4 to 6.

We consider that SCA's 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 consider that SCA will remain financially viable, and we discuss SCA's financial viability in Chapter 10. We discuss the pattern of prices for each of SCA's customers below.

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

	2011/12[a]	2012/13	2013/14	2014/15	2015/16
Sydney Water	**210.3**	**191.5**	**193.7**	**194.8**	**195.7**
year-on-year change (%)		-8.9%	1.1%	0.6%	0.5%
Local councils	**1.3**	**1.0**	**1.0**	**1.1**	**1.1**
year-on-year change (%)		-18.9%	1.3%	3.8%	3.7%
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**	**192.8**	**195.0**	**196.1**	**197.1**
year-on-year change (%)		-8.9%	1.1%	0.6%	0.5%

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

b 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

Sales to Sydney Water are about 99% of SCA's total sales. Therefore, SCA's prices to Sydney Water follow the same pattern as SCA's total revenue requirement.

There is a small increase to Sydney Water's prices from the draft report as a result of the local council's revised demand estimates – ie, the fall in revenue required from the local councils is absorbed by Sydney Water.[83] All other changes to Sydney Water's prices are due to the broader changes we have made to SCA's required revenue.

[83] Local councils revised their demand estimates from the draft report to better reflect historic data. We consider these demand estimates to be more precise and have adopted them to remodel council prices. With council prices set according to usage share of SCA's assets, the lower demand estimates reduces the proportion of required revenue retrievable form councils. The residual in SCA's required revenue is recovered by Sydney Water.

We did not consider it necessary to smooth Sydney Water's 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.

Level of prices to local councils

Final decision

6 IPART's 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.[84] 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. 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.

84 SCA submission, 17 September 2011, p 62.

As noted above, some of the local councils have revised their demand estimates from the draft report to align with historic data. With council prices set according to usage share of assets, the lower demand forecasts reduce SCA's required revenue from local councils by about 16.2% from the draft report. While some of revised forecasts differ considerably from the initial forecasts, the estimates are more precise than the draft report and are therefore used to determine final prices.

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

Level of prices to bulk raw and unfiltered water customers

Final decision

7 IPART's decision is to maintain the current level of maximum 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 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

Final decision

8 IPART's 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.[85] Notably, the SCA considers that it is exposed to significant downside revenue risk from the uncertainty over the operation of SDP.[86]

85 SCA submission, 17 September 2011, p 7.
86 SCA submission, 17 September 2011, p 60.

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
- 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.[87]

Our 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 notes that this price structure would manage revenue risk arising from a more uncertain operating environment.[88] Sydney Water also agrees that the 80:20 price structure is a better representation of SCA costs.[89] 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.[90]

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87 IPART, *Review of the Operating Licence and review of prices for the Sydney Catchment Authority – Issues Paper*, June 2011, pp 64–67.

88 SCA submission, 17 September 2011, p 61; SCA submission, 12 April 2012, p 2.

89 Sydney Water submission, 26 October 2011, p 1.

90 SCA public workshop transcript, 17 November 2011, p 71.

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.[91] We have made reasonable allowances in SCA's operating expenditure for expected Shoalhaven pumping costs and the direct and indirect carbon costs arising from the Australian Government's carbon pricing mechanism, which will commence on 1 July 2012. These uncertain costs are emphasised by SCA in its submissions and our decisions on these uncertain costs are discussed in detail in Chapter 5.

3.4 Approach to scarcity pricing at the wholesale level

Final decision

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

We have made a 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.[92]

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.

91 SCA submission, 17 September 2011, p 55.

92 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.

Stakeholders agree in principle that the objectives of scarcity pricing are currently handled in other ways.[93] SCA engaged Frontier Economics[94] 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.[95] The NSW Government agrees with 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.[96]

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. 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 currently operating to higher reliability and service standards.[97] 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.[98] This raises doubt over the link between scarcity pricing and efficient investment in practice.[99]
- A drought response strategy is in place to manage short-term supply–demand imbalances – notably, permanent Water Wise Rules and drought restrictions. There appears to be broad community acceptance of water restrictions as a means of managing potential drought.[100]

Adding a scarcity rent component[101] to SCA prices could also risk duplicating water costs to consumers, given that more costly alternative supply and demand options prescribed under the 2010 Metropolitan Water Plan are already reflected in retail prices.

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

94 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.

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

96 NSW Government submission, 4 November 2011, p 7.

97 A point also made by SCA. SCA submission, 17 September 2011, p 46.

98 NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 5.

99 Sydney Water submission to the Productivity Commission's urban water sector inquiry, November 2010, p 15.

100 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. NSW Government, submission to the Productivity Commission's urban water sector inquiry, November 2010, p 15. Surveys of Sydney Water customers show that 85% support the current Water Wise Rules. NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 55.

101 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).

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.[102] 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 expected 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.[103] 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.

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 decisions on output measures for the 2012 Determination.

[102] NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 34.
[103] NSW Office for Water, *2010 Metropolitan Water Plan*, August 2010, p 58.

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[104] 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 during 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).

[104] 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 originally advised Halcrow that the project will not be completed by April 2013. Subsequent to this advice, SCA proposes to change the wording of the output measure to reflect that the project has changed in scope and is now a downstream filter trench upgrade.[105]	The output measure is no longer appropriate given that the project has changed in scope.
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

Final decision

10 IPART's 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.[106] SCA did not propose output measures for the coming price path in its original submission, but did propose some changes to the set of output measures we developed in the draft report.[107]

[105] SCA submission, 12 April 2012, p 9.
[106] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 71.
[107] SCA submission, 12 April 2012, p 9.

After considering Halcrow's advice and SCA's submission, we have introduced a set of output measures to assess SCA's progress against the 2012 Determination (Box 3.1). The output measures have been developed for SCA in conjunction with setting prices for the 2012 Determination, and reflect our decisions on SCA's forecast capital expenditure for the period (see Chapter 6).

The number of output measures has increased from 6 to 9, but include 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 made changes to the following output measures since the draft report:

- Prospect Reservoir Upgrade: we have changed this output measure to reflect the project's new scope/definition. The original output measure from the 2009 Determination related to an upstream embankment stabilisation upgrade. SCA advises that the project currently being undertaken is a downstream filter trench upgrade.[108] In accepting SCA's redraft, we note that the original output measure has not been met by SCA because it is no longer appropriate.
- Warragamba Dam Environmental Flows: we have retained this output measure, noting that construction expenditure has been allocated to SCA for this potential project. However, we have redrafted the output measure to acknowledge SCA's concern that a commencement date for the potential project depends on future government direction and cannot be specified.
- Warragamba Dam Reliability Upgrade: we have redrafted the output measure to reflect SCA's proposal to reinstate about $3 million of the project's projected expenditure to its forward capital program so that SCA can carry out pressing works on the reliability of the Dam's crest gates.
- Shoalhaven Transfers Works: SCA requests that we remove this output measure as it pre-empts the next round of the NSW Government's Metropolitan Water Planning. We have made a decision to retain this output measure as it is designed to ensure that SCA has a business plan ready for this potential expenditure in time for the next determination in the event that the Government makes the decision to proceed. We note that the intent of this output measure is similar to that for the Upper Canal included in the 2009 Determination.

[108] SCA submission, 12 April 2012, p 9.

Box 3.1 2012 Determination 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 downstream filter trench 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 as directed by the Government.
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 upgrade works to the crest gates and their operating systems by 2016 to ensure they are code compliant, and investigations associated with the remainder of works to address reliability of Warragamba Dam 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 decision on SCA's notional revenue requirement
- our decision to set the target revenue to the notional revenue requirement.

4.1 SCA's proposed revenue requirement

SCA proposes[109] 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%.

[109] 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%**

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

b 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 decision

Applying the building block approach results in a notional revenue requirement for SCA over the 2012 determination period as shown in Table 4.2. Our notional revenue requirement over the 4-year period to 2015/16 is around 4.0% 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 5.6%, 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 Final 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	90.9	92.0	92.2	92.3
Deduction for unregulated income[b]	-0.4	-1.1	-0.9	-0.9	-0.9
Depreciation	24.5	22.8	23.3	23.8	24.3
Return on assets	92.4	76.7	77.1	77.4	77.7
Return on working capital	1.3	0.8	0.7	0.8	0.8
Tax allowance	n/a	2.7	2.8	3.0	3.0
Notional revenue requirement	**204.8**	**192.8**	**195.0**	**196.1**	**197.1**
Target revenue	**211.7**	**192.8**	**195.0**	**196.1**	**197.1**
Year-on-year change (%)		**-8.9%**	**1.1%**	**0.6%**	**0.5%**

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 increases slightly in real terms over the 2012 determination period. For 2012/13 – the first year of the determination period – it is about $18.9 million or 8.9% 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 ($10.8 million)
- change in aggregate pricing approach from the 2009 determination period – given that we smoothed price increases in the 2009 Determination ($6.9 million)
- reduction in the roll forward of the RAB and subsequent lower return on assets ($1.1million)

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 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	3.1	3.1	0.0
Depreciation	-1.6	-1.7	0.1
Return on assets	-15.6	-2.2	-13.5
Return on working capital	-0.5	-0.4	-0.1
Tax allowance			2.7
Notional revenue requirement	**-12.0**	**-1.1[a]**	**-10.8**
Target revenue	**-18.9**	**-8.1**	**-10.8**

[a] The notional revenue requirement established for 2011/12 under a pre-tax WACC is 1.1 million higher than the notional revenue requirement for 2012/13 under a real pre-tax WACC.

Note: The real pre-tax WACC for 2011/12 is 6.5%. The real post-tax WACC for 2012/13 is 5.6%. The real pre-tax WACC conversion for 2012/13 is 6.6%.

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 $203.7 million on a pre-tax WACC basis.[110] This is $10.8 million more than the $192.8 million notional revenue requirement we determined under the 5.6% post-tax WACC in Table 4.2. This means that $10.8 million of the $18.9 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 $10.8 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 of about $13.5 million due to a lower 5.6% post-tax WACC (compared to the 6.5% pre-tax WACC conversion)
- the inclusion of a new tax allowance of $2.7 million, offsetting the lower return on assets.

[110] 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 $15.6 million. The remaining $2.2 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

Most of the remaining $8.1 million of the $18.9 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)[111] 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

Final decision

11 IPART's 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[112] and our previous decisions for other water utilities.

111 We have converted target and notional revenue amounts in the 2009 Determination into 2011/12 dollars. IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, p 36.

112 IPART, *Review of prices for Sydney Water Corporation's water, sewerage, drainage and other services from 1 Jul 2012 to 30 June 2016 – Draft Report*, March 2012, Chapter 4.

Table 4.4 Final 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.[113] 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 proposes 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.[114] 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.

[113] 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.

[114] IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, 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.

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 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 decision

Final decision

12 IPART's 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 (both direct and indirect) as a result of the Australian Government's legislated carbon price commencing 1 July 2012
- incremental costs associated with the new operating licence requirements
- efficiency savings as recommended by Halcrow.

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

	2012/13	2013/14	2014/15	2015/16
SCA original proposal[a]	93.4	93.0	93.0	93.1
SCA revision[b]	-2.6	-1.0	-0.5	-0.2
SCA final proposal[c]	90.8	92.1	92.6	92.9
Halcrow recommended[d]	98.9	94.8	94.2	92.1
IPART decision	**90.9**	**92.0**	**92.2**	**92.3**

a Total operating expenditure from SCA's submission plus direct 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 SCA submission, 12 April 2012. SCA revised its Shoalhaven pumping costs downward from the draft report. It also includes incremental costs relating to the new operating licence requirements, which we have spread across the 4 years.

c Sub-total does not add up due to rounding.

d To ensure comparability of our 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.[115] SCA also expects operating expenditure for 2011/12 to be on target at about $87 million.[116] This indicates that SCA has achieved its commitment of reducing base operating expenditure in real terms[117], 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)).[118]

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.

115 SCA submission, 17 September 2011, p 38.

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

117 SCA submission to IPART's 2009 review of prices for Sydney Water – Issues Paper, September 2008, p 5.

118 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 Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, p 50.

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.[119] We agree with Halcrow's assessment but note that SCA's operating expenditure savings over the 2009 determination period include deductions for unregulated income (ie, with equal recoverable expenditure).

We note that SCA's operating expenditure for 2011/12 is about $89.4 million when unregulated income (with recoverable expenditure) is included. This indicates that SCA's operating expenditure for 2011/12 is not on target, but above target by 2.7%. Over the 3-year price path, we estimate SCA to be about $2.8 million under its allowance (or 1.1%), instead of the $10 million reported by SCA. 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.

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

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.[120]

SCA proposes holding core operating expenditure at 2008/09 levels, and absorb the $1 million per year increase in the NSW Office of Water licence fee determined by IPART in a separate review.[121] In addition to core operating expenditure, SCA proposes[122]:

- $1.3 million per year (on average) to account for Shoalhaven pumping costs
- $1.4 million per year (on average) to cover direct carbon costs as a result of the Australian Government's legislated carbon price starting 1 July 2012
- $0.3 million over 2012 Determination period to recover the direct unavoidable financial costs from its new operating licence requirements.

With these additional expenses, SCA proposes operating expenditure of about $91.7 million per year over the 2012 determination period (see Table 5.3). This is about $1.1 million per year lower than what SCA proposed for the draft report. The reduction in SCA's proposed operating costs is due to SCA's updated Shoalhaven pumping cost estimates (explained below).

Since the draft report, SCA also proposes an additional $0.3 million over 2012 determination period to recover the direct unavoidable financial costs from its new operating licence requirements.[123] At the time of development of the licence, IPART estimated that the cost of the new requirements in net present value terms was about $0.7 million over 5 years. SCA proposes to absorb the remaining portion of ongoing maintenance cost by reprioritising other development and management programs in the organisation.

SCA also seeks removal of the efficiency target that we applied to its operating expenditure in the draft report, especially if it is made to absorb indirect carbon costs.[124] SCA considers that it is achieving efficiency savings by holding core operating expenditure at 2008/09 levels and absorbing additional costs, including increased licence fees. Further, SCA notes that it will not be compensated for the indirect carbon costs it incurs over the determination because its future prices are being indexed with a carbon-adjusted CPI.

[120] SCA submission, 17 September 2011, p 51.
[121] SCA submission, 17 September 2011, p 51.
[122] SCA submission, 17 April, p 4.
[123] SCA submission, 17 April 2012, p 7.
[124] SCA submission, 17 April 2012, p 3.

Finally, we note that included in SCA's forecast operating expenditure is a proposed deduction of $0.4 million for unregulated income (with recoverable expenditure).[125] However, we make deductions for unregulated income from SCA's notional revenue requirement and not operating expenditure. Therefore, we add $0.4 million back into SCA's operating expenditure in Table 5.3 to arrive at a proposed operating expenditure of about $92.1 million per year.

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.[126]

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 – revised estimates	0.4	1.4	1.7	1.8
Carbon costs				
Shoalhaven transfers	0.2	0.9	1.1	1.2
Energy costs	0.5	0.5	0.5	0.6
New operating licence requirements	0.1	0.1	0.1	0.0
Total operating expenditure	**90.8**	**92.1**	**92.6**	**92.9**
Deduction for unregulated income	-0.4	-0.4	-0.4	-0.4
Total operating expenditure (incl. proposed deduction)	**90.4**	**91.7**	**92.2**	**92.5**

[a] We have added SCA's proposed $0.4 million deduction for unregulated income back into core operating expenditure as deductions for unregulated income are made from SCA's notional revenue requirement instead. We have excluded SCA's Shoalhaven costs from its core operating expenditure to show as separate line item.

Source: Based on SCA submission, 17 September 2011, p 51-52; SCA submission, 17 April 2012.

125 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.

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

SCA proposal for Shoalhaven pumping costs

SCA has revised its Shoalhaven pumping cost estimates downward since the draft report to reflect current system storage levels of around 97%. The revised pumping cost estimates are about 40% lower than those used in the draft report, falling from $14.5 million to about $8.8 million over the 4 years (including the carbon cost component).[127]

SCA supports our decision to allow for the cost recovery of Shoalhaven pumping based on expected cost.[128] SCA originally proposed a self-insurance premium of $2 million per year to cover the expected cost of Shoalhaven water transfers. The self-insurance scheme aimed to smooth out SCA's estimates of the expected costs of Shoalhaven pumping over time.

SCA has used the same modelling approach to revise its estimates as the draft report. 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 (called the WATHNET model). The WATHNET model estimates Shoalhaven transfers under varying climatic conditions given the current operating rules (2,000 runs of WATHNET).[129]

SCA estimates the expected costs of pumping are also based on an:

- estimated electricity price of about $35/MWh
- MWh per ML conversion factor of 1.9.[130]

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).

[127] SCA submission, 17 April, p 4.

[128] SCA submission, 17 April, p 4.

[129] 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.

[130] 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.

Table 5.4 SCA's proposed Shoalhaven pumping cost estimates ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Draft report - 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
Final report - expected cost				
Base cost of pumping	0.4	1.4	1.7	1.8
Carbon costs on pumping	0.2	0.9	1.1	1.2
Total expected cost	0.6	2.3	2.8	3.1

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; SCA submission, 17 April 2012, p 4.

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. Halcrow did not review SCA's submission to the draft determination and report and therefore has not commented on SCA's revised operating costs.

Overall, Halcrow accepts SCA's forecast operating expenditure for the 2012 Determination, including the original proposed self-insurance costs associated with Shoalhaven transfers and the Australian Government's carbon price. In addition, Halcrow includes[131]:

- 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)
- 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.

[131] Halcrow deducts 100% of SCA's forecast unregulated income from its recommended level of operating expenditure, because it leaves the treatment of unregulated income to IPART (ie, treatment of recoverable expenditure from SCA's unregulated activities). Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, pp 47–48.

To ensure comparability with our 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).[132]

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 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. It notes that SCA's proposal to hold core operating expenditure at levels established in the 2009 Determination (and thus implicit efficiency savings) is based on a reduction of staff numbers from 289 FTE at the beginning of the 2009 period to 250 FTE by the end.

IPART's allowances for the 2009 Determination on the other hand were based on 289 full-time equivalent (FTE) staff. 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 - of about $5.3 million per year.[133]

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

[133] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 45.

However, Halcrow identifies increases in the following non-labour costs over the 2012 Determination that offset some of the FTE staff–related savings[134]:

- 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 considers that by holding core operating at 2008/09 levels over the 2012 Determination, SCA is absorbing these cost increases and carrying forward some of the past savings it has achieved.[135] 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.

Halcrow also considers 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.[136]

134 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 47.
135 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 47.
136 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 47.

5.3.3 IPART's decision

Our 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 form its submission to our draft report, and not accept SCA's original proposal for a self-insurance scheme for Shoalhaven transfers
- include an allowance for carbon costs associated with Shoalhaven transfers and base energy costs
- include an allowance for indirect carbon costs related to other relevant operating expenses
- accept SCA's proposal to include $0.3 million of the estimated costs associated with the new operating licence requirements
- reject Halcrow's recommendation to reclassify capital expenditure as operating expenditure related to Upper Canal refurbishment and Warragamba Dam environmental flows (explained in Chapter 6).

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

Table 5.6 IPART 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	0.4	1.4	1.7	1.8
Direct Carbon costs				
Shoalhaven transfers	0.2	0.9	1.1	1.2
Base energy costs	0.5	0.5	0.5	0.6
Indirect carbon costs	0.4	0.4	0.4	0.3
New operating licence requirements	0.1	0.1	0.1	0.0
Total operating expenditure (based on SCA proposal) [b]	**91.2**	**92.5**	**93.0**	**93.3**
Efficiency adjustment/target	-0.3	-0.5	-0.8	-1.0
IPART allowance	**90.9**	**92.0**	**92.2**	**92.3**

[a] We have added SCA's proposed $0.4 million deduction for unregulated income back into core operating expenditure. We have excluded SCA's Shoalhaven costs from its core operating expenditure to show as separate line item.

[b] IPART's allowance based on cost items proposed by SCA. Our final allowance includes an efficiency adjustment that was not proposed by SCA.

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

Efficiency adjustment

We have reaffirmed Halcrow's recommendation to apply a 0.3% efficiency target to SCA's operating expenditure, noting that:

- Some of the efficiency savings identified by SCA include a deduction for unregulated income (ie, with equal recoverable expenditure). We make deductions for unregulated income from SCA's notional revenue requirement and not from operating expenditure. When unregulated income is 'put back' into operating costs, SCA's core operating costs for the 2012 Determination are forecast to be around 3.0% greater than 2008/09 levels (ie, excluding Shoalhaven pumping costs, carbon costs, and incremental costs from the new operating licence requirements).
- SCA has not deducted the FTE savings achieved over the 2009 period from its annual forecast operating expenditure for the 2012 Determination. However, these savings roughly offset the increased costs it has absorbed.

In total, SCA's proposes operating expenditure of about $92.1 million per year for the 2012 Determination, which is about 5.9% above 2008/09 levels allowed by IPART's of about $87 million[137], and 3.1% above the $89.4 million[138] reported for 2011/12.

Shoalhaven pumping costs

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).[139] For the 2009 Determination[140], Shoalhaven pumping costs were less of an issue because of the Ministerial moratorium on Shoalhaven pumping in place for most of the determination period.[141]

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137 IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, p 48. We note that the operating cost allowance of $80 million in $2008/09 for each year of the 2009 determination is $87 million in $2011/12.

138 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.

139 SCA submission, 17 September 2008, p 23.

140 IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, p 39.

141 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, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, p 40.

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.[142]

With the ministerial moratorium expiring in November 2011[143], we recognise that Shoalhaven transfers represent an uncertain operating cost for SCA over the 2012 Determination period in terms of volume and price risk.[144] In the draft report, we decided to include SCA's expected costs for Shoalhaven pumping as part of its total operating costs and revenue requirement. We did not accept SCA's self-insurance scheme as a mechanism to manage the uncertain costs of Shoalhaven pumping over the 2012 period.[145] For the Final Determination, we requested that SCA update its expected costs based on more recent information on dam storage levels.

SCA has revised its Shoalhaven pumping cost estimates downward to reflect current system storage levels of around 97% (Table 5.4). The revised pumping cost estimates are about 39% lower than those used in the draft report, falling from $14.4 million to about $8.8 million over the 4 years (including the carbon cost component).

We accept SCA's revised pumping cost estimates and consider them to be reasonable, noting that SCA has used the same modelling approach to arrive at these estimates as those in the draft report (ie, WATHNET modelling). SCA's revised cost estimates for Shoalhaven pumping comprise around 1.4% of total operating expenditure over the 2012 determination period.[146]

Finally, we note that in Chapter 3, we made a decision to change SCA's price structure to Sydney Water to an 80:20 fixed to variable split. We consider this to be an adequate approach for managing any remaining revenue risk from Shoalhaven transfers.

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142 IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, p 41.

143 http://www.sca.nsw.gov.au/news/ministerial-media-releases/sydney-cuts-reliance-on-shoalhaven-for-drinking-water---minister-phillip-costa-mp

144 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.

145 SCA submission, 17 September 2011, p 55.

146 If carbon costs are included then expected costs of Shoalhaven pumping contribute about 2.4% to total operating expenditure over the 2012 Determination.

Carbon price

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

- direct carbon costs associated with SCA's energy use for general business activities and Shoalhaven transfers
- indirect carbon costs that relate to SCA's other relevant operating costs.

Our allowance for carbon price costs is presented in Table 5.7, and explained in detail below.

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

	2012/13	2013/14	2014/15	2015/16
Direct carbon costs for base energy use	0.5	0.5	0.5	0.6
Direct carbon costs for Shoalhaven transfers	0.2	0.9	1.1	1.2
Indirect carbon costs	0.4	0.4	0.4	0.3
IPART's allowance for carbon costs	**1.1**	**1.8**	**2.0**	**2.2**

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

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.[147]

SCA estimates direct carbon costs for the 2012 Determination using[148]:

- 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.[149]

We consider SCA's approach to estimating its direct carbon price costs to be reasonable. Direct carbon costs add on average about 30% to SCA's annual base energy costs and 66 % to expected annual costs for Shoalhaven pumping.[150]

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

148 SCA submission, 17 November 2011, p 55.

149 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).

150 We note that SCA's expected energy use 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.

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.

However, by indexing its future prices with a carbon-adjusted CPI, we note that SCA would not be compensated for any indirect carbon costs (ie, unrelated to energy use) it incurs over the 2012 determination, as it did not submit an estimate of these costs in its original submission.

In its submission to the draft report, SCA proposes that we should remove the 0.3% per annum efficiency target applied to its operating cost allowance, if it is made to absorb these indirect carbon costs.[151] We do not accept this proposal as we consider the efficiency target and carbon costs to be 2 separate issues. In addition, we have made a decision to retain the efficiency target (as explained above).

At our request, SCA has provided an estimate of its indirect carbon costs for both capital and operating expenditure over the 4 years. It applies the 0.7% economy wide effect from the carbon price estimated by the Commonwealth Treasury to its forward capital program and all operating costs, except employee related and financing costs.[152]

We consider the uplift used by the SCA to calculate its indirect carbon costs to be reasonable. However, we note that the roll forward of the RAB in the next determination should compensate SCA for most of the indirect carbon costs it incurs in its capital program. Therefore, we accept only SCA's proposed indirect carbon costs that relate to its operating expenditure.

We note that the allowance for indirect carbon costs add about 0.4% to SCA's total operating costs. Overall, our allowance for both direct and indirect carbon costs (in Table 5.7) represents a relatively small proportion of SCA's total operating costs – about 1.9%.[153]

[151] SCA submission, 17 April 2012, p 3.

[152] Correspondence with SCA, 27 April 2012.

[153] Australian Treasury has estimated that carbon pricing will increase the CPI by 0.7% in 2012-13. However, cost impacts will vary by industry. Carbon price costs are proportionately higher for SCA because of Shoalhaven pumping – this activity increases SCA's energy use and thus direct carbon price costs (ie, SCA is more energy intensive than average businesses).

Costs associated with new operating licence requirements

Concurrent to this price review, we conducted a cost-benefit analysis of proposed changes to SCA's operating licence.[154] The cost-benefit analysis is consistent with the data provided by SCA for the pricing review as it was 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 were completed in March 2012. We consider additional costs will be imposed on SCA and that these costs should be partially recovered through SCA's operating expenditure.

Our cost-benefit analysis indicates that new operating licence requirements would cost SCA about $0.7 million over 5 years in net present value terms, including[155]:

- $186,000 for water quality management system and assets reporting
- $496,000 for an ISO certified or compliant Environmental Management System.

SCA seeks an increase in operating costs of $0.3 million over the 4 years to cover the direct and unavoidable costs from the revised operating licence.[156] SCA proposes to absorb the remaining portion of ongoing maintenance costs by reprioritising other development and management programs.

We do not support the principle that SCA needs to defer projects that we have deemed efficient and included in SCA's operating costs, to absorb the remaining costs. We have found that the full economic benefits of changes to the operating licence exceed their costs. These benefits include benefits to SCA, its customers and the community in general. For example, we identified that an environmental management system would allow SCA to:

- reduce environmental impacts, by identifying the full range of potential impacts across its operations
- improve efficiency and reduce risk by reviewing and upgrading environmental operational control procedures, such as consolidating all hazard inspection systems.

We are unable to quantify the direct benefits to SCA in the form of efficiency gains over the determination period. Therefore, on balance, we have accepted SCA's proposal to include $0.3 million in its operating expenditure to cover the direct and unavoidable costs from the revised operating licence. We have distributed these costs across the 4 years consistent with the cost profile used in the cost-benefit analysis.

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154 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).

155 IPART, *End of Term Review for Sydney Catchment Authority's Operating Licence – Final Report*, April 2012, Appendix C.

156 SCA submission, 17 April 2012, p 7.

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 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 decision

Final decisions

13 IPART's 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 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 Final 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 decision	**53.0**	**27.2**	**18.7**	**98.8**

[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 Final 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 decision	**30.6**	**31.8**	**31.2**	**34.8**	**128.4**

[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).[157]

[157] 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.[158] 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).[159] 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.[160] The projects selected for review represent 71% of SCA's total capital expenditure over the 2009 Determination.[161] We summarise Halcrow's recommended adjustments to capital expenditure in Table 6.4.

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

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

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

161 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 decision

Our decision is to reduce SCA's capital expenditure by $0.8 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 1 of the 6 capital projects that Halcrow recommended adjusting (Table 6.5).

In relation to the 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.

Since the draft report, we have also rejected Halcrow's recommendation to apply an efficiency adjustment to 2 of SCA's asset renewal programs. We reinstate this capital expenditure because, on balance, we consider SCA's current risk based approach to renewing assets delivers reasonable outcomes.[162] Our decision to reinstate this capital expenditure has a negligible impact on prices as it increases the current capital expenditure allowance from the draft report by about $153,000 (over 2009 Determination).

[162] SCA submission, 17 April 2012, p 6.

Table 6.5 Final decisions on SCA's past capital expenditure

Project	Halcrow's recommendation	IPART's decision
Minor asset renewals	Efficiency adjustment of 2% per annum	Reject
Hydrometric renewals	Efficiency adjustment 3% per annum	Reject
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 500 ML 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.[163]

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[164]). Therefore, we reject Halcrow's recommendation to expense the $2.1 million spent on investigation.

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

[164] 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.

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).[165] 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-General.[166] 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.[167] The Government notes that implementing new flows from Warragamba Dam could require major investment in infrastructure.[168]

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.[169] Halcrow also notes that there is a high level of uncertainty over the extent of the environmental flow and nature of the required solution.

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165 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 51.
166 SCA public workshop transcript, 17 November 2011, p 64.
167 NSW Government, *2010 Metropolitan Water Plan*, August 2010, p 50.
168 NSW Government, *2010 Metropolitan Water Plan*, August 2010, p 50.
169 Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, Appendix A, p 47.

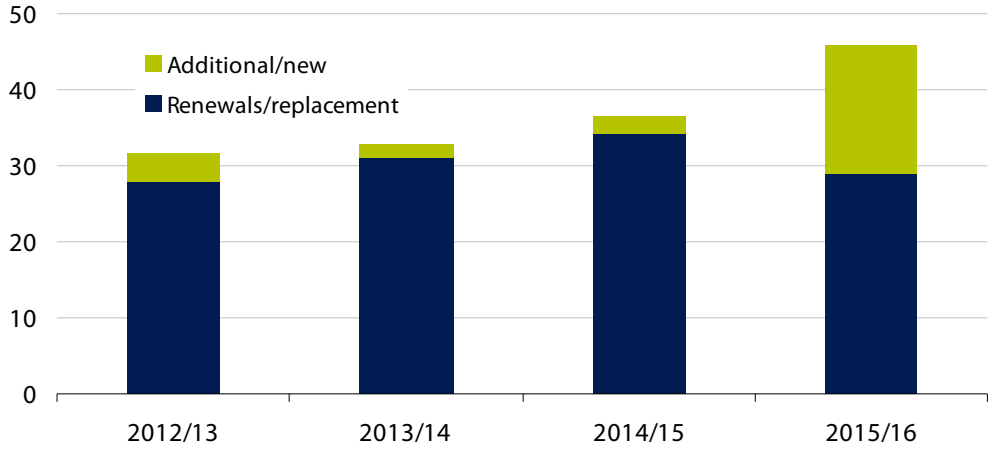
We consider that the costs associated with the investigation of this project should be capitalised into the asset base, rather than expensed, because SCA is required by the NSW Government under the 2010 Metropolitan Water Plan to complete the investigation on this project. In addition, we consider that 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.[170] 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.

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).

[170] SCA submission, 17 September 2011, p 8.

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.[171]

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.[172] 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.[173]

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.[174]

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.[175] 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.

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171 SCA annual information return – estimates supplied on commercial in confidence basis.

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

173 We have categorised Halcrow's adjustments in Table 6.6.

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

175 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.[176] The delivery of the combined projects took 13 years, starting in about 1998.[177] 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.

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

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

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.[178] 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 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.[179]

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.[180]

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.[181]

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.

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

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

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

181 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.

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.

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.[182] 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 decision

Our decision is to provide SCA a capital allowance of $128.4 million for the 2012 Determination (Table 6.2). This is $17.7 million less than SCA's proposed expenditure over the 4 years. It is $24.4 million more than Halcrow's recommended expenditure over the 4 years.

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 5 projects:

- Warragamba Dam environmental flows
- Upper Canal refurbishment
- Warragamba Dam reliability upgrade
- Minor Assets Renewals and Hydrometrics Renewals Programs.

We explain our decisions on these capital projects in detail below. We note that most of the $17.7 million reduction that we make to SCA's forward capital program relates to expenditure proposed for the reliability upgrade of Warragamba Dam.

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

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

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

Project	Halcrow's recommended adjustment	IPART's adjustment
Deferment of expenditure		
Warragamba Dam reliability upgrade	18.0	14.9
Warragamba Dam environmental flows	11.0	0.0
Efficiencies/prudence		
Burrawang Pumping station	0.6	0.6
Minor assets renewal program	0.1	0.0
Hydrometric renewals	0.1	0.0
Metropolitan Dams electrical system	2.3	2.3
Reclassify capital expenditure as operating expenditure		
Warragamba Dam environmental flows	1.0	0.0
Upper Canal refurbishment	9.1	0.0
Total	**42.1**	**17.7**

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

Warragamba Dam reliability upgrade

In the draft report, we accepted Halcrow's recommendation to defer $18 million of the expenditure proposed for the Warragamba Dam upgrade to the next determination period to allow better scoping of this capital project.

SCA's view is that the crest gate component of the Warragamba Dam Upgrade Project should not be deferred to the next determination period, as it has experienced some issues with the operation of the gates in the recent flood event.[183] SCA recommends deferring about $15 million of the expenditure proposed for seismic work, but adding approximately $3 million to its capital expenditure allowance to allow work to start on the reliability of the crest gates (ie, SCA wishes to delay the project by one year instead so that capital expenditure commences in 2014/15).

We consider SCA's proposal reasonable and accept deferring the expenditure profile for this project by one year. We note that this increases capital expenditure by about $3 million from the draft report and has a negligible impact on prices.

[183] SCA submission, 17 April 2012, p 5.

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.[184] SCA's estimates are the best available and this decision allows SCA to deliver on a NSW Government requirement.[185]

Our 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 construction does not commence within the 2012 price path, 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.[186] 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.[187] 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.[188] Therefore, we accept SCA's accounting treatment for this project and do not consider that it requires reclassification.

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

185 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.

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

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

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

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[189] are no longer relevant for the 2012 Determination.

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.

Minor Assets Renewals and Hydrometrics Renewals Programs

We applied efficiency adjustments to 2 asset renewal programs based on Halcrow's recommendation in the draft report that SCA's current model of separate procurement of each renewal does not deliver the most efficient outcome.

However, SCA argues that it is difficult to clearly define a long term program of renewals with any degree of certainty, as recommended by Halcrow, because many of its assets are exposed to the natural elements which can impact their useful life. SCA considers that the current model delivers the most efficient outcome as it uses a risk based approach, where assets are renewed as required.[190]

SCA also emphasises that while each individual asset programmed for replacement is sent to the contractors for quoting, the contractors:

- are awarded as a result of a competitive tender process
- quote only for the materials for the renewal, as the contract contains a schedule of rates that the contractor can charge the SCA on work performed.

We consider SCA's arguments to remove the efficiency adjustment applied to these programs in the draft report reasonable. Therefore, we reinstate $173,000 to SCA's forward capital expenditure (over 2012 determination), noting that this has a negligible impact on prices.

[189] IPART, *Review of the Operating Licence and review of prices for the Sydney Catchment Authority from 1 July 2012 – Issues Paper*, June 2011, pp 74–77.
[190] SCA submission, 17 April 2012, p 6.

7 Revenue requirement for capital investment

The revenue required for capital investment comprises 2 cost components:

- an allowance for a return on assets (including working capital)
- 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 decisions

Our final decisions on SCA's revenue requirement for capital investment are summarised in Table 7.1.

Table 7.1 Final decisions on SCA's revenue required for capital investment ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Return on assets	76.7	77.1	77.4	77.7
Depreciation (regulatory)	22.8	23.3	23.8	24.3
Tax allowance	2.7	2.8	3.0	3.0
Return on working capital	0.8	0.7	0.8	0.8

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 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 and any asset disposals
- indexing the annual closing RAB for actual inflation to 2011 and adding a forecast inflation component for 2012.[191]

[191] 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.

Our roll forward of the RAB differs to the draft determination as we have updated the inflation forecast for 2012 from 2.50% to 2.85%. This reflects the most recent 1-year inflation rate implied by swap market data. Our estimate for 2011/12 will be adjusted during the next determination for any difference between estimated and actual inflation.

Table 7.2 Final 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	1,363.6
Capital expenditure	50.2	26.3	18.7
Regulatory depreciation	-22.6	-24.2	-25.5
Asset disposals	-5.0	-2.2	-2.1
Indexation	30.1	41.3	39.1
Closing RAB value	1,322.2	1,363.6	1,393.8

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 final 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 for the 2012 determination period are presented in real terms (2011/12 dollars).

Table 7.3 Final 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	1,393.8	1,399.5	1,405.2	1,410.2
Capital expenditure	30.6	31.8	31.2	34.8
Regulatory depreciation[a]	-23.5	-24.0	-24.5	-25.0
Asset disposals	-1.4	-2.1	-1.7	-2.2
Indexation	–	–	–	–
Closing RAB value	1,399.5	1,405.2	1,410.2	1,417.7

[a] Regulatory depreciation included in the RAB is discounted by 6 months to smooth depreciation over the year and therefore differs to our allowance for regulatory depreciation.

7.3 IPART's decision on an appropriate rate of return

Final Decision

15 IPART's decision is to use a post-tax real WACC of 5.6% for the purposes of calculating the allowance for a return on assets.

Our decision is to apply a real post-tax WACC of 5.6% to calculate the allowance for a return on assets. Due to current market uncertainty and historically low parameter estimates, we have decided that the upper bound of our range, 4.0% to 5.6% was an appropriate point estimate for the WACC. We have recalculated the rate of return since the draft report to take account of changing market conditions.

There are several approaches for deciding on an appropriate rate of return. We decided in December 2011 to change to a post-tax real building block model after consultation with stakeholders[192]. In previous reviews, we have used a pre-tax real WACC. We consider that the post-tax real WACC provides a superior estimate of the tax liability of a similar well-managed, privately owned business.

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 original proposed rate of return and subsequent submissions, the views of stakeholders, the views of finance experts and our own analysis. We also considered the implications of the chosen rate of return for SCA and its customers.

The parameters underpinning our real post-tax WACC of 5.6% are presented in Table 7.4. Market based parameters – the risk free rate, inflation adjustment and the debt margin – have been sampled over the 20 days to 16 April 2012. Our decision on the debt margin has used a range to account for current market conditions. Further details on our WACC final decision, including the parameters used to calculate the WACC range, are provided in Appendix D.

[192] IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011.

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

WACC parameters	Value
Nominal risk-free rate	3.6%
Inflation[a]	2.8%
Market risk premium	5.5% to 6.5%
Debt margin	3.3% to 4.8%
Debt to total assets	60%
Dividend imputation factor (gamma)	0.25
Equity beta	0.6 to 0.8
Cost of equity	6.9% to 8.8%
Cost of debt	6.9% to 8.4%
WACC range (real pre-tax)	4.8% to 6.6%
WACC mid-point (real pre-tax)	5.5%
WACC range (real post-tax)	4.0% to 5.6%
WACC midpoint (real post-tax)[a]	4.6%
WACC (real post-tax) point estimate	**5.6%**

[a] The midpoint WACC is calculated using the midpoint of the MRP and equity beta range, and the median of the debt margin observations

7.3.1 Calculating the tax allowance

Final Decision

16 IPART's decision is to provide a tax allowance in Table 7.5.

As discussed in Chapter 3, the tax allowance for the 2012 Determination 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. We outline our calculation of SCA's tax allowance in detail in Appendix E.

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

	2012/13	2013/14	2014/15	2015/16
Tax allowance	2.7	2.8	3.0	3.0

7.4 Calculating the allowance for regulatory depreciation and asset lives

Final Decision

17 IPART's decision is to maintain the current asset life of 60 years for both new and existing assets.

18 IPART's decision is to provide a resulting allowance for regulatory depreciation in Table 7.6.

We have made a 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.[193]

As in previous determinations, we continue to use the straight-line depreciation method to calculate depreciation.[194] We consider that this method is superior to alternatives in terms of simplicity, consistency and transparency. Our resulting allowance for regulatory depreciation is presented in Table 7.6.

Table 7.6 Final decision on an allowance for regulatory depreciation ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16
Depreciation (regulatory)	22.8	23.3	23.8	24.3

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

[194] 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 maximum 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 SDP over the 2012 Determination. We have made a decision to address this source of sales risk through SCA's price structure to Sydney Water.

The section below summarises our 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 decision

Final decision

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

Table 8.1 Final 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	3,700	3,750	3,800	3,850
Shoalhaven City Council	100	100	100	100
Goulburn Mulwaree Council	100	100	200	300
Unfiltered water customers	220	220	220	220
Bulk raw water customers	30	30	30	30
Total water sales – SDP "off"	**491,666**	**493,851**	**496,157**	**499,895**
SDP water supply[a]	(90,000)	(90,000)	(90,000)	(90,000)
Total water sales – SDP "on"	**401,666**	**403,851**	**406,157**	**409,895**
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 decision to adopt sales forecasts to Sydney Water that are consistent with the sales forecasts used in the Sydney Water pricing review.[195]

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.[196] Implicit in SCA's forecast sales to Sydney Water is the assumption that SDP operates at full capacity over the entire determination period.[197] 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 90 GL 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.

[195] IPART, *Review of prices for Sydney Water Corporation's water, sewerage, drainage and other services from 1 Jul 2012 to 30 June 2016 – Draft Report*, March 2012, Chapter 7.

[196] SCA submission, 17 September 2011, p 60.

[197] 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.[198] However, our 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 3 GL 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 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 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.[199] 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 Final 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.

198 Sydney Water submission to IPART's 2012 review of prices for Sydney Water – Issues Paper, 16 September 2011, p 110.

199 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

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. Therefore, any difference between forecast water sales and actual sales over the 2012 determination period may result in a possible cross-subsidy in the fixed charge between the local councils.

In the draft report, SCA and the local councils expected a slight increase in average sales over the 2012 determination period relative to forecasts made for the 2009 determination period. We noted that these forecast sales were also higher than actual sales over the 2009 Determination (see Table 8.4). We asked councils and SCA to revise their sales estimates for the Final Determination.

Table 8.4 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.

At our request, Wingecarribee Shire Council has revised its water demand forecasts, from 4,100 ML/per annum to about 3,775 ML/per annum, to align better with historic levels.[200] Goulburn Mulwaree Council, a new customer to SCA, conducted modelling work to revise water sales forecasts to about 175 ML/per annum from 500 ML/per annum.[201]

SCA's revised forecast sales to the 3 local councils are presented in Table 8.5. These forecasts have undergone a consultative process conducted by SCA with the local councils. We consider them to be reasonable and have adopted them.

[200] Wingecarribee Shire Council submission, 12 April 2012, p 1.
[201] Goulburn Mulwaree Council submission, 12 April 2012, p 1.

Table 8.5 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	3,700	3,750	3,800	3,850
Shoalhaven City Council	87	71	80	100	100	100	100
Goulburn Mulwaree Council				100	100	200	300
Total Sales	**3,739**	**3,584**	**3,980**	**3,900**	**3,950**	**4,100**	**4,250**

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

Source: SCA's submission, 17 September 2011, p 60, SCA's 2011 annual information return to IPART, Wingecarribee Shire Council and Goulburn Council submissions, .12 April 2012.

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 decisions on aggregate pricing approach, price structures and forecast water sales, we have set maximum prices for SCA's water supply services for the 2012 Determination. The section below provides a summary of these pricing decisions. The following sections discuss the decisions on SCA's maximum 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 Final Determination are in 2012/13 dollars.

9.1 Summary of IPART's decision

Final decision

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

Table 9.1 Maximum prices SCA can charge for its water supply 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" ($/ML)	78.57	79.12	79.22	79.02
Volumetric charge to Sydney Water – SDP "on" ($/ML)	96.36	96.94	96.96	96.57
Fixed charge to Sydney Water ($million/pa)	153.2	155.0	155.8	156.6
Charges to local councils				
Volumetric charge to local councils ($/ML)	199.06	199.06	199.06	199.06
Fixed charge to Wingecarribee Shire Council ($/pa)	245,512	248,829	252,147	255,465
Fixed charge to Shoalhaven City Council ($/pa)	6,635	6,635	6,635	6,635
Fixed charge to Goulburn Mulwaree Council ($/pa)	6,635	6,635	13,271	19,906
Charges to bulk raw and unfiltered water customers				
Volumetric charge to bulk raw water customers ($/kL)	0.63	0.63	0.63	0.63
Volumetric charge to unfiltered water customers ($/kL)	1.08	1.08	1.08	1.08
Fixed charge to unfiltered water customers – for 20mm meters ($/pa)	96.0	96.0	96.0	96.0
Fixed charge to unfiltered water customers – for meter size above 20 mm ($/pa)	$(\text{Meter size})^2$ 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 Prices to Sydney Water

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

- set prices so that SCA's target revenue reaches its notional revenue requirement in each year of the 2012 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
- introduce a cost sharing mechanism for SCA's fixed costs based on demand share (volumes) between Sydney Water and a potential new entrant.

SCA's prices to Sydney Water under the 2012 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
- move to an 80:20 fixed-to-variable price structure
- introduce a cost sharing mechanism based on demand share (volumes) for Sydney Water's fixed charge.

We have 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. The 80:20 split is also justified due to SCA's dependence on one customer.

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.[202] The move to an 80:20 pricing split is consistent with SCA's submissions and stakeholder views.

We have introduced a price schedule, with one volumetric charge when SDP is "on" and another price when it is "off", to manage SCA's revenue risk from the operation of SDP over the 2012 Determination. The price schedule compensates SCA for any foregone sales arising from the operation of SDP, because there is an inverse relationship between the price charged and the volume of sales to Sydney Water. The price schedule ensures therefore that SCA does not over- or under-recover revenue resulting from SDP operation. It also ensures that customers do not pay more than what is necessary for SCA's dam water when SDP is "off".[203]

[202] IPART, *Review of prices for the Sydney Catchment Authority from 1 July 2009 to 30 June 2012 – Final Decision*, June 2009, p 85.

[203] 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.

While SCA did not propose a schedule of prices to manage SDP's variable output over the 2012 Determination, its expressed support for our price schedule in its submission to our draft report.[204] SCA's original proposal was for a volumetric charge to Sydney Water based on sales forecasts that assume SDP operates at full capacity over the 2012 determination period.

Since the draft report, SCA and Sydney Water[205] propose that the fixed payments it recovers from Sydney Water should be spread across all potential retailers in proportion to the volume of water sold to each retailer. SCA notes that this cost sharing arrangement would be consistent with IPART's 2011 SDP Determination.[206]

We accept this proposal and have introduced a mechanism that apportions the fixed charge between Sydney Water and any entrant to the water market based on demand share (volumes). This will ensure that Sydney Water pays only for water that it purchases should a new entrant emerge, and new entrants purchasing services from SCA pay a fair price.

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 8.9% 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 prices are presented in Chapter 10.

[204] SCA submission, 17 April 2012, p 1.
[205] Sydney Water submission to IPART's 2012 review of prices for Sydney Water – Draft Report, 13 April 2012, Appendix p 22.
[206] SCA submission, 17 April 2012, p 2.

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

	2011/12	2012/13	2013/14	2014/15	2015/16
Volumetric charge – SDP "off"($/ML)		78.57	79.12	79.22	79.02
Volumetric charge – SDP "on"($/ML)	284.38	96.36	96.94	96.96	96.57
Annual change (%)			0.7%	0.1%	-0.2%
Fixed charge ($million/pa)	86.0	153.2	155.0	155.8	156.6
Annual change (%)			1.1%	0.6%	0.5%
Forecast sales revenue ($million/pa)	210.3[a]	191.5	193.7	194.8	195.7
Annual change (%)		-8.9%	1.1%	0.6%	0.5%

[a] IPART's allowance from the 2009 Determination, not SCA actual sales.

9.3 Prices to local councils

The prices to the 3 local councils are presented in Table 9.1 and reflect our 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 revised forecast water sales to the local councils.

For the 2012 Determination, we have made a decision to move to fully distributed costs pricing for the 3 local councils. We have been transitioning SCA's volumetric prices to local councils towards full cost recovery since the 2005 Determination.

We have set maximum prices to the 3 local councils based on the asset cost allocation proposed by SCA in its original submission.[207] That is, prices are based the cost of assets identified by SCA to supply water to the local councils, and the costs are apportioned to each council based on their water demand. In applying this approach, we honour the outcome of the consultative process SCA was asked to conduct with its customers in the 2009 Determination.

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

With council prices set according to usage share of assets, we note that the revised demand forecasts from the draft report reduce SCA's required revenue from local councils by about 16.2%, and have the following impact on council prices:

- Wingecaribee's annual fixed charge decreases on average by about 7.0%
- Goulburn's annual fixed charge falls considerably - from $32,852 to between $6,635 in 2012/13 and $19,906in 2015/16
- Shoalhaven's annual fixed charge increases on average by about 1.0%, because it's demand share increases proportionately to the other councils.

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.

9.4 Prices to bulk raw and unfiltered water customers

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

Our 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 E.

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 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 Final 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	191.5	193.7	194.8	195.7
Total efficient costs of Sydney Water (notional revenue requirement)[a]	2,292.9	2,258.3	2,294.6	2,332.4	2,358.6
SCA water costs as a percentage of Sydney Water's efficient costs	8.8%	8.5%	8.4%	8.4%	8.3%

[a] Sydney Water's notional revenue requirement for 2011/12 was set in the 2008 Sydney Water Final Determination. Sydney Water's notional revenue requirement for 2012/13 to 2015/16 are from its 2012 Determination.

The cost of purchasing water from the SCA is approximately 8.4% of Sydney Water's total costs throughout the 2012 determination period (Table 10.1). This shows that even considerable changes in SCA's prices would have only a small effect on Sydney Water customers' bills. We note that the operation of SDP has no impact on SCA's sales revenue from Sydney Water and hence on Sydney Water's prices to its customers. This is because 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.

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 (see Table 10.2). 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.

Table 10.2 Annual impact on typical Sydney Water customers' bills attributable to the 2012 SCA 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 for Sydney Water customer	1,105	1,099	1,092	1,084	1,076
Annual change in bill ($)		-5.59	-7.39	-8.15	-8.04
% change in bill		-0.5%	-0.7%	-0.7%	-0.7%
SCA impact on bill ($)		-6.44	1.05	0.51	0.43
SCA impact as a percentage of bill		-0.6%	0.1%	0.0%	0.0%
Non-Res: 20mm meter and 300 kL pa					
Typical water and sewerage bill for Sydney Water customer	1,231	1,225	1,218	1,210	1,202
Annual change in bill ($)		-5.77	-7.39	-8.15	-8.04
% change in bill		-0.5%	-0.6%	-0.7%	-0.7%
SCA impact on bill ($)		-7.17	1.17	0.57	0.48
SCA impact as a percentage of bill		-0.6%	0.1%	0.0%	0.0%
Non-Res: 40mm meter and 1000 kL pa					
Typical water and sewerage bill for Sydney Water customer	4,820	5,091	5,391	5,729	6,107
Annual change in bill ($)		270.45	300.16	338.13	378.24
% change in bill		5.6%	5.9%	6.3%	6.6%
SCA impact on bill ($)		-29.80	5.16	2.71	2.46
SCA impact as a percentage of bill		-0.6%	0.1%	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 Determination*.

10.1.2 Implications for local councils and their customers

SCA prices to local councils 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%).[208] Therefore, we estimate that SCA's prices to local councils for the 2012 Determination would decrease a typical household water bill from $411 in 2011/12 to $406 in 2014/15 (see Table 10.3). This represents a 1.3% decrease in a typical household's water bill, or 0.5% decrease for the household's combined water and sewerage bill.

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

Table 10.3 Impact of SCA prices 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]	406	406	406	406
Typical household water and sewerage bill	1,026[b]	1,021	1,021	1,021	1,021
Year-on-year % change in water bill		-1.3%	0.0%	0.0%	0.0%
Year-on-year % change in water and sewerage bill		-0.5%	0.0%	0.0%	0.0%

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

b 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 have held the average sewerage bill constant across the determination period.

We expect that SCA prices 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.[209]

Once the Highlands Source Pipeline begins, we expect Goulburn Mulwaree Council customers to be largely unaffected by SCA prices. We estimate that the cost of SCA water during the 2012 determination period to be less than 0.3% of the Goulburn Mulwaree Council's present (ie, 2011/12) revenue from water and sewerage bills.

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 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.

[209] 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 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 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 Determination will enable SCA to earn a reasonable rate of return and that SCA will be financially viable over the 2012 determination period.

10.3.1 Rate of return

Our 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 RAB is expected to be at least the target rate of 5.6% in each year of the 2012 Determination. This calculation is based on the assumptions in our modelling of the financial impacts of our 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 the business 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 the business's short-term viability.[210]

[210] IPART, *Financeability tests and their role in price regulation*, January 2011.

SCA's submission argued that we should determine prices at an adequate rate of return so that SCA retains its credit rating.[211] 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.

Our methodology for assessing financeability uses a range of financial ratios that are commonly used by credit rating agencies to assess an entity's financial strength and the ability to service and repay debt. 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 SCA's actual and projected interest rates in calculating interest expense.[212]

Our forecast of SCA's key financial ratios over the 2012 determination period are set out in Table 10.4. The financial ratios show that SCA is sound, and they improve over the determination period. Therefore, we did not identify any issues with the financeability of SCA for the 2012 determination period.

Table 10.4 SCA's key financial ratios used in assessing financeability

	2011/12	2012/13	2013/14	2014/15	2015/16
Funds from Operations Interest Cover	2.9	2.7	2.9	2.9	3.1
Funds from Operations/Total Debt	14.2%	13.7%	14.9%	14.8%	15.3%
Debt gearing (regulatory value)	30%	29%	28%	28%	28%
EBIT Interest Cover	2.5	2.5	2.6	2.6	2.8
RCF to Capex	2.3	2.2	2.2	2.2	2.2

Source: IPART analysis.

10.3.3 Dividend payments

Based on the prices in the 2012 Determination, our financial modelling indicates that SCA will be able to maintain a 70% dividend payout ratio and maintain its financial viability in each year of the determination period.

[211] SCA submission, 17 November 2011, p 67.

[212] Our paper on 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.

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).[213] For the typical residential Sydney Water customer consuming 200 kL 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 0.1%. Therefore, the approximate annual impact on general price inflation is negligible.

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.

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.

[213] From IPART, *Review of prices for Sydney Water Corporation's water, sewerage, drainage and other services from 1 Jul 2012 to 30 June 2016 – Draft Report*, March 2012, – based on Australian Bureau of Statistics, Consumer Price Index 16th Series Weighting Pattern (cat. no. 6471.0).

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. We note that a large proportion of SCA's operating expenditure is the Healthy Catchment Strategy (about $19.6 million per year)[214], as well as management of Special Areas, controlled and freehold lands (about $5.8 million per year)[215].

[214] SCA submission, 17 September 2011, p 52.

[215] Halcrow, *Review of operating and capital expenditure of the Sydney Catchment Authority*, November 2011, p 37.

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 26880 ML 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

Determining the allowance for a return on assets to be included in SCA's notional revenue requirements is an important step in our review. We have decided to use a post-tax real weighted average cost of capital (WACC), consistent with our new approach to incorporating company tax in our decisions.[216]

The WACC for a regulated business is the expected cost of its various classes of capital (debt and equity) over the determination, weighted to take into account the relative share in its capital structure. To determine this cost for 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' WACC within this range.

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

We then calculate the return on assets by multiplying the regulated asset base by this point estimate WACC value.

A post-tax real WACC more accurately estimates the tax liability for a similar well-managed, privately-owned business. Instead of accounting for company tax through the rate of return, tax is estimated as a separate cost building block.

In our draft decision, we calculated a post-tax real WACC of 5.5%, which was based on market conditions as at 9 January 2012. We have updated the market-based parameters for the final decision to reflect market conditions as at 16 April 2012 and have decided that the rate of return for the final decision is 5.6%. We came to this position after considering SCA's original proposal and subsequent submissions, the views of stakeholders, the views of finance experts and our own analysis. We considered that this rate of return is consistent with prices that reflect efficient costs and does not include monopoly rents.

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

D.1 Summary of our decision

We estimated an appropriate range for the industry WACC of between 4.0% and 5.6% 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, 5.6%. Table D.1 below sets out the parameters used in the draft and final decisions.

Table D.1 Rate of return range and parameters

WACC parameters	Draft decision	Final decision
Nominal risk free rate	3.3%	3.6%
Inflation adjustment	2.6%	2.8%
Market risk premium	5.5% to 6.5%	5.5% to 6.5%
Debt margin	3.5% to 4.8%	3.3% 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	6.6% to 8.1%	6.9% to 8.8%
Cost of debt	6.8% to 8.1%	6.9% to 8.4%
WACC range (pre-tax real)[a]	4.7% to 6.5%	4.8% to 6.6%
WACC midpoint[b] (pre-tax real)[a]	5.5%	5.5%
WACC range (post-tax real)	4.0 to 5.5%	4.0% to 5.6%
WACC midpoint[b] (post-tax real)	4.6%	4.6%
WACC point estimate (post-tax real)	5.5%	5.6%

[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 the MRP and equity beta range, and the median of the debt margin observations. The median debt margin value for the draft decision is 4.0%; for the final decision it is 3.7%.

The risk free rate has been affected by market volatility and prolonged weak market conditions. The change in these factors has potentially created a disparity between the risk free rate (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 premium.

To guide our decision making on the point estimate for the WACC we estimated the long-term averages of the risk free rate, debt margin, inflation adjustment 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 estimated for the WACC.

In light of this, we consider it appropriate to use the upper bound of our WACC range, 5.6%, 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 stakeholders' concerns in relation to the way that market parameters are estimated. SCA supported the use of the upper bound of the WACC range as a way to recognise the market uncertainty and low market parameter estimates.[217]

Our draft decision sought feedback from stakeholders on our proposal to adopt a range for the debt margin. Our final decision maintains the proposed method of using a range to determine the debt margin, instead of a point estimate.

The rest of this appendix provides an overview of our past WACC decisions, considers the issues raised by stakeholders in response to our draft decision and provides our decision for each of the WACC parameters for the final decision.

D.2 Our past WACC decisions

Table D.2 shows the final parameters we adopted in the 2012 Sydney Desalination Plant (SDP), 2010 State Water, 2009 Hunter Water and 2009 SCA determinations. The final decision for SCA is shown for comparison.

[217] SCA submission, April 2012, p 3.

Table D.2 Rate of return parameters – final decision compared to IPART's past decisions

	Final Decision	2012 SDP[b]	2010 State Water[b]	2009 Hunter Water[b]	2009 SCA[b]
Nominal risk free rate[a]	3.6%	3.9%	5.8%	4.6%	4.3%
Inflation adjustment[a]	2.8%	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[a]	3.3% 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	30%	30%	30%	30%	30%
Equity beta	0.6 to 0.8	0.6 to 0.8	0.8 to 1.0	0.8 to 1.0	0.8 to 1.0
Cost of equity	6.9% to 8.8%	7.1% to 9.1%	10.2% to 12.3%	9.0% to 11.1%	8.7% to 10.8%
Cost of debt	6.9% to 8.4%	7.4%	7.6% to 9.6%	7.3% to 8.1%	7.1% to 7.8%
WACC range (pre-tax real)	4.8% to 6.6%	5.1% to 6.9%	6.2% to 8.7%	6.0% to 7.8%	5.7%to 7.5%
WACC (pre-tax real) point estimate	**6.6%**	**6.7%**	**7.4%**	**6.5%**	**6.5%**
WACC range (post-tax real)	4.0% to 5.6%	4.6% to 5.3%	5.5% to 7.4%	5.3% to 6.6%	5.1% to 6.3%
WACC point estimate (post-tax real)	**5.6%**	**5.3%**	**6.4%**	**5.7%**	**5.7%**

a These parameters reflect market data at the time of the decision.

b These reviews did not use a post-tax real WACC estimate. The pre-tax WACC has been converted into a post-tax real WACC as a guide only.

Table D.2 shows the variation in our parameter and WACC estimates over time. The differences between the WACC decisions are due to:

- changes in market conditions that affect the market-based parameters, ie, the risk free rate, the inflation adjustment and the debt margin
- our change in the approach to estimating the debt margin which has resulted from changes in market conditions
- new evidence on the valuation of gamma and equity beta
- our change to a post-tax WACC.

We value a consistent approach to estimating the cost of capital over time to minimise regulatory risk and its associated costs. We have made changes to the gamma and the equity beta after assessing the available evidence and analysing the impacts on SCA and customers.

D.3 Our analysis on WACC parameters

D.3.1 Market based parameters

We have maintained the approach of the draft decision to estimate market-based parameters – ie, the risk free rate, inflation adjustment and the debt margin – using 20-day averages of market data, and assuming a 5-year term to maturity. We have reviewed these 2 issues extensively in recent reviews and do not consider that there is compelling evidence to change our approach at this stage.

Stakeholder's comments

TCorp supports the use of a 10-year term to maturity assumption and a 10-year averaging period for the market-based parameters. It argues that a 10-year term to maturity assumption is necessary as "the prudently managed borrower will seek to achieve a debt finding life that is as comparable as possible to the life of the underlying business asset."[218] TCorp submits that 10-year averages of market parameters reflect "average interest rates over the economic cycle, rather than a 'point in time' approach."[219]

TCorp has submitted that our approach implies a real risk free rate of 70 basis points. It considers that breakeven inflation rates are not comparable to inflation swap rates. It proposes to replace our approach of using swap market data to forecast the inflation rate with the midpoint of the Reserve Bank's inflation target, which is 2.5%.[220]

Assessment

We made a determination on whether a 5- or a 10-year term should be assumed in April 2011.[221] Our decision placed more weight on the view that the real utility asset is a stream of cash flows which resets at the start of each regulatory period. Hence, NPV neutrality is achieved by matching debt maturity with regulatory periods.

There is currently a relatively large difference between the 5- and 10-year nominal risk free rates. The yield on the 5-year nominal risk free rate was 3.6% over the sampling period, compared to the yield on the 10-year instrument of 4.1%. This is partially offset by the difference in the 5- and 10-year inflation forecast implied by inflation swaps. The 5-year inflation swap is 2.8%, compared to 3.0% for a 10-year term. Hence, the difference in real rates is smaller. Further, by having regard to long-term rates the final decision reflects the historically smaller margin between 5- and 10-year yields.

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218 TCorp submission, 17 April 2012, p 2.
219 TCorp submission, 17 April 2012, p 2.
220 TCorp submission, 17 April 2012, p 3.
221 IPART, *Developing the approach to estimating the debt margin – Final Decision*, April 2011.

Similarly, we reviewed whether we should adopt a longer sampling period in April 2010.[222] After evaluating different sampling periods up to 4 years, we decided to retain the use of a 20-day sampling period. This decision recognised that current market rates are the best indicator of future rates.

While we have maintained the use of the 5-year term and 20-day averaging period, we also recognise that there is a disparity between current market rates and long-term averages. There may also be an inconsistency between using short-term data for the market-based parameters and using long-term data for the MRP and the equity beta.

As was the case in the draft decision, the short-term average of the risk free rate remains below the long-term average (see Figure D.1). While the long-term average of the risk free rate is 5.4%, the short-term average is currently 3.6%.

On the other hand, the current debt margin is significantly *higher* than the long-term average. A higher debt margin has the effect of increasing the WACC. Figure D.2 shows the 7-year BBB fair value curve over the last decade.[223] It can be seen that there was a permanent repricing of BBB rated debt coinciding with the GFC. Yields rose significantly in 2008 and have not returned to pre-GFC levels.

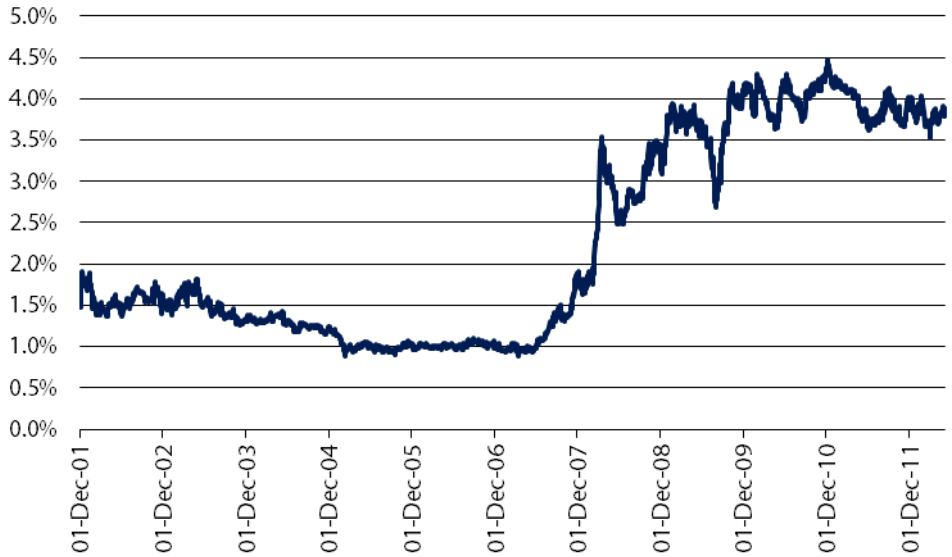
Figure D.1 Trends in the nominal risk-free rate

Data source: Bloomberg.

[222] IPART, *Averaging the WACC parameters for the cost of capital – Final Decision*, April 2010.

[223] The 7-year BBB fair value curve is only one of the securities in our sample. It does however provide an indication of the yield on BBB rated corporate debt over the last decade.

Figure D.2 Trends in the debt margin



Data source: Bloomberg.

We have calculated the WACC using both a long-term to maturity assumption and a long sampling period, shown in Table D.3. The difference between a 5- and a 10-year term to maturity assumption is minimal. Using longer-term averages increases the resulting WACC range significantly. We have taken account of the disparity between long- and short-term market parameters by selecting a point estimate for the WACC which is closer to the WACC calculated using long-term averages.

Table D.3 Rate of return using longer terms to maturity and sampling periods

	Final decision	Long term to maturity	Long term to maturity and sampling period
Nominal risk free rate	3.6%	4.1%	5.4%
Inflation adjustment	2.8%	3.0%	2.5%
Debt margin	3.3% to 4.8%	2.8% to 4.6%	2.0%
Market risk premium	5.5% to 6.5%	5.5% to 6.5%	5.5% to 6.5%
Gearing	60%	60%	60%
Gamma	0.25	0.25	0.25
Tax rate	30%	30%	30%
Equity beta	0.6 to 0.8	0.6 to 0.8	0.6 to 0.8
WACC range (post-tax real)	4.0% to 5.6%	4.0% to 5.7%	5.3% to 6.0%
WACC midpoint (post-tax real)	**4.6%**	**4.7%**	**5.6%**

We remain of the view that current market rates provide the best indication of future rates as efficient market theory suggests that current market prices account for all available information relevant to future prices. But there is a case for using the upper bound of the range in this case. This is because, as shown in Table D.3, the midpoint of the WACC calculated using short-term averages of market data is significantly below the WACC based on long-term data averages. Similarly, when rates are significantly higher than long-term averages, we may determine that a point estimate below the midpoint of the range is appropriate.

TCorp has submitted that our approach implies a real risk free rate of 70 basis points. Our WACC calculation does not use a real risk free rate. We discontinued using the break even inflation rates derived from nominal and real bond yields after significant problems in the data emerged.[224] We now use swap market data to estimate the inflation adjustment. We cross check our inflation adjustment against economists' forecasts. However, we acknowledge that current nominal risk free rates imply very low real risk free rates using the inflation swap data and economist' forecasts. This has been addressed by our use of the upper bound of the range of WACC values.

D.3.2 Nominal risk-free rate

The risk free rate is used as a point of reference in determining both the return on equity and the cost of debt within the WACC. In both the CAPM and the cost of debt calculation, the risk free rate is the base to which a premium or margin is added to reflect the riskiness of the specific business for which the rate of return is being derived.

We have estimated the risk free rate from the 20-day average of the yield on nominal Commonwealth Government bonds with a 5-year term. As noted above, this approach results in decisions that best reflect prevailing market rates and predict future rates. It also ensures the regulatory environment created by our WACC decisions is as predictable and transparent as possible.

Our decision to set the point estimate for SCA at the upper bound of the WACC range addresses concerns that the 5-year bond yield is at historical lows and the current difference between the 5-year and 10-year bond yields is much larger than the historical average.

[224] IPART, *Adjusting for expected inflation in deriving the cost of capital - Final Decision*, May 2009.

D.3.3 Inflation adjustment

The inflation adjustment is used to convert nominal parameters into real parameters. We estimate forward inflation using data from the zero-coupon inflation-linked swap market. TCorp proposed the mid-point of the Reserve Bank's targeted inflation band.

We consider that relying on swap market data has several advantages over other approaches.[225] Our primary reason for using swap market data is that it is based on market observations and is therefore objective, repeatable and transparent. As noted above, we cross-check our results against economists' forecasts.

D.3.4 Debt margin

The debt margin represents the cost of debt that a company has to pay above the nominal risk free rate. The debt margin is related to current market interest rates on corporate bonds, the maturity to debt, the capital structure and the credit rating. Our current approach is to calculate a debt margin that represents the margin over the risk free rate for BBB/BBB+ rated corporate debt. We determine the debt margin from a sample of securities, including the Bloomberg 7 year fair value curve and corporate bonds issued by Australian companies in AUD and USD. We then add 20 basis points for debt raising costs.

A number of stakeholders suggested using a 10-year term to maturity and a long-term averaging period to set the debt margin. We have discussed the term to maturity above in Section D.3.1.

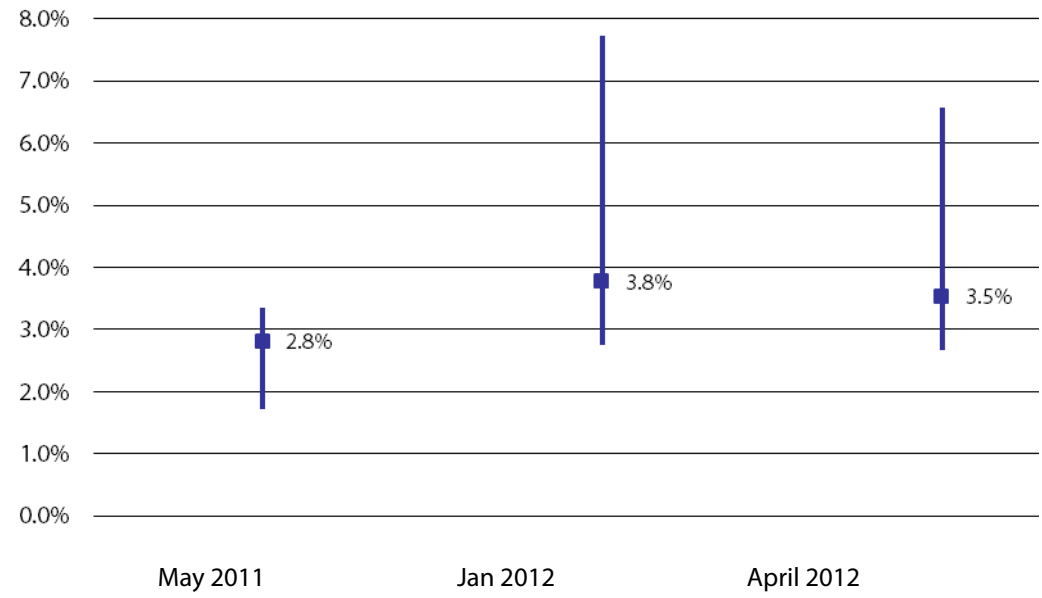
Our draft decision noted that the range in bond yields in our sample of securities had widened significantly between May 2011 and January 2012. There were also a number of newly-issued bonds which increased the number of observations. For these reasons we proposed in our draft report to change the way we express the debt margin from a point estimate to a range. We considered that a range better took into account current market uncertainties than a point estimate and was more appropriate with a larger sample. We indicated a preference for the interquartile range approach. The interquartile range approach defines the upper bound using the top quartile, or top 25% of values in a set of data. Similarly, the lower bound of the range is defined by the lower quartile, or the bottom 25%. We then used the median as the midpoint of the range.

[225] IPART, *Adjusting for expected inflation in deriving the cost of capital – Final Decision*, May 2009, p 2.

Figure D.3 shows the range of yields on all bonds in our sample of securities and the median, excluding debt raising costs. These are shown for April 2011, in January 2012 (this is when market data was sampled for our draft decision) and in April 2012 (this is when market data was sampled for our final decision). It can be seen from Figure D.3 that there remains a degree of uncertainty in the debt market. There are also a larger number of securities in the current market to serve as proxies for the debt margin. The composition of the current sample is detailed in Table D.4.

We have therefore decided to retain the use of the interquartile range approach described in our draft decision. The resulting debt margin range, including 20 basis points for debt raising costs, is 3.3% to 4.8%.

Figure D.3 Debt margin total range and median



Note: Debt raising costs have been excluded.
Source: Bloomberg.

Table D.4 Current sample of securities

Security	Ticker	Maturity	Yield over the 5-year risk free rate
Bloomberg fair value curve			
7-year BBB fair value	C3567Y index	7 years	3.56%
Australian corporate bonds			
Mirvac	EI195249 Corp	15/03/2015	3.07%
Sydney Airport	EI308853 Corp	6/07/2015	2.80%
Santos	EF102609 Corp	23/09/2015	2.96%
GAIF	EI675822 Corp	19/05/2016	4.06%
Mirvac	EI414696 Corp	16/09/2016	3.94%
Dexus	EI223256 Corp	21/04/2017	4.10%
Sydney Airport	EI684902 Corp	6/07/2018	3.40%
Caltex	EI883417 Corp	23/11/2018	2.90%
Brisbane Airport	EI620440 Corp	9/07/2019	3.05%
APT Pipelines	EI325336 Corp	22/07/2020	3.75%
US corporate bonds			
Macquarie Group	EH922961 Corp	1/08/2014	5.00%
FBG Finance	ED992814 Corp	15/06/2015	2.67%
PTTEP Australia	EI324523 Corp	19/07/2015	3.32%
FBG Finance	DD006057 Corp	1/06/2016	3.15%
Macquarie Group	EI344059 Corp	10/08/2017	4.97%
Macquarie Group	EH933581 Corp	13/08/2019	6.57%
Macquarie Group	EI103045 Corp	14/01/2020	5.95%
Macquarie Group	EI531760 Corp	14/01/2021	5.88%
Macquarie Group	EI630042 Corp	7/04/2021	6.40%
Newcrest Finance	EI870349 Corp	15/11/2021	3.66%
FBG Finance	ED992818 Corp	15/06/2035	4.09%
Newcrest Finance	EI870493 Corp	15/11/2041	4.45%

Note: Debt raising costs have been excluded.
Source: Bloomberg.

SCA commented on our proposed approach to valuing the debt margin using the interquartile range approach. SCA agrees that uncertainty in the debt margin needs to be recognised, but proposes alternative techniques such as option pricing as a means to more effectively include volatility and risk in the debt margin estimate.[226] We have not used this approach as it has not been applied in other regulatory decisions so far and is a more complex approach.

[226] SCA submission, April 2012, p 3.

D.3.5 Equity beta

The equity beta is a business-specific parameter that measures the extent to which the return of a particular security varies in line with the overall return of the market. It represents the systematic or market-wide risk of a security that cannot be avoided by holding it as part of a diversified portfolio. It is important to note that the equity beta does not take into account business-specific or diversifiable risks.

In estimating the equity beta for this review, we considered the advice of our consultants from the SDP review, Strategic Finance Group (SFG)[227] and Professor Kevin Davis.[228] While the 2008 SCA review used an equity beta of 0.8 to 1.0, we have obtained new evidence on the value of beta for water utilities from SFG, Professor Kevin Davis and our own research. This evidence supports an equity beta for the water utility industry of 0.6 to 0.8.

SFG's report empirically estimated beta for proxy 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.[229] Professor Davis's peer review of the SFG advice concluded that the beta estimates were robust, although he recommended that we do not use the downmarket beta.[230] We have discussed the principle of exclusion of diversifiable risk further in the SDP report.[231]

Our decision is to use a beta estimate of 0.6 to 0.8. We consider that this is the most appropriate range, given our research and the advice of our consultants.

D.3.6 Market risk premium

The market risk premium (MRP) is the additional return over the risk free rate of return that an investor requires for the risk of investing in a diversified equity portfolio. Our current approach is to estimate the MRP based on the long-term historical arithmetic average market returns over the risk free rate. For this and other recent determinations, this approach values the MRP within the range of 5.5% to 6.5%.

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227 SFG, *Cost of capital parameters for Sydney Desalination Plant,* August 2011.

228 Davis, K., *Cost of capital parameters for Sydney Desalination Plant: By SFG Consulting - An initial review for IPART,* August 2011.

229 Strategic Finance Group, *Cost of capital parameters for Sydney Desalination Plant, August 2011*, p 5.

230 Davis, K., *Cost of capital parameters by Sydney Desalination Plant: by SFG Consulting, An initial review for IPART, August 2011*, pp 4-5.

231 IPART, *Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012 – Final Decision*, December 2011.

We note that there may be an inconsistency between using short-term data for the market-based parameters and using long-term data for the MRP and the equity beta. In particular, there may be an inversely proportional relationship between the MRP and the risk free rate. In periods of high investor risk aversion, there is a flight from risky assets to safe assets. This tends to push up the price and push down the yields on safe assets. For this reason, falling risk free rates tend to be associated with rising investor risk premiums (and vice versa).

As the size of any adjustment is not clear, we have used our best estimates for each parameter, and have made a judgement when selecting the point estimate within the range. Research has shown that most Australian investment practitioners have continued to use a market risk premium of 6% since the credit crisis of 2008.[232] Other regulators in Australia also commonly use 6%. The AER recently reduced its valuation of the MRP from 6.5% to 6%.

Consistent with our past decisions, we decided to use an MRP estimate of 5.5% to 6.5% to calculate the range for the WACC. This helps maintain a consistent regulatory environment. We have addressed the potential problem of combining a long-term average for the MRP and a short-term average for the risk free rate by having regard to the long term averages for both in choosing a WACC at the top end of the current range.

D.3.7 Gearing

The gearing ratio is the ratio of debt to total assets in the business's capital structure. In determining this ratio, our current practice is to adopt a benchmark capital structure (rather than the actual financial structure of the regulated entity) to ensure that customers will not bear the costs associated with an inefficient financial structure. This is consistent with regulatory practice in Australia.

We do not consider that there is any new evidence to depart from our benchmark assumption of a 60% gearing ratio for water utilities.

D.3.8 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 already paid tax on profits from which the dividends are paid. Since July 200, imputation credits in excess of personal tax liabilities have been available as a cash rebate. International investors cannot utilise imputation credits.

[232] Value Adviser Associates, *IER – a conservative and consistent approach to WACC estimation by valuers,* August 2009, pp 9-11.

The value of imputation credits is represented in the CAPM by 'gamma' (γ). The rationale for including the value of gamma in the CAPM is that investors are receiving a lower return than if there were no tax credits attached to this investment.

We have recently completed a review of the gamma and have concluded that gamma should be valued at 0.25.[233]

D.3.9 Internal consistency of the WACC

TCorp noted that the draft decision WACC yielded a higher cost of debt than the cost of equity at the lower bound of values.[234] We agree that for internal consistency, the return required by equity holders must be at least equal to the return required by debt holders in the same firm.

Under the final decision's WACC point estimate of 5.6%, the cost of equity is 8.8%, which is higher than the cost of debt 8.4%.

D.4 Our decisions on a pre-tax WACC basis

This section outlines our decision on the basis of our former pre-tax WACC approach. Using the same parameters that underpin our post-tax real WACC of 5.6%, we estimate a pre-tax WACC of 6.6%.

D.4.1 Notional revenue requirement on a pre-tax WACC basis

Table D.5 shows our decisions on SCA's notional revenue requirement using a pre-tax WACC of 6.6%.

[233] IPART, *Review of imputation credits (gamma) – Final Decision*, March 2012, p 1.
[234] TCorp submission, 17 April 2012, p 4.

Table D.5 SCA revenue requirement: pre-tax WACC ($ million, $2011/12)

	2011/12	2012/13	2013/14	2014/15	2015/16
Operating costs	87.0	90.9	92.0	92.2	92.3
Non-regulated revenue	-0.4	-1.1	-0.9	-0.9	-0.9
Depreciation	24.5	22.7	23.2	23.7	24.2
Return on assets	92.4	90.2	90.6	91.0	91.4
Return on working capital	1.3	0.9	1.0	1.0	1.0
Tax allowance	n/a	n/a	n/a	n/a	n/a
Notional revenue requirement	**204.8**	**203.7**	**205.8**	**206.8**	**207.8**
Target revenue requirement	**211.7**	**203.7**	**205.8**	**206.8**	**207.8**
Year-on-year change (%)		-0.6%	1.1%	0.5%	0.5%

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 AA or better indicative credit rating throughout the 2012 determination period.

Table D.6 shows the tax implied under a pre-tax real WACC by comparing the difference in the notional revenue requirement under a pre-tax real WACC and a post-tax real WACC with separate tax allowance.

Table D.6 Tax implied in a pre- real tax WACC and tax allowance approach ($million, $2011/12)

	2012/13	2013/14	2014/15	2015/16	Total
Notional revenue: pre-tax real WACC	203.7	205.8	206.8	207.8	824.1
Notional revenue: post-tax real WACC and separate tax allowance	192.8	195.0	196.1	197.1	781.1
Difference in notional revenue	**-10.8**	**-10.8**	**-10.7**	**-10.7**	**-42.9**

Table D.7 shows how each building block is affected by our new approach to tax. The $10.7 million reduction in 2012/13 is due to a decrease in the return on assets of $13.5 million, partially offset by our $2.7 million estimate of SCA's tax allowance.

Table D.7 Rate of return under a pre-tax and post-tax WACC framework ($ million, $2011/12)

	2012/13 Pre-tax 6.6%	2012/13 Post-tax 5.6%	Difference
Return on assets	90.2	76.7	-13.5
Return on working capital	0.9	0.8	-0.1
Tax allowance	–	2.7	2.7
Total	**91.1**	**80.2**	**-10.8**

E Calculating the tax allowance

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.[235] The tax allowance is intended to more accurately reflect the tax liability for a comparable commercial business. 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.

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. This Appendix outlines our calculation of SCA's tax allowance. The methodology and parameters we used to calculate SCA's tax were reviewed by NERA consulting in April 2012 as part of IPART's review of Sydney Water's prices. NERA found that the methodology is appropriate.[236]

SCA's tax allowance for the 2012 Determination is presented in Table E.1. It is calculated by applying a 30% statutory corporate tax rate adjusted for gamma[237] to SCA's nominal taxable income.[238] We deduct SCA's operating cost allowance, tax depreciation, and interest expenses from SCA's notional revenue requirement (excluding tax) to calculate taxable income.

We have accepted SCA's forecasts of tax depreciation over the 2012 period, based on SCA's existing financial modelling (and adjusted to remove unregulated activities). This differs to the regulatory depreciation allowance that we include in SCA's notional revenue.

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

236 Letter, *Expert Review of the Tribunal's Approach to Modelling the Return to Sydney Water*, NERA Consulting, 17 April 2012.

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

238 Taxable income excludes accumulated tax losses. For the 2012 Determination expected tax losses start from a zero base as we disregard accumulated losses prior to the transition to a post-tax WACC. Actual tax losses will not be factored into regulatory determinations.

We calculate SCA's interest expenses using the same parameters used for the WACC (Table D.1):

- a 60% notional gearing ratio (ie, Borrowings = 0.6 x regulatory asset base)
- a nominal risk free rate of 3.6%
- a debt margin of 4.8%.

The interest rate (cost of debt) is applied to the average of SCA's opening and closing RAB in each year. In this 2012 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 E.1 Final decision on SCA's tax allowance ($million, nominal)

	2012/13	2013/14	2014/15	2015/16
Notional Revenue[a]	194.3	201.2	207.3	213.5
Cash and in-kind contributions	0.0	0.0	0.0	0.0
Operating costs	(92.0)	(95.6)	(98.2)	(100.8)
Tax depreciation	(20.2)	(20.6)	(21.1)	(22.1)
Interest expense	(72.6)	(74.7)	(76.8)	(79.1)
Taxable income	9.4	10.3	11.1	11.5
Accumulated tax losses	(0.0)	(0.0)	(0.0)	(0.0)
Taxable income after tax losses	9.4	10.3	11.1	11.5
Regulatory tax allowance (adj. for gamma)	2.7	3.0	3.2	3.3

a Revenue excludes tax allowance.

F Customer impacts data in nominal terms

Table F.1 Impact of 2012 SCA Determination[a] on typical Sydney Water annual customers' bills ($, nominal[b])

	2011/12	2012/13	2013/14	2014/15	2015/16
Res: 20mm meter and 200 kL pa					
Typical water and sewerage bill for Sydney Water customer	1,105	1,117	1,137	1,157	1,177
Annual change in bill ($)		12.00	20.22	19.73	20.12
% change in bill		1.1%	1.8%	1.7%	1.7%
SCA impact on bill ($)		-4.96	3.42	2.93	2.88
SCA impact as a percentage of bill		-0.4%	0.3%	0.3%	0.2%
Non-Res: 20mm meter and 260 kL pa					
Typical water and sewerage bill for Sydney Water customer	1,231	1,245	1,268	1,291	1,315
Annual change in bill ($)		13.83	23.42	23.01	23.48
% change in bill		1.1%	1.9%	1.8%	1.8%
SCA impact on bill ($)		-5.53	3.82	3.27	3.22
SCA impact as a percentage of bill		-0.4%	0.3%	0.3%	0.2%
Non-Res: 40mm meter and 1000 kL pa					
Typical water and sewerage bill for Sydney Water customer	4,820	5,172	5,614	6,115	6,682
Annual change in bill ($)		351.89	441.88	501.28	566.72
% change in bill		7.3%	8.5%	8.9%	9.3%
SCA impact on bill ($)		-22.98	16.89	15.46	16.34
SCA impact as a percentage of bill		-0.4%	0.3%	0.3%	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 SCA 2012 Determination.

b We assume an inflation rate of 1.6% for 2012/13 and 2.5% per annum over the remainder of the 2013 determination period.

Table F.2 Expected impact of the 2012 SCA Determination on Wingecarribee Council customers' household bills ($, nominal[a])

	2011/12	2012/13	2013/14	2014/15	2015/16
Typical household water bill[b]	411[c]	412	422	433	444
Typical household water and sewerage bill	1,026[d]	1,037	1,063	1,089	1,117
Year-on-year % change in water bill		0.3%	2.5%	2.5%	2.5%
Year-on-year % change in water and sewerage bill		1.1%	2.5%	2.5%	2.5%

a We assume an inflation rate of 1.6% for 2012/13 and 2.5% per annum over the remainder of the 2013 determination period.

b 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.

c 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).

d 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 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 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.	We disagree with Halcrow. On balance, we consider SCA's current risk based approach to renewing assets delivers reasonable outcomes
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.	We disagree with Halcrow. On balance, we consider SCA's current risk based approach to renewing assets delivers reasonable outcomes.
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 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. However, we defer about $15 million of the expenditure proposed for seismic work, allowing approximately $3 million to allow work to start on the reliability of the crest gates.

H List of 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
2012 Final Determination	*Review of prices for the Sydney Catchment Authority from 1 July 2012 – Final Determination and Final Report,* June 2012
determination period	The period from 1 October 2012 to 30 June 2016, as set in the 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.
2012 Final Sydney Water Determination	*Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2012 – Final Determination and Final Report,* June 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