



Independent Pricing and Regulatory Tribunal

Review of prices for the Sydney Catchment Authority

From 1 July 2009

Water — Issues Paper

July 2008



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Invitation for submissions

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

Submissions are due from Sydney Catchment Authority by 12 September 2008 and from stakeholders and members of the public by 10 October 2008.

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

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

Sydney Catchment Authority Price Review 2009
Independent Pricing and Regulatory Tribunal
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Our normal practice is to make submissions publicly available on our website <www.ipart.nsw.gov.au>. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed on the previous page.

We may choose not to publish a submission – for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. A request for access to a confidential submission will be determined in accordance with the *Freedom of Information Act 1989* and section 22A of the *Independent Pricing and Regulatory Tribunal Act 1992*.

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

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1 Introduction

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is responsible for setting the maximum prices that may be charged by metropolitan water agencies for monopoly water and wastewater services. These include services provided by Sydney Catchment Authority (SCA), as well as Sydney Water Corporation (Sydney Water) and Hunter Water Corporation (Hunter Water).

SCA's role is to:

- ▼ protect Sydney's drinking water catchments (which cover approximately 16,000 square kilometres)
- ▼ manage its water storages, pipelines and other infrastructure
- ▼ supply its customers (including Sydney Water and some local councils) with high quality untreated bulk water.

IPART regulates SCA's charges for the provision of bulk water to Sydney Water and other, smaller, customers. In 2005 IPART made a determination of the maximum charges to apply to SCA's bulk water services (2005 Determination).¹ The 2005 Determination applies from 1 October 2005 to 30 June 2009 (current determination period).

In this review, IPART will determine SCA's maximum charges for the period commencing 1 July 2009 (upcoming determination period). In doing so, it will consider SCA's catchment management and bulk water provision functions, and the appropriate level of revenue needed to support these activities in an efficient and effective manner.

1.1 The 2005 Determination

The 2005 Determination set SCA's prices to generate total revenue of \$639.7 million (\$2004/05). This reflected IPART's assessment of SCA's efficient costs of supplying water services to Sydney Water and its other customers. This meant that prices increased by 12 per cent above inflation (real increase) in the first year of the current determination period, and by 6 per cent above inflation (real increase) in each of the remaining years of that period.

¹ IPART, Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Report, September 2005 (Determination Nos 5, 6 and 7 of 2005) (2005 Determination).

The 2005 Determination also rebalanced the tariff that SCA charges to Sydney Water to place greater emphasis on the volumetric charge and better reflect the cost of harvesting and transporting bulk water. Overall, the volumetric charge to Sydney Water was set to increase by 71 per cent above inflation (real increase) over the current determination period, while the fixed charge was set to decrease by 6.8 per cent (real decrease). The 2005 Determination set zero fixed water charges for Wingecarribee Shire Council and Shoalhaven City Council, other customers of SCA, and increased water usage charges for those Councils towards the level of charges paid by Sydney Water.

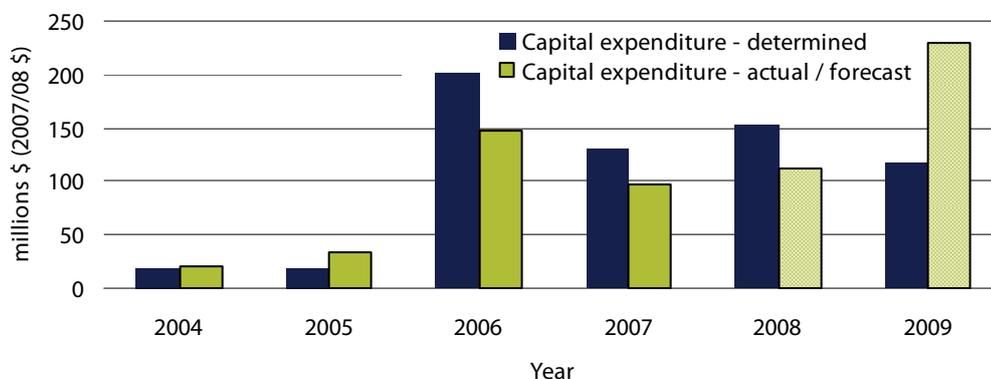
The report accompanying the 2005 Determination noted that the decisions on SCA's prices (and hence notional revenue) would allow SCA to deliver the following outcomes:

- extensive works (\$267 million, in \$2004/05) on the Shoalhaven Transfer Scheme, including the installation of gates, new pumps, and the construction of pipelines from Burrawang to Avon Dam, to enhance the catchment yield and reduce the impact of abstractions on the environment
- work on Warragamba Dam and visitors' centre (\$19.9 million, in \$2004/05)
- construction of the Prospect Reservoir Raw Water Pumping Station, and work on Prospect Reservoir (\$72 million), to ensure back-up supply in the event of damage to the Upper Canal or Warragamba Pipeline
- construction of the Fish River Water Supply Scheme pipeline to increase supplies in the Blue Mountains.

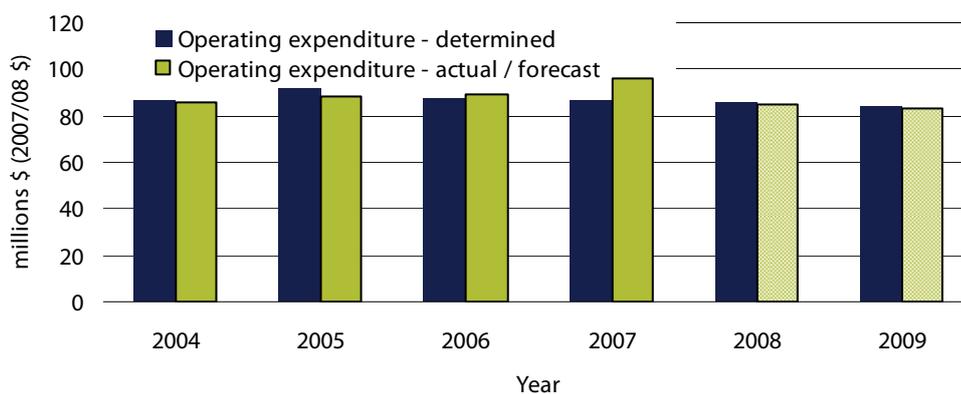
SCA's actual costs since the 2005 Determination

The figures below (Figures 1.1 and 1.2) present a comparison of SCA's actual (or forecast) capital and operating expenditure against costs used by IPART in determining SCA's prices. This shows that operating expenditure used in setting prices is closely aligned with actual expenditure, but there is some discrepancy in terms of capital expenditure.

For this review, IPART will be seeking from SCA a reconciliation of its actual costs over the current determination period against costs allowed by IPART in the 2005 Determination, and an explanation of the variances.

Figure 1.1 Sydney Catchment Authority Capital Expenditure

Data source: IPART 2003 Determination and 2005 Determination and Annual Information Returns from SCA.

Figure 1.2 Sydney Catchment Authority Operating Expenditure

Data source: IPART 2003 Determination and 2005 Determination and Annual Information Returns from SCA.

1.2 Scope of the review

This review will be conducted under section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act). Under section 15 of the IPART Act, IPART is to have regard to the following matters in making a determination:

- ▼ the **cost** of providing the services
- ▼ the **protection of consumers** from abuses of monopoly power in terms of prices, pricing policies and standard of services
- ▼ the **appropriate rate of return** on public sector assets, including appropriate payment of dividends
- ▼ the **effect on general price inflation** over the medium term

- ▼ the **need for greater efficiency** in the supply of the services so as to reduce costs for the benefit of consumers and taxpayers
- ▼ the **need to maintain ecologically sustainable development** by appropriate pricing policies that take account of all the feasible options available to protect the environment
- ▼ 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
- ▼ 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
- ▼ the **need to promote competition** in the supply of the services
- ▼ **considerations of demand management** (including levels of demand) and least cost planning
- ▼ the **social impact** of IPART's determinations and recommendations
- ▼ the **quality, reliability and safety** of the services.

In considering these matters, IPART will need to balance the diverse needs and interests of stakeholders – such as customer affordability, environmental impacts and the maintenance of customer service quality – as well as ensuring that SCA is adequately recompensed for the services it provides.

IPART will also take into account the principles issued by the Council of Australian Governments (COAG) and contained in the National Water Initiative.²

In addition, the Minister for Water (Minister), pursuant to section 16A of the IPART Act, has directed IPART to include in its determination the efficient costs of SCA's Accelerated Sewerage Program. Section 16A of the IPART Act relevantly states that:

- (i) The portfolio Minister for a government agency may direct the Tribunal to include in the maximum price an amount representing the efficient cost of complying with a specified requirement imposed on the agency.

The implications of the Minister's direction is that IPART's review of SCA's Accelerated Sewerage Program costs will be limited to assessing whether this project is being undertaken in the most cost-effective way possible. This is a more limited review than is required for SCA's other capital and operating expenditure.

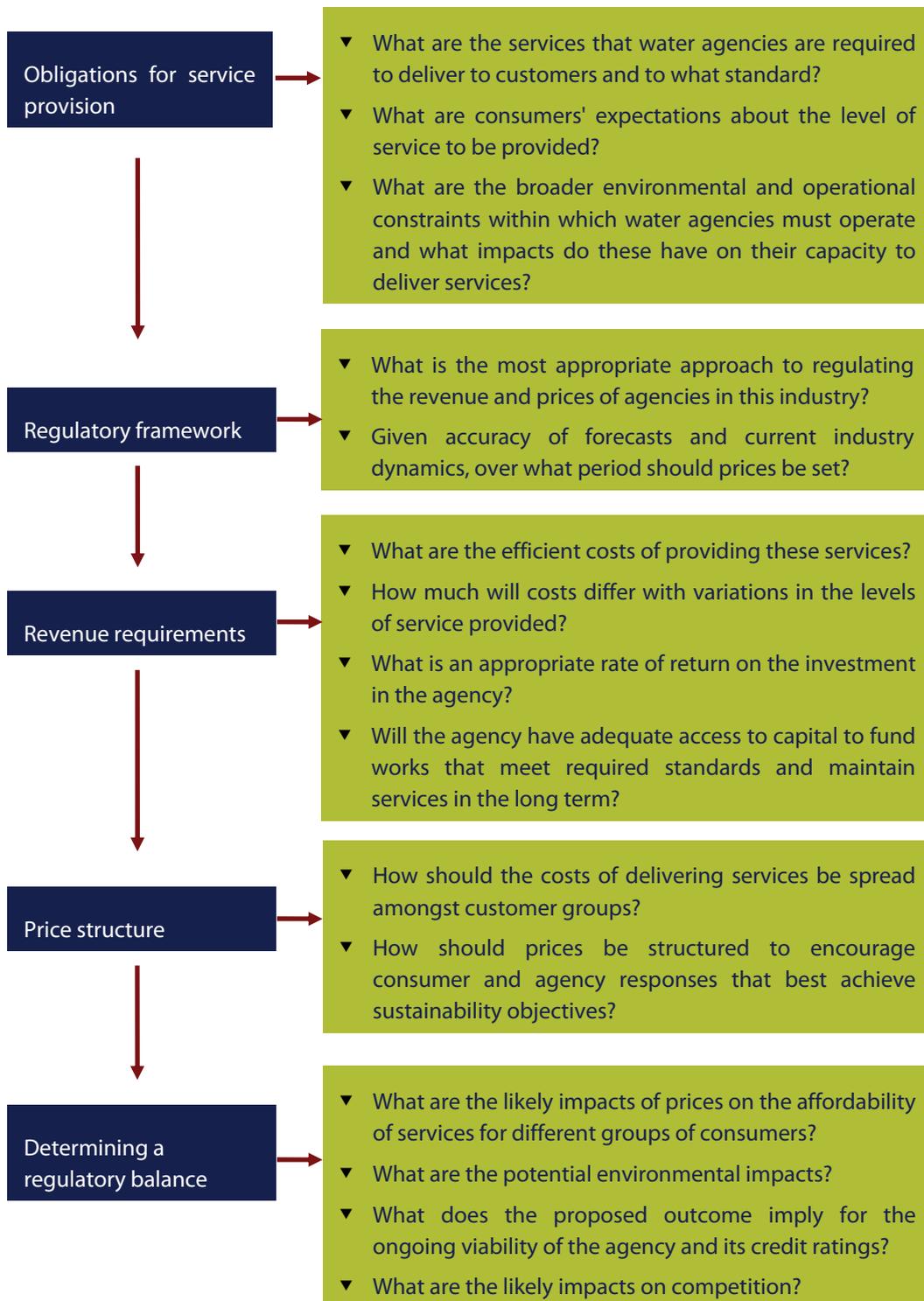
² The National Water Initiative has built on the principles established in the 1994 COAG.

For this review, IPART will need to consider whether SCA's proposed capital and operating expenditure program represents the best way of meeting the community's requirement for catchment management and an adequate supply of bulk water of an appropriate quality. Specific matters for IPART to examine include:

- ▼ the efficiency of SCA's operating costs and the scope for further efficiency gains over the upcoming determination period
- ▼ SCA's capital expenditure requirements and the outcomes that will be achieved by its proposed capital expenditure programs
- ▼ SCA's regulatory requirements and any other government-imposed requirements
- ▼ SCA's appropriate rate of return
- ▼ forecast demand for bulk water from SCA's storages
- ▼ the structure of bulk water prices and SCA's Long Run Marginal Cost (LRMC) of supply
- ▼ the implications of IPART's pricing decisions, including the impact on SCA, its customers and, in turn, final water consumers.

IPART's general approach to determining monopoly prices for water agencies is set out in Figure 1.3 below.

Figure 1.3 IPART’s determination process



1.3 The review process

In conducting its review, IPART will rely on its own research and analysis, but will also draw on selected consultant investigations and public consultation. As part of the consultation process, IPART now invites submissions to this review. Details on how to make submissions are provided at the front of this document (on the page prior to the Table of Contents). To assist in identifying and understanding the key issues in this review, IPART has prepared this Issues Paper to encourage stakeholder comment. The Paper lists a range of issues and questions on which IPART seeks particular comment. These are found throughout the Paper, with a consolidated list provided in section 1.4.1. However, stakeholders are free to raise and discuss any other issues that they believe are relevant to the review.

In addition, this Paper identifies information that IPART requests SCA to provide.

IPART will also hold a public hearing as part of the review to provide a further opportunity for stakeholders to present their views.

Following this consultation, IPART will release a draft report and determination, and invite stakeholders to comment on its draft findings. IPART will then consider these comments before making its final determination and releasing its final report.

An indicative timetable for the review is set out below.

Table 1.1 Indicative review timetable

Task	Timeframe*
Release Issues Paper	18 July 2008
Receive submission from SCA	12 September 2008
Receive public submissions	10 October 2008
Public hearing	19 November 2008
Release draft report	February 2009
Receive submissions to the draft report	April 2009
Release final report	June 2009

***Note:** Please note that these dates are indicative and may be subject to change.

In the past, IPART has had difficulties completing its reviews on time because of delays in the provision of necessary information by regulated entities. Delays and the provision of supplementary information late in the review process can mean that work has to be suspended or revised in the light of the new information received. Delays and new information not only adds to the work of IPART, its staff and consultants, but also limits the ability of stakeholders to participate and provide input into IPART's processes and decisions.

To enable IPART to better manage delays in the provision of information and supplementary information, it intends to put in place mechanisms that will 'stop the clock' when necessary information is not received from SCA on time. Under this

arrangement, the review timetable will be automatically extended by a period equal to the length of the delay. If IPART ‘stops the clock’ it will make a statement to this effect and publish a revised timetable on its website. Where new information is provided by SCA, IPART reserves the right to ‘reset the clock’ to reflect the need to rework and reconsider matters in the light of this new information.

To assist SCA in its provision of information, this Paper outlines the information that IPART requires from SCA (both throughout the Paper and listed in Appendix D). IPART will also separately write to SCA to seek confirmation that it can provide this information in accordance with the review timetable. IPART will endeavour, as far as possible, to reach agreement with SCA on the information that should be provided for this review and the date by which it should be provided. This should ensure that the demands placed on SCA are not unreasonable and also minimise the risk that the review ‘clock’ has to be stopped or reset.

In addition to the requirement that SCA provides timely information, SCA will also be required to provide sufficiently comprehensive information to justify its costs and forecast sales. In particular, any proposal to change the price structure or level of any of its regulated services must be accompanied by sufficient cost information, argument and justification to support change, to enable IPART to analyse the proposal and stakeholders to make an informed response. The submission should also identify potential customer impacts of its proposal, the distribution of these impacts and options explored by SCA to mitigate or minimise these impacts.

IPART is also interested in receiving SCA’s response to the broader range of issues raised throughout this Paper and listed in section 1.4.1 below, as well as its views on other issues that it believes are relevant to this review.

1.4 Purpose and structure of this Paper

To assist stakeholders in making submissions, this Paper explains how the review of SCA’s prices will be undertaken, provides background information and outlines the particular issues on which IPART seeks comments. The Paper is structured as follows:

- ▼ Chapter 2 provides an overview of SCA’s role and regulatory framework, including a discussion of IPART’s price-setting approach and the implications of this review for Sydney Water’s prices
- ▼ Chapters 3 provides an overview of the approach IPART will take in determining SCA’s revenue requirement, including its review of historical and proposed capital expenditure, the rate of return on the Regulatory Asset Base (RAB), asset lives, operating expenditure and the use of output measures

- ▼ Chapter 4 outlines the bulk water price-setting process, including the determination of forecasts of water sales, the length of the determination period and the aggregate pricing approach, price levels and the structure of prices (including an assessment of likely customer and social impacts of any price changes), and a consideration of adjustment mechanisms to deal with risk.

1.4.1 List of issues for stakeholder comment

To assist in identifying and understanding the key issues for this review, this Paper seeks comment on the following issues, which are discussed and explained at the page numbers indicated. However, stakeholders are free to raise and discuss any other issues that they believe are relevant to the review.

1	The prudence of SCA's capital expenditure over the current determination period.	31
2	SCA's projected capital expenditure program, including its expenditure drivers, scope for efficiency gains and proposed service outcomes.	31
3	An appropriate rate of return to apply on SCA's Regulatory Asset Base (RAB), and the means of calculating/determining this rate.	32
4	Appropriate asset classes and lives (for each asset class) to apply for calculating SCA's depreciation charge for the price determination (with reference, where necessary, to SCA's submission).	33
5	The efficiency of SCA's operating costs incurred in the current determination period and the efficiency of its projected operating costs, as outlined in SCA's submission.	35
6	Whether there is scope for SCA to achieve further efficiency gains over the upcoming determination period.	35
7	The effectiveness of output measures as indicators of the prudence of capital and operating expenditure.	36
8	SCA's progress or performance against its 2005 output measures.	36
9	How 'unders' and 'overs' against output measures should be addressed.	36
10	Appropriate output measures for SCA for the upcoming determination period.	36
11	SCA's projected customer numbers and water sales, as outlined in its submission.	39
12	The length of the determination period that should apply for this review.	42
13	The approach that should be used to translate SCA's revenue requirement into prices over the determination period.	42
14	The structure of SCA's prices to Sydney Water, the councils and its other customers.	47
15	The issues that should be considered as part of this review of SCA's prices, in light of the <i>Water Industry Competition Act 2006</i> .	48

16 The impact of SCA’s proposed prices (outlined in its submission) on its customers and end water consumers.	48
17 The need for, and form of, a revenue volatility adjustment mechanism for SCA over the upcoming determination period.	50
18 The need for, and form of, other mechanisms to deal with risk throughout the determination period.	50

2 SCA's role and regulatory framework

In the absence of competition in the provision of bulk water, and because of the important environmental and health issues associated with catchment management and bulk water supply, SCA is regulated by a number of agencies. This regulation is aimed at achieving economic efficiency, as well as social and environmental objectives.

This chapter outlines SCA's role and functions and its general regulatory framework, as well as IPART's regulatory approach.

2.1 SCA's role

SCA was established in 1999 by the *Sydney Water Catchment Management Act 1998* (Act) in response to a series of water quality incidents in Sydney in the previous year. The Sydney Water Inquiry (McClellan Inquiry), which investigated these water quality incidents, found that the catchments were seriously compromised by many possible sources of contamination, and that in relation to catchment management there were:

...a large number of government and non-government agencies operating with fragmented responsibilities, potential overlaps and gaps. No one body is responsible for ensuring the catchment is managed to minimise contamination of the available waters.³

To correct these deficiencies, the McClellan Inquiry recommended the establishment of an independent agency:

...tasked to protect the water quality in the Inner and Outer Catchments and given management responsibilities for the Inner Catchment and powers to oversight a new strong and strategic Regional Environmental Plan for the whole catchment.⁴

SCA's purpose is to manage and protect the water catchment areas and infrastructure under its control, and to supply bulk water of sufficient quality to Sydney Water and several smaller customers. Its statutory objectives are outlined in Box 2.1 below.

³ Sydney Water Inquiry, *Third Report: Assessment of the contamination events and future directions for the management of the catchment*, October 1998, p 74.

⁴ *Ibid*, p 89.

Box 2.1 SCA's objectives under the *Sydney Water Catchment Management Act 1998*⁵

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

2.1.1 SCA's customers

SCA's customers, once supplied with water by SCA, filter the water and distribute it to households, business and other users. SCA's bulk water supply system is the source of drinking water for over 4 million people, or about 60 per cent of NSW's population. Sydney Water currently consumes about 99 per cent of SCA's bulk water supply. SCA's other customers include Wingecarribee Shire Council and Shoalhaven City Council, as well as about 60 smaller raw water and unfiltered water 'retail' customers who have direct offtakes from pipelines, canals and storages.

In addition, there are plans to build a pipeline from SCA's Wingecarribee Reservoir to Goulburn, to supply the Goulburn community with up to 7.3 ML of water per day in times of drought.⁶ The total cost of the 88 kilometre pipeline is estimated to be \$50 million, with the NSW Government and the Federal Government's Water Fund each contributing \$20 million and the Goulburn Mulwaree Council liable for the remaining \$10 million.⁷ Construction of the pipeline is expected to commence in 2009 and finish by 2010, although the environmental planning and consultation processes are not yet complete.

In addition to these water customers, SCA is also required to release water to the environment in accordance with the conditions of its water management licence.

⁵ Section 14(1).

⁶ National Water Commission, "Emergency Wingecarribee to Goulburn Pipeline", <http://www.nwc.gov.au/agwf/wsa/project.cfm?projectID=95&ref=2>, accessed 17 June 2008.

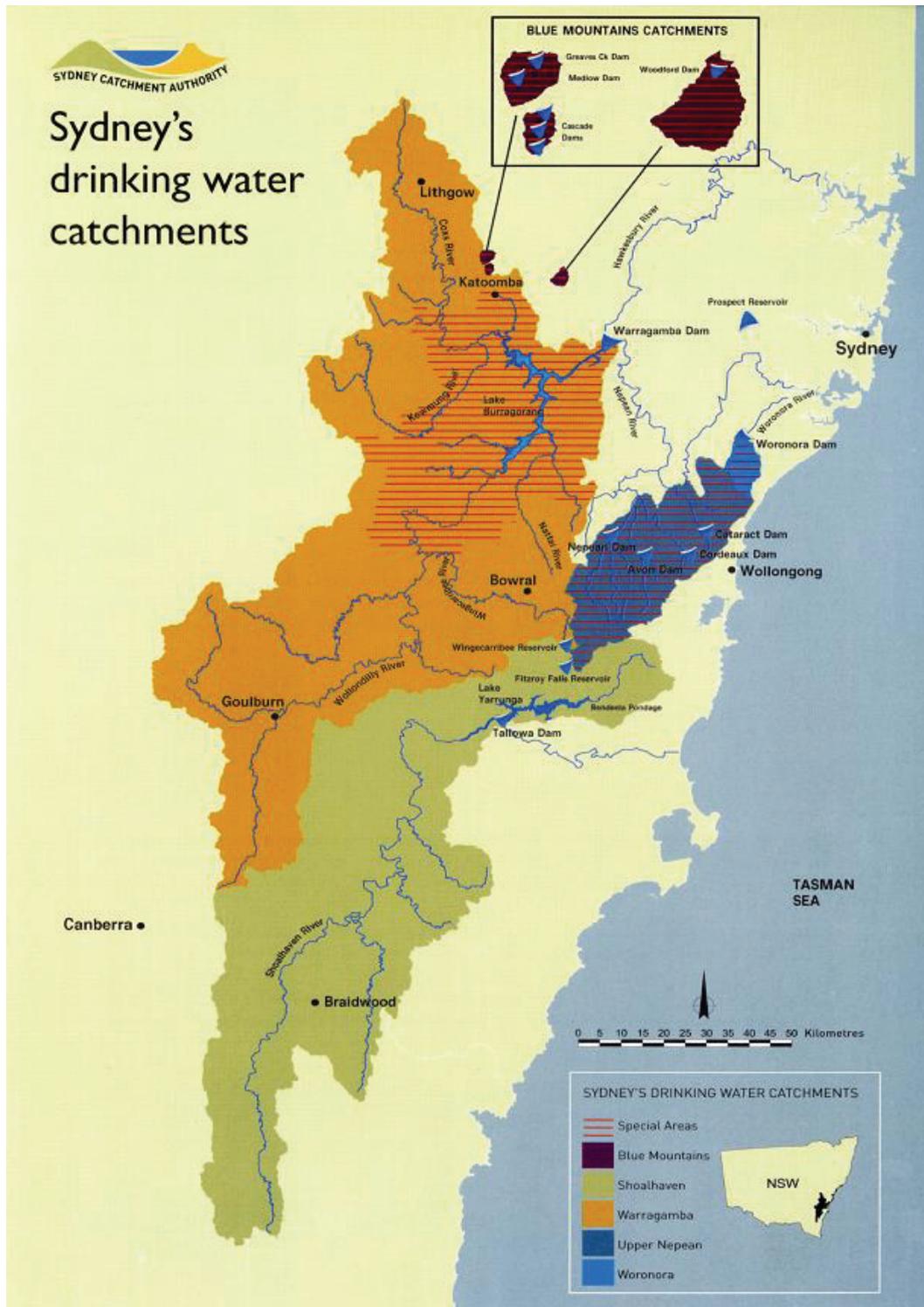
⁷ Ibid.

2.1.2 SCA's water supply system

SCA's bulk water supply system has a total operating storage capacity of 2.5 million ML, and comprises a number of water storages and several water transfer conduits. SCA draws bulk water from five primary catchments: Blue Mountains, Shoalhaven, Warragamba, Woronora, and Upper Nepean. These catchments, and hence SCA's area of operations, cover more than 16,000 square kilometres. This includes 3,700 square kilometres of Special Areas, which are bushland surrounding SCA's storages. Special Areas act as a buffer zone by stopping potentially harmful substances from entering the storages and restricting or prohibiting public access.

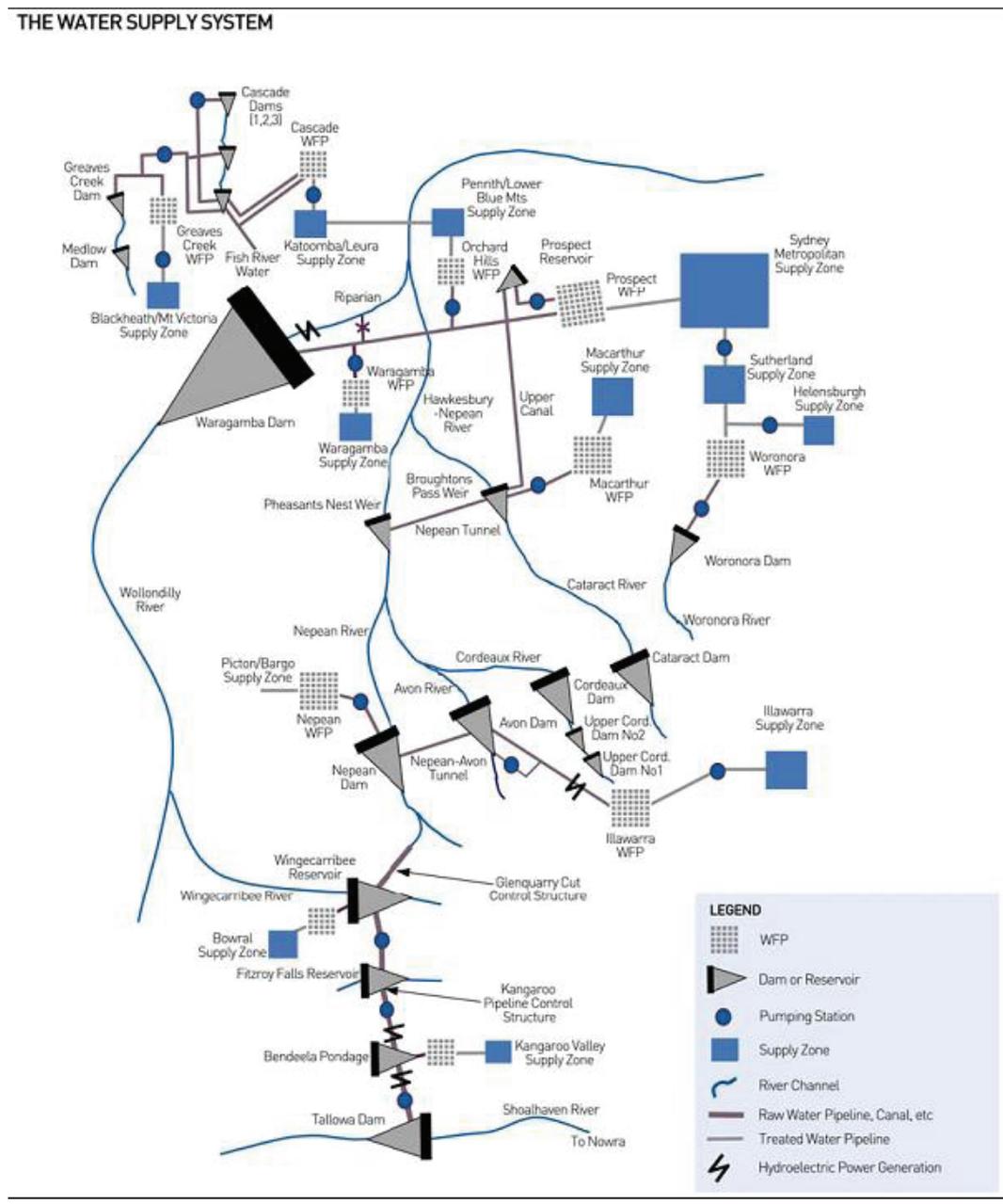
Figure 2.1 shows that the catchment area extends from the headwaters of the Coss River north of Lithgow to the Shoalhaven River south of Braidwood. A schematic representation of the water storages and infrastructure currently under SCA's control is shown in Figure 2.2. SCA's water balance, which lists its inflows and outflows, is listed in Appendix A.

Figure 2.1 SCA catchments and special areas⁸



⁸ Sourced from www.sca.nsw.gov.au on 27 May 2008.

Figure 2.2 SCA schematic of water supply infrastructure and operational control⁹



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

⁹ Ibid.

2.2 Regulatory framework

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

Key aspects of SCA's regulatory framework are discussed below.

2.2.1 Regulators

SCA's primary regulators are:

- ▼ **IPART**, which is responsible for setting the maximum prices that SCA can charge for the provision of bulk water to Sydney Water and other customers. It is also responsible for monitoring and reporting compliance with SCA's operating licence (issued under section 25 of the Act). The purpose of the operating licence is to set out the terms and conditions under which SCA is to meet the objectives and other requirements imposed on it in the Act, and to ensure that it is subject to appropriate performance standards, indicators and reporting requirements.¹⁰ The operating licence contains provisions relating to bulk water quality, catchment management and protection, an environment plan and environmental performance indicators, management of catchment infrastructure works and water conservation, asset management, customer service and licence audits. The current operating licence is for 2006-2010, and is available via SCA's website (www.sca.nsw.gov.au).
- ▼ **Department of Water and Energy (DWE)**, which has primary responsibility for the management of water resources throughout NSW. DWE administers SCA's water management licence, which authorises SCA to take and use water from water sources and water management works as specified in the licence. The licence also specifies the amount of water that SCA must release as environmental flows.¹¹ In 2006, SCA commenced the release of environmental flows from Avon Dam, and is scheduled to commence environmental releases from the Cataract, Cordeaux and Nepean Dams from 2009. In addition, the NSW Government has announced new flow rules from Tallowa Dam, to commence once all water restrictions in Sydney are lifted. The 2007 Progress Report on the Metropolitan Water Plan notes that the NSW Government is currently preparing water sharing plans for the river and groundwater systems of the greater Sydney region, which will specify environmental flow requirements.¹²

¹⁰ See section 1.1 of SCA's operating licence.

¹¹ SCA's water management licence was granted in April 2001, pursuant to Part 9 of the *Water Act 1912*, by the Water Administration Ministerial Corporation (currently the Department of Environment and Climate Change). The licence for a term of 20 years, but is required to be reviewed within 6 months of the date of issue and, thereafter, before the end of each five year period for the term of the licence.

¹² NSW Government, *Metropolitan Water Plan – 2007 Progress Report*, pp 20-21.

- ▼ **NSW Health and the Department of Environment and Climate Change (DECC)**, which, along with the Water Administration Ministerial Corporation (under DWE), 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, with the MoU with DECC relating to environmental protection and the MoU with NSW Health dealing with water quality standards and public health. In recent years, DECC has also been responsible for undertaking audits of Sydney's drinking water catchment (the Catchment). These audits are required in accordance with section 42 of the Act.
- ▼ **NSW Department of Fisheries**, 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). Under the *Dams Safety Act 1978* and the *Mining Act 1992*, the Dam Safety Committee's main objective is to ensure that all 'prescribed dams' in NSW are in such a condition as to not pose an unacceptable danger to downstream residents and property, or to adversely affect the public welfare and environment. This is achieved by requiring all dam owners to arrange for regular monitoring and surveillance of their dams, ongoing assessment of their behaviour on the basis of monitoring and surveillance information, regular review of the compliance of their dams with current standards and review of all such information and assessments by experienced personnel.¹³

2.2.2 The Catchment Audit

The Act requires that an audit of the state of the Catchment be undertaken every two years, and that a report on that audit be submitted to the Minister responsible for SCA.

DECC was the nominated agency to undertake the 2007 Audit, covering the period from 1 July 2005 to 30 June 2007. The 2007 Audit report is available at DECC's website (www.environment.nsw.gov.au). Its recommendations are listed in Appendix F.

¹³ Dams Safety Committee, *DSC1 – General Information*, April 2005, <http://www.damsafety.nsw.gov.au/FTP/PUBLICATIONS/PDF/DSC01.pdf>

2.2.3 Environmental Planning Instruments

The Sydney Drinking Water Catchments Regional Environmental Plan No 1 (REP) is also a key instrument in SCA's regulatory framework. The REP assists SCA in its catchment protection function, and also imposes requirements and responsibilities on SCA. It replaces State Environmental Planning Policy No 58 (SEPP 58). SEPP 58 required councils to only grant approval to developments that demonstrated a neutral or beneficial effect on drinking water quality, and to seek agreement from SCA for certain developments.

The REP:

- ▼ sets water quality objectives for the Catchment
- ▼ requires SCA to develop Rectification Actions Plans (RAPs)
- ▼ requires councils to prepare and review local environmental plans (LEPs), which include consideration of strategic land and water capability assessments
- ▼ requires councils to assess and approve new developments and activities in the catchments, and that proposals have a neutral or beneficial effect on water quality.¹⁴

2.2.4 Bulk Water Supply Agreements

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

SCA's Bulk Water Supply Agreement (BWSA) with Sydney Water commenced in September 1999 for a term expiring on 30 June 2004. This term was subsequently extended to the end of 2005. A new BWSA commenced in April 2006 for an unspecified period.¹⁵

SCA has also finalised a BWSA with Shoalhaven City Council and is working towards finalising a BWSA with Wingecarribee Shire Council.¹⁶ IPART expects that SCA will also develop a BWSA with Goulburn Mulwaree Council, in light of the planned Wingecarribee to Goulburn pipeline.

¹⁴ Sydney Catchment Authority and NSW Department of Planning, *Sustaining the Catchments – The Regional Plan for the drinking water catchments of Sydney and adjacent regional centres, Summary Brochure*, 1 January 2007.

¹⁵ IPART, *Sydney Catchment Authority Operational Audit 2006/07*, Report to the Minister, December 2007, p 3-5.

¹⁶ www.sca.nsw.gov.au/water-quality/bulk-water-supply-agreements, accessed 7 July 2008.

2.2.5 The Metropolitan Water Plan

The Metropolitan Water Plan is the NSW Government's strategy for ensuring that Sydney's water supply matches demand over the next 25 years. The 2004 Metropolitan Water Plan identified several projects to be carried out by SCA to augment Sydney's water supplies. These include:

- ▼ accessing previously inaccessible deep water in Warragamba, Avon and Nepean Dams
- ▼ increasing transfers of water from the Shoalhaven to Sydney, involving increasing the capacity of Tallowa Dam (through the installation of radial gates and construction of new transfer conduits), as well as modifications to Tallowa Dam to allow fish passage and to improve the quality of water releases for the downstream environment, and new environmental flow operating rules from Tallowa Dam to the Shoalhaven River
- ▼ investigating potential groundwater resources in the catchments, including sites at Kangaloon, Leonay and Wallacia
- ▼ modifications to dam outlets at SCA's Upper Nepean dams to enable the release of flows in accordance with a new environmental flow regime.¹⁷

The 2007 Progress Report on the Metropolitan Water noted that:

- ▼ SCA has completed new works at Warragamba, Avon and Nepean Dams to enable it to access water at the bottom of these dams
- ▼ SCA "has made significant progress" in investigating the potential for using groundwater from Kangaloon, Leonay and Wallacia
- ▼ Avon Dam has been modified to allow environmental flow releases, and work is underway to configure nearby dams and weirs to allow such releases to be made, and to pass down the river for environmental benefit
- ▼ Tallowa Dam will soon be modified to allow fish to travel up and over the dam wall and to improve the quality of environmental water released from the dam.¹⁸

However, since the 2004 Metropolitan Water Plan, the Government has decided not to proceed with raising the dam wall at Tallowa. Instead, it is looking at alternative operational arrangements for the Shoalhaven Transfer scheme and investigating pipeline and tunnel options should it proceed with transfers of more water from Tallowa Dam to Sydney and the Illawarra.¹⁹

¹⁷ See NSW Government, *2006 Metropolitan Water Plan*.

¹⁸ NSW Government, *Metropolitan Water Plan – 2007 Progress Report*, p 7.

¹⁹ See NSW Government, *2006 Metropolitan Water Plan*, pp 83-86; and NSW Government, "Water for Life, frequently asked questions", www.waterforlife.nsw.gov.au/supply_and_security/faqs_drought, accessed 3 June 2008.

2.3 Incentive regulation

IPART regulates water utilities by determining the maximum prices that they can charge for specific monopoly services. It then sets out how these prices can rise or fall over a given determination period to account for movements in general price inflation, efficiency gains and significant changes in the operating environment (such as new environmental or customer service standards).

A critical element of the price-setting-process is the determination of the revenue requirement of the utility. IPART determines prices with the objective of generating a required level of revenue, taking into account all of the factors prescribed in section 15 of the IPART Act (see Appendix C). The calculation is based on analysis of the efficient operating and capital costs that SCA should incur in providing appropriate levels of service during the determination period.

IPART calculates the businesses revenue requirement using the 'building block' revenue methodology. The costs or 'building blocks' of service provision have been outlined by COAG and can be categorised as operations costs, maintenance and administration costs, provision for the cost of asset consumption, provision for the cost of capital and externalities.

An important part of regulation is encouraging regulated businesses to achieve the efficiency targets implied in the building block approach. IPART's approach provides an incentive to the business to pursue efficiencies because they retain in full the benefits of any efficiency gains over the determination period (through higher profits). If SCA betters the efficiency target allowed in the revenue build-up, actual profits will be higher than the rate of return allowed in the revenue build-up. The converse applies if SCA does not achieve the expected efficiency improvements.

IPART's fundamental responsibility is to meet the requirements of the IPART Act. IPART has chosen the building block approach as a way of giving effect to these requirements.

A detailed overview of IPART's price-setting framework is included in Appendix B.

2.4 Service quality standards

When IPART sets prices for water services, it assumes that existing standards of service will, at least, be maintained. For SCA's customers, service quality primarily relates to catchment management, bulk water quality and reliability of supply.

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

- ▼ protecting the quality of water entering the storages by monitoring and influencing activities and land condition in the outer catchments
- ▼ improving the quality of water entering the storages by protecting and managing inner catchment lands (Special Areas) surrounding the storages
- ▼ optimising the distribution of water among its storages and managing these storages
- ▼ comprehensive water quality monitoring programs.

SCA's operating licence contains a number of service-related standards and requirements, which are reviewed as part of the annual audit process. An overview of SCA's 2006/07 performance against the provisions of its operating licence is presented in Appendix E. This shows that SCA achieved High to Full Compliance with audited sections of its operating licence, which included clauses relating to Bulk Raw Water Quality, Catchment Management and Protection, the Environment, and Management of Catchment Infrastructure Works and Water Conservation.

Other regulatory instruments that assist in maintaining service standards include SCA's water management licence issued by DWE and its BWSAs with its customers. In addition, SCA is subject to requirements of the Dam Safety Committee and the Australian National Council of Large Dams (ANCOLD) guidelines. As already noted, the Act provides for an audit of the state of the Catchment to be conducted every two years, with an audit report submitted to the Minister responsible for SCA (see section 2.2.2).

Generally, the amount that customers are willing to pay for a service is linked to the level of expected service quality. In reviewing SCA's prices, considerations for IPART include relating actual and proposed expenditure to service quality outcomes, and ensuring an appropriate matching of service quality levels with customers' willingness to pay.

For this review, IPART will be seeking information from SCA on the drivers of its proposed expenditure program and what its proposed expenditures will imply for service quality and performance of the utility.

2.5 Sydney Water's recent price determination and its cost pass-through mechanism for SCA's costs

IPART has recently completed a determination of Sydney Water's prices, to apply from 1 July 2008 (2008 Sydney Water Determination).²⁰ This determination includes a 'cost pass-through' mechanism for SCA's costs. That is, it allows for adjustments to be made to Sydney Water's prices to reflect any changes to SCA's charges that occur as a result of this review.

The formula used to adjust Sydney Water's prices is presented in the 2008 Sydney Water Determination. It makes adjustments for future changes to the price of bulk water that SCA charges Sydney Water, relative to the price assumed by IPART in setting Sydney Water's prices. In its modelling for the 2008 Sydney Water Determination, IPART assumed that SCA's prices remain constant in real terms from 1 July 2009.

If, as a result of this review, IPART revises SCA's price of bulk water (in real terms) to apply from 1 July 2009, the formula in the 2008 Sydney Water Determination will adjust Sydney Water's prices to its retail water consumers accordingly. IPART has set Sydney Water's price structure such that the usage price is set at the Long Run Marginal Cost (LRMC) of water supply, with the fixed charge being the balancing item. Therefore, any changes in SCA's bulk water costs will be passed through to Sydney Water's customers through the fixed component of the charge.

Given this cost pass-through mechanism, IPART will need to consider the impact of its SCA pricing decisions on Sydney Water's customers. It is expected that these impacts will be identified and addressed in SCA's submission and will be of interest to stakeholders.

IPART seeks information and explanation from SCA on:

- 1 The risks or uncertainties in SCA's operating environment over the upcoming determination period and beyond, including the nature of these risks/uncertainties and the likelihood of these impacting on specific costs (for example, electricity charges).
- 2 How SCA has ascertained the appropriate service levels that it plans to provide over the upcoming determination period and how these service levels relate to forecast costs.
- 3 The impact of SCA's proposed prices on Sydney Water's customers.

²⁰ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Determination and Final Report, June 2008 (No 1, 2008) (2008 Sydney Water Determination), available at: www.ipart.nsw.gov.au.

3 Revenue requirement

To determine SCA's revenue requirement, IPART will seek detailed information on SCA's operating and capital expenditure to date, projections of future expenditure, and the drivers of this expenditure. IPART will also consider what the proposed expenditure will imply for overall service quality and performance.

This chapter outlines IPART's approach to determining the capital and operating expenditure requirements and the key issues that will need to be considered.

3.1 The building block approach to determining revenue requirement²¹

In defining an agency's revenue requirement, IPART assesses the future cash flow needs of the organisation. That cash requirement needs to be sufficient to cover the operations, maintenance and administration expenses of the entity, plus any return of and on capital. This can be represented by the following formula, commonly described as the 'the building block approach':

$$R = C + D + O + M + A$$

Where R = revenue requirement

Capital costs: C = return on capital

D = return of capital (depreciation)

Non-Capital costs: O = operations expenses

M = maintenance expenses

A = administration expenses

As shown in the formula above, the revenue requirement does not explicitly include capital expenditure. Capital expenditure to maintain or augment the asset base is funded from the return of capital, injections of equity, and borrowings (or other financing approaches).

²¹ IPART, *Rolling forward the regulatory asset bases of the electricity and gas industries, Discussion Paper*, January 1999, p 5.

Return of capital, commonly termed 'depreciation', may be more appropriately described as 'maintenance of capital'. This recognises that through the provision of services to customers, a water utility's capital infrastructure will wear out and that an efficiently operating business will allow for the cost of maintaining the capital base within its revenue requirements. The return on capital represents IPART's assessment of the opportunity cost of capital invested in SCA by its owner. It ensures that efficient investment in capital continues into the future for the maintenance and growth of the infrastructure system. It is the combination of an allowance for capital maintenance and a return on assets that ensures that the existing investment in the water business is maintained in perpetuity.

Both return of capital and return on capital are calculated with reference to the Regulatory Asset Base (RAB). Ultimately, only capital expenditure deemed by IPART to be prudent, efficient and funded by the water utility is included in the RAB.

Likewise, IPART's building block approach for determining the revenue requirement aims to only provide for the efficient operating, maintenance and administration costs incurred by a water utility in providing its monopoly services.

Specific issues relating to aspects of SCA's revenue requirement that IPART will need to consider for this review are discussed further below.

3.2 Review of historical and proposed future capital expenditure

IPART's approach to the review and treatment of capital expenditure for this review will be similar to the 2005 Determination. The 2005 review adopted a two stage regulatory test process - a forward-looking *efficiency* test of proposed capital expenditure for the upcoming determination period and a backward-looking *prudence* test of actual capital expenditure decisions in the current determination period.²² The *efficiency* test is used to determine how much of SCA's proposed capital expenditure for the next determination period will go into the allowance for efficient capital expenditure. The *prudence* test is used to determine how much of the actual capital expenditure by SCA in the current determination period will go into the opening value of the RAB.

As part of the submission process, IPART seeks capital expenditure information from SCA. This information should outline actual capital expenditure during the current determination period and proposed capital expenditure during the forthcoming determination period. It should also clearly explain the drivers (eg, higher environmental standards, governance requirements) of this expenditure, together with actual and expected outcomes to be achieved by the capital expenditure in the

²² The efficiency test examines whether SCA's proposed capital expenditure represents (over the life of the asset) the best way of meeting the community's need for the relevant services. By contrast, the prudence test assesses whether, in the circumstances that existed at the time, the decision to invest in the asset is one that the agency, acting prudently, would have been expected to make. The prudence test is somewhat easier to satisfy than the efficiency test.

current and upcoming determination periods. SCA will also need to describe what the proposed expenditures will imply for its service quality and performance.

IPART considers sound asset management practices to be critical for maintaining long term system performance standards in the most efficient manner and, for this reason, will continue to take a close interest in the practices and performance of SCA in this area. IPART will be looking for evidence that SCA has well developed and sound asset management practices and plans in place, and that capital expenditure programs are based on a robust asset management framework. Additionally, IPART will be seeking assurance that the critical infrastructure of the businesses is not being run down.

In past determinations IPART has engaged independent industry experts to review SCA's asset management, the efficiency of its proposed capital and operating expenditure and the prudence of its past expenditure. This has usually involved an examination by the consultant of the drivers of expenditure, the timing of proposed expenditure, customer demand growth and general asset management practices. This analysis, combined with cost benchmarking and general consultant experience, allows the consultant to make recommendations on the efficiency and prudence of the expenditure program. IPART intends to repeat this process in this review by engaging a consultant to review SCA's asset management and capital and operating expenditure. In addition, the consultant will be asked to review SCA's expenditure in the context of the 2005 output measures (see section 3.8). The consultant will prepare a report that will be made available for public review. Interested stakeholders can comment on the consultant's report, as part of their submission to IPART's draft report.

IPART seeks information and explanation from SCA on:

- 4 SCA's capital expenditure over the current determination period, drivers of this expenditure and service outcomes to be achieved.
- 5 SCA's capital expenditure over the current determination period compared to expenditure allowed by IPART when it set prices in the 2005 Determination, and an explanation of variances.
- 6 SCA's projected capital expenditure program over the upcoming determination period, drivers of this expenditure and expected service outcomes to be achieved.
- 7 SCA's asset management practices and plan, and the relationship between its asset management framework and its capital expenditure program.

IPART seeks comment on the following aspects of SCA's expenditure program, as outlined in SCA's submission:

- 1 The prudence of SCA's capital expenditure over the current determination period.
- 2 SCA's projected capital expenditure program, including its expenditure drivers, scope for efficiency gains and proposed service outcomes.

3.3 Rate of return on the RAB

There are several approaches for calculating the appropriate return on the RAB. In past determinations IPART has used the real pre-tax Weighted Average Cost of Capital (WACC) to determine an appropriate range for the rate of return. The WACC is the weighted average of the cost of debt and equity. IPART used the Capital Asset Pricing Model to derive the cost of equity, and calculated the cost of debt as a margin over the risk free rate. This is consistent with the approach IPART has used in other determinations.

For this review, IPART proposes to maintain the existing approach to calculating the rate of return for the RAB and will seek to update the parameters used in calculating the WACC.

In making its finding on the WACC, IPART will take into consideration the requirements of the IPART Act, including s 15(1)(b) dealing with the protection of consumers from abuses of monopoly power, s 15(1)(c) dealing with an appropriate rate of return including payment of dividends and s 15(1)(k) dealing with the social impact of its determination and recommendations. In doing so, it will investigate the implications of its chosen rate of return on SCA's financial viability and on the bills of water customers (taking into account flow on effects of prices paid by SCA's customers to prices paid by final water consumers).

IPART's finding on the rate of return for Sydney Water's RAB over the 2008/09 to 2011/2012 determination period, and its explanation of this finding, is outlined in its Final Report on the 2008 Sydney Water Determination.²³

IPART seeks comment on:

- 3 An appropriate rate of return to apply on SCA's Regulatory Asset Base (RAB), and the means of calculating/determining this rate.

3.4 Return of capital

Depreciation (or 'return of capital') is largely a function of the value assigned to the investment in the agency's assets and the expected or assumed life of those assets. For this price determination, IPART will be considering the asset lives used to calculate the depreciation (capital maintenance) allowance.

In past determinations, IPART has generally used the straight-line depreciation method to calculate the return on capital (depreciation) for water businesses. This means that the total value of the RAB is recovered evenly over the assumed life of the assets. IPART believes that the straight-line depreciation method is superior to alternatives in terms of simplicity, consistency and transparency.

²³ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Final Report, June 2008 (No 1, 2008), Chapter 8.

For the 2005 Determination, IPART calculated depreciation assuming lives of 70 years for existing assets and 100 years for new assets.

In IPART's recent review of its prices, Sydney Water outlined a case for applying different asset lives to different asset classes. IPART agreed that this approach is a step forward from the approach previously applied to regulatory depreciation because it allows a more accurate assessment of the efficient recovery of investment over the life of the asset. IPART consequently engaged a consultant to review and assist it to determine appropriate asset lives for Sydney Water's regulated assets, and calculated depreciation using its assessment of appropriate asset lives for different classes of existing and new assets.²⁴

IPART proposes to engage an independent consultant to conduct a review to assist it in assessing any proposed changes by SCA to the current method of calculating depreciation and to determine appropriate asset lives for SCA's regulated assets.²⁵ The consultant's report will be made available for public review. Interested stakeholders can comment on the consultant's report as part of their submission to IPART's draft report.

IPART seeks information and explanation from SCA on:

- 8 Any changes proposed by SCA for the calculation of depreciation, including asset classes and asset lives for each asset class and the methodology or assumptions used to determine these.

IPART seeks comment on:

- 4 Appropriate asset classes and lives (for each asset class) to apply for calculating SCA's depreciation charge for the price determination (with reference, where necessary, to SCA's submission).

3.5 SCA's ability to replace system assets in the future

IPART's approach has been to establish a RAB that represents the amount of financial capital invested by SCA, which should be maintained. This RAB is then rolled forward to take account of new capital expenditure, inflation, depreciation and disposals.²⁶ The financial capital maintenance concept incorporated in this approach provides consistency in dealing with sunk costs, contributed assets, and legacy issues. The prices derived from this RAB enable SCA to earn a return on investments consistent with the WACC.

As SCA's assets reach the end of their useful lives, IPART allows the value of any replacement assets, including the replacement cost of assets previously funded by developers or through grants, to enter the RAB. SCA is then able to recoup the value

²⁴ Ibid.

²⁵ This may be for new assets, existing assets or both.

²⁶ IPART, *Rolling forward the regulatory asset bases of the electricity and gas industries, Discussion Paper*, January 1999.

of the funds outlaid on the replacement (including the opportunity cost of the funds invested) through prices over the lives of the replacement assets. The recovery of the cost of assets over the life of the assets in question is consistent with normal commercial practice.

The mechanism described above will ensure that, over time, SCA receives the income to which it is entitled to support its investments in its own business undertakings.

3.6 Adjustments to the RAB for contributions

Over time, there have been occasions where governments (local, NSW and Federal) or other parties (eg, developers) have contributed assets to water agencies, or provided grants to water agencies to assist in funding assets.

The value of such contributions should be deducted from SCA's RAB for the purposes of determining its revenue requirement and prices. In this way, the asset base used for calculating periodic charges only includes investments funded by SCA.²⁷

Therefore, in providing information on its assets as part of its submission to this review, SCA should clearly identify the value and timing of any contributions from government or other sources.

IPART seeks information and explanation from SCA on:

- 9 The value and timing of contributions (including contributed assets) to SCA from government and/or other sources.

3.7 Operating expenditure

Another key component of the building block methodology is to provide sufficient revenue to meet the operation, maintenance and administration costs of the monopoly services provided by SCA. IPART will therefore need to determine the efficient costs that SCA will incur in operating the business effectively, having regard to service quality standards.

For this review, SCA will need to provide information on the past and future projected operating expenditures and the potential for future efficiency gains. It will also need to provide information about the drivers behind any projected real increases in operating expenditures during the determination period.

²⁷ As part of the above-mentioned consultant's review of asset lives, the consultant will also be required to quantify the value of contributed assets and assets funded by grants/subsidies in SCA's financial accounts in each year from 2001 to 2007.

3.7.1 Review of historical and proposed future operating expenditure

As in previous determinations, IPART will engage an independent consultant to review the operating expenditure, asset management and capital expenditure of SCA (as discussed in section 3.2). The review will need to assess the efficiency of operations and the prudence and effectiveness of expenditure programs, given the objectives and functions of SCA.

SCA may incur additional costs related to specific projects or activities mandated or required by government. In these instances, SCA will need to provide sufficient information to enable IPART to assess the efficient costs of these activities.

IPART seeks information and explanation from SCA on:

- 10 SCA's operating expenditure over the current determination period, drivers of this expenditure and service outcomes achieved.
- 11 SCA's operating expenditure over the current determination period compared to expenditure allowed by IPART when it set prices in 2005, and an explanation of variances.
- 12 SCA's projected operating expenditure over the upcoming determination period, including drivers of this expenditure, expected service outcomes, specific efficiency programs and the potential for efficiency gains.
- 13 Separate identification of the costs covered under the Section 16A direction issued by the Minister for Water.

IPART seeks comment on:

- 5 The efficiency of SCA's operating costs incurred in the current determination period and the efficiency of its projected operating costs, as outlined in SCA's submission.
- 6 Whether there is scope for SCA to achieve further efficiency gains over the upcoming determination period.

3.8 Output measures

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

SCA's output measures, as per the 2005 Determination, are set out in Box 3.1. For this review, IPART will be seeking information from SCA on its performance against these output measures.

IPART recognises that since the 2005 Determination the Shoalhaven Transfer Scheme has been modified, with the NSW Government deciding not to proceed with the raising of the dam wall at Tallowa (see section 2.2.5). Therefore, due to factors beyond SCA's control, its progress against output measure 4 may be limited. In the 2005 Determination, IPART recognised that there was some uncertainty associated with the Shoalhaven Transfer Scheme (see section 4.6.3).

IPART proposes to maintain the use of output measures as a starting point for the assessment of prudent expenditure and the basis for reporting on any deviation from the targets established. IPART will be seeking from SCA a list of capital projects or activities that it plans to undertake over this upcoming determination period, and proposes to revise SCA's output measures to reflect the nature of this expenditure program. IPART will also include this list of projects in the final determination report, and will expect SCA to monitor its expenditure on these projects and provide annual progress reports throughout the upcoming determination period. It will also expect SCA to provide a reconciliation of its expenditure and outcomes against the capital and operating expenditures allowed by IPART.

Box 3.1 Output measures for Sydney Catchment Authority

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

IPART seeks information and explanation from SCA on:

14 SCA's performance against its output measures.

15 Projects or activities that SCA plans to undertake over the upcoming determination period and expected outputs or outcomes of these projects.

IPART seeks comment on:

7 The effectiveness of output measures as indicators of the prudence of capital and operating expenditure.

8 SCA's progress or performance against its 2005 output measures.

9 How 'unders' and 'overs' against output measures should be addressed.

10 Appropriate output measures for SCA for the upcoming determination period.

4 Price-setting

Once the efficient costs to be recovered through SCA's charges are determined, the next step in IPART's process is to set prices to recover these costs. Prices are set based on an assumed level of water sales.

For this review IPART will need to:

- ▼ forecast water sales, by customer
- ▼ decide on the regulatory approach, including the length of the determination period and the rate of change of prices
- ▼ set price levels and structures, taking into consideration principles of economic efficiency and potential impacts on SCA, its customers and end water users.

4.1 Determining appropriate water sales

Forecasting water sales and customer numbers are key factors in setting water prices. If water sales and customer number forecasts are understated, customers will pay prices that exceed efficient levels, while unduly high forecasts may result in the water business not earning a sufficient revenue stream over the determination period.

Given its role as a water 'wholesaler' to Sydney Water and several other water utilities, forecasting SCA's customer numbers is relatively straightforward. Forecasting water sales, however, can be more difficult and require significant analysis. This is due to the range of drivers that can impact on water demand and the unpredictability or volatility of some of these factors (eg, weather conditions). Factors that can influence demand for bulk water include population growth, the structure and level of retail water prices, demand management programs implemented by the NSW Government and Sydney Water (eg, the Building Sustainability Index scheme - BASIX - and Sydney Water's Every Drop Counts program), weather conditions (including the impact of climate change), the impact of water restrictions, and supply augmentation projects both within and beyond SCA's operations, such as the operation of Sydney Water's desalination plant (the Plant).

In the 2005 Determination, SCA's forecasts of its water sales were based on its customers' forecast water sales, particularly those of Sydney Water. McLennan Magasanik Associates (MMA), independent consultants engaged by IPART to review the water demand forecasts of water agencies, found this to be appropriate, given that Sydney Water currently purchases about 99 per cent of the water that SCA

supplies. However, MMA also noted that SCA should play a greater role in critically reviewing Sydney Water's forecasts, particularly in the area of demand management.

As part of the recent review of Sydney Water's prices (preceding the 2008 Sydney Water Determination), IPART engaged MMA to conduct a review of the forecast water sales submitted by Sydney Water for the 2008/09 to 2011/12 determination period. MMA reviewed Sydney Water's forecasting methodology and its assumptions relating to the key drivers behind forecast water sales (eg, property numbers, water restrictions, demand management measures). MMA then submitted a forecast of water sales based on its assessments. This report is publicly available via IPART's website. Differences between the forecasts made by Sydney Water and MMA were not considered to be significant.

4.1.1 The impact of Sydney's desalination plant (the Plant) on demand for water from SCA

For this review, SCA will need to provide forecasts of its water sales, using the above and other information. A key consideration will be the impact of the Plant on these sales. The Plant is scheduled to supply water from 1 January 2010.

The impact of the Plant on demand for water from SCA is likely to depend on factors such as the operating rules for the plant and the overall water supply/demand balance (taking into account effects such as population growth, demand management programs, the development and uptake of alternative sources such as recycled water, and the level of demand that is currently suppressed due to water restrictions).

While the operating rules for the Plant are yet to be confirmed, Sydney Water has advised that it intends to run the Plant at full capacity (250 ML/day) for its first two years of operation, to prove the Plant. This means that it expects to source 46 GL of water from the Plant in 2009/10 and then 91 GL from 2010/11.²⁸ Once this two year period is over, Sydney Water has suggested that it will switch off the Plant once SCA's water storages reach a given level (eg, 70 per cent to 80 per cent of capacity) and then switch it back on once storages decline below a certain level (eg, 70 per cent of capacity).²⁹

The Plant's capacity of 91 GL per annum equates to approximately 18 per cent of SCA's supply to Sydney Water in 2006/07, which totalled about 503 GL (see Appendix A). However, demand from Sydney Water has been constrained over recent years due to water restrictions,³⁰ and as such, supply from the Plant would be a smaller proportion of unrestricted demand.

²⁸ Sydney Water Corporation submission to the Independent Pricing and Regulatory Tribunal Review of Prices for Sydney Water Corporation, September 2007, p 90.

²⁹ IPART, *Public Hearings into a Review of Sydney Water's Prices for Water, Sewerage and Stormwater Services*, 7 December 2007.

³⁰ For example, one estimate suggests that, relative to unrestricted 'baseline' consumption, restrictions reduced Sydney's water consumption over 2007/08 by approximately 98 GL per annum or about 15 per cent (See: McLennan Magasanik Associates, MMA, *Review of Consumption for Sydney Water Corporation - Final Report to the Independent Pricing and Regulatory Tribunal*, March 2008, p 4).

The extent to which water from the Plant might replace (or substitute for) water otherwise supplied by SCA will depend on the operating regime for the Plant and future water restriction regimes, both of which are yet to be determined by the Government. For example, by augmenting supply, the Plant may lead to a reduction in the frequency or intensity of water restrictions and (along with SCA) thereby meet some latent demand for water (which Sydney Water may not presently be able to meet with available SCA resources). For the recent review of Sydney Water's prices, Sydney Water forecast that, with the commissioning of the Plant, the level of water restrictions will be reduced to Level 1 (from the current Level 3) in 2008/09 and then to 'permanent water saving measures' from 2009/10 onwards.³¹

IPART will assess the forecast water sales submitted by SCA, drawing on work and findings from its recent review of Sydney Water's prices (and demand forecasts).

Given the potential for water sales to vary from year to year, IPART will also consider mechanisms to deal with any substantial changes in demand throughout the determination period relative to demand forecasts. These are discussed further below.

IPART seeks information and explanation from SCA on:

- 16 SCA's forecast water sales, by customer, over the upcoming determination period, taking into account effects such as the Sydney desalination plant.
- 17 The methodology and assumptions used in developing these forecasts.

IPART seeks comment on:

- 11 SCA's projected customer numbers and water sales, as outlined in its submission.

4.2 Length of determination period and aggregate pricing approach

For this review, IPART will need to determine the length of the determination period, or price path. In doing so, it will consider incentives for efficiency gains, the predictability and stability of the regulatory environment, the effectiveness of regulation, and Sydney Water's determination period.

In general, a longer determination period provides:

- ▼ greater incentives for achieving increased efficiency, by allowing agencies to retain gains that arise from cost reductions (in the form of higher profits) for a longer period of time
- ▼ a more stable and predictable regulatory environment, which may lower agencies' business risk and lead to better investment decisions
- ▼ lower regulatory costs.

³¹ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Final Report, June 2008, p 76.

However, a longer determination period can also:

- ▼ delay the delivery of benefits – from efficiency gains - to consumers
- ▼ increase risk associated with any inaccuracies in the data used to make the determination
- ▼ increase the risk that industry and technological changes (and other factors) will create disparities between costs and revenues.

Other factors to consider include:

- ▼ The confidence that IPART can place in SCA's forecasts. If, for example, the expenditure profile can only be reliably predicted for two years, a short determination period may be more appropriate.
- ▼ The alignment of the determination period with the next Sydney Water determination, given the interrelation between SCA's bulk water charges and Sydney Water's operating costs.

At the 2005 Determination, SCA's determination period was aligned with Sydney Water, with the prices of both agencies set for a determination period of 1 October 2005 to 30 June 2009. This recognised the interdependence of both agencies and the relationship between SCA's costs and those of Sydney Water. However, Sydney Water's prices were recently re-set, with the 2008 Sydney Water Determination setting prices for the period 1 July 2008 to 30 June 2012. This change was to accommodate a significant increase in Sydney Water's costs as a result of the commissioning of the Plant, a number of major recycled water schemes and other matters.

Like its 2005 Determination, IPART's 2008 Sydney Water Determination considered that a four year determination period was appropriate, as it strikes the appropriate balance between providing incentives for improving efficiency, reducing regulatory uncertainty and minimising risks that changes in the industry will affect the appropriateness of the determination. IPART noted that a four year determination period should also enable Sydney Water to take positive steps to improve its information collection and reporting systems, develop more comprehensive pricing proposals and undertake work to correct other shortcomings identified in its recent review.³²

Re-aligning Sydney Water and SCA's price paths would mean that this review would set SCA's prices for a three year period (1 July 2009 to 30 June 2012).

Once the length of the determination period is known, IPART will need to decide on the aggregate pricing approach that it wishes to pursue. At the 2005 Determination, IPART adopted a P-nought adjustment and glide path approach to set prices. It considered that this approach should result in prices that achieve an appropriate balance between the section 15 factors (listed in Appendix C). P-nought is the price

³² IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Final Report, June 2008, Chapter 4.

at time nought, which is for the first year of the determination period. A P-nought adjustment allows prices to increase more sharply in the first year of the determination period than subsequent years, to reflect the step up in revenue requirement. Under the glide path approach, a single X-factor³³ was then set for subsequent years to ensure that prices changed smoothly over the remaining determination period in real terms, and that the agency's targeted revenue in the final year of the determination period equalled its notional revenue requirement for that year.

Sydney Water has argued against the glide path approach on the basis that it only receives its full revenue requirement in the final year of the determination period, forfeiting revenue in the intervening years.

For the 2008 Sydney Water determination, IPART deviated from the glide path approach and set prices so that Sydney Water's revenue is equal to its notional revenue requirement in Net Present Value (NPV) terms throughout the determination period. In part, this decision reflected the significant costs faced by Sydney Water over the next few years (owing to the construction of the Plant).

For this review, IPART will consider a number of alternative approaches to translate SCA's revenue requirement into prices. In doing so, it will take into account potential incentives (positive and negative) that different approaches may give SCA in terms of maximising the efficiency of its operations over time. Potential approaches include:

- ▼ **Unsmoothed revenue requirement** – where prices (and X-factors) are set to match the profile of the notional revenue requirement.
- ▼ **Smoothed revenue requirement** – where a single X-factor is set to ensure that an agency's targeted revenue equals its notional revenue requirement in NPV terms throughout the determination period.
- ▼ **Glide path** – where a single X-factor is set to ensure that prices change smoothly over the determination period in real terms, and that an agency's targeted revenue in the final year of the determination period equals its notional revenue requirement for that year.
- ▼ **P-nought adjustment and glide path** – where two X-factors are set. The first X-factor is set to deliver a P-nought adjustment to prices in the first year of the determination period (ie, a greater increase in prices than in following years of the determination period). The second X-factor is set so that average prices increase smoothly over the rest of the determination period and the expected revenue in the final year of the period is equal to the notional revenue requirement in that year.

³³ The X-factor is the rate by which prices can rise or fall over the determination period to account for efficiency gains and/or significant changes in the operating environment, such as new environmental standards or customer service standards.

IPART seeks comment on:

- 12 The length of the determination period that should apply for this review.
- 13 The approach that should be used to translate SCA's revenue requirement into prices over the determination period.

4.3 Determining appropriate prices and structure of the prices

Under section 15 of the IPART Act, IPART is required to have regard to a range of matters when making its determinations, including how price levels and structures impact on economic efficiency, ecologically sustainable development, the regulated businesses and their customers (see Appendix C). On occasion, this diversity of factors may require IPART to trade off or balance different impacts or outcomes, such as customer affordability and economic efficiency.

4.3.1 Fixed and volumetric charges to Sydney Water

SCA's water prices to Sydney Water currently comprise fixed and volumetric charges to recover the user share of efficient costs. The benefit of this two-part tariff approach is that it provides the utility with some revenue stability through the fixed charge, and also provides a signal to consumers to use water efficiently through the volume-based usage charge.³⁴ The reasoning behind the two-part tariff approach to monopoly pricing, where the usage charge covers the marginal cost of supply and the fixed charge acts as a balancing item to cover the remainder of the utility's efficient costs, is outlined further in Box 4.1 below.

In the 2005 Determination, IPART changed the balance of the fixed and volumetric components of SCA's charges to Sydney Water by increasing the relative size of the usage charge compared to the fixed charge, "so that approximately two thirds of SCA's revenue will be obtained from volumetric charges by 2008/09."³⁵ In the report accompanying the 2005 Determination, IPART noted that this will help achieve the objective of setting charges with reference to SCA's LRMC, and that "it will send a pricing signal to Sydney Water that will help achieve the State Government's demand management objectives."³⁶ Under the 2005 Determination, SCA's usage charge to Sydney Water increases from \$155.34 per ML in 2005/06 to \$203.27 per ML in 2008/09, while its fixed service charge remains constant in real terms throughout that period.

³⁴ For a discussion on efficient pricing of monopoly services and the benefits of two-part tariffs, see: IPART, *Water scarcity: Does it exist and can price help solve the problem?*, January 2008, pp 3-5.

³⁵ IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services*, Final Report, September 2005, p 96.

³⁶ *Ibid*, p 135.

Box 4.1 Efficient pricing of monopoly services³⁷

Economic theory suggests that an efficient price structure is one that encourages an efficient allocation of resources in the economy by the signals that it sends to consumers and producers. This is achieved by setting prices at the marginal cost of supply, where 'marginal cost' is the increase in total costs resulting from the production of one more unit of output.³⁸

The marginal cost of supply water is largely dependent on the capacity of large, indivisible capital investments such as dams, desalination plants, treatment plants and transmission pipelines. Once a utility has incurred the cost of building the infrastructure, the marginal cost of supplying water is much lower than the average cost of supply.³⁹ This means that, if prices are set at marginal cost, the utility may not recover its costs. This will impact on the utility's incentive to invest in the business in the future.

For this reason, it is generally accepted that pricing of monopoly services is efficient if it meets the following objectives:

- ▼ it signals to consumers the costs imposed (or avoided) if they increase (or reduce) their consumption by a small amount
- ▼ it allows utilities to recover the efficient cost of service provision and recover these costs with the least harm to economic efficiency.

A two-part tariff is generally considered the most efficient price structure for monopoly services as it comprises a single usage charge (set at the marginal cost of supply) and a fixed charge (to recover the remaining revenue requirement). A fixed charge is considered an efficient means of recovering the difference between average costs and marginal costs, because it is levied independently of usage and does not distort the pricing signal set by the usage charge.

For this review, IPART will examine the structure of SCA's prices to Sydney Water and its other customers, including the balance between SCA's fixed and volumetric charges, taking into account the principles of economic efficiency, potential impacts on SCA and water customers, and other factors identified in section 15 of the IPART Act (see Appendix C). In doing so, it will consider both the merits of a volumetric charge (compared to a fixed charge only) and the appropriate level of this charge, in the context of recent water supply augmentation measures in Sydney (ie, construction of the Plant and the development of several water recycling schemes) and investment in demand management programs.

Some specific issues for IPART to consider in looking at SCA's price structure are outlined below.

³⁷ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Final Report, June 2008, Chapter 10.

³⁸ Marginal cost should include any costs or benefits accruing to third parties (ie, those external to the transaction). These costs/benefits are known as externalities.

³⁹ Marginal cost can be low for long periods of time. However, as capacity is taken up, marginal cost increases as the next augmentation approaches (and may exceed average cost).

The means of determining the volumetric charge

IPART could set SCA's volumetric charge with reference to estimates of its LRMC of supply. As outlined in Box 4.1 above, this would signal to Sydney Water the costs imposed (or avoided) if it increases (or decreases) its consumption of water from SCA.

However, the calculation of SCA's LRMC can be a complex and difficult process. SCA's LRMC would reflect the costs associated with the sequence of measures that it would be required to undertake to ensure that water supply in Sydney matches demand over the medium to long-term (eg, 20 to 30 years), taking into account environmental flow requirements. In turn, this requires information on the total sequence of supply augmentation (or demand management) measures available to maintain Sydney's water demand/supply balance, including potential SCA and non-SCA⁴⁰ measures, and their relative efficiency.⁴¹

The signalling effects that the volumetric charge may provide

Due to its signalling effects, setting SCA's volumetric charge with reference to its marginal cost of supply can theoretically be important in ensuring that Sydney Water consumes an efficient volume of water from SCA. At a time where there is greater potential for supply of bulk water from sources other than SCA, marginal cost pricing can also potentially play an important role in ensuring that Sydney Water obtains its required volume of water from the least cost combination of water supply sources.

However, the effectiveness of the volumetric charge as a signalling device to Sydney Water depends on the actual level of discretion that it has in regard to both its level of water consumption and the sources from which it obtains its water supply. There may be some concern that Sydney Water has limited ability to respond to the bulk water price signal and that this may be reduced even further by the Plant and its operating regime.⁴² Sydney Water intends to source up to 250 ML a day of water

⁴⁰ For example, recycled water schemes and desalination.

⁴¹ The **social** LRMC of water supply in Sydney can be calculated by identifying the least cost sequence of measures that are required to achieve and maintain a balance between water supply and demand (taking into account environmental flow requirements), regardless of who undertakes these measures. SCA's LRMC of supply would then be estimated by calculating SCA's costs of its sequence of supply augmentation measures, within the broader package of measures. See the following for a discussion on calculating LRMC of water supply: IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Final Report, June 2008, Appendix K; and IPART, *Investigation into Price Structures to Reduce the Demand for Water in the Sydney Basin*, 2004).

⁴² Because Sydney Water is not the end user of the water it purchases, it has limited ability to respond to a price signal as it does not directly control most of its demand. Nevertheless, it has previously been argued that Sydney Water can play a role in demand management. As the manager of Sydney's water distribution infrastructure and a water retailer, Sydney Water can respond to price signals by, for example: reducing water delivery leakage, reducing water usage in sewerage processes, conducting customer education campaigns and undertaking other initiatives to encourage or support customers in reducing their water consumption, or operating its recycled water plants at varying levels. (See IPART, *Investigation into Price Structures to Reduce the Demand for Water in the Sydney Basin*, 2004, p 38).

from the Plant during its commissioning period (for two years, from 1 January 2010), irrespective of the marginal cost of supply from the Plant as compared to water supplied by SCA. Following this period, the amount of water that Sydney Water obtains from the Plant, rather than SCA or other sources, will largely depend on the operating rules of the plant and future water restriction regimes, which will be made by the NSW Government.

However, to counter this concern to some extent, a significant proportion (ie, at least approximately 85 per cent) of Sydney Water's current total demand for water will need to be obtained from sources other than the Plant, even when it is running at full capacity, and hence will be potentially subject to 'price effects'.

A further point to consider is that with recent rises in dam water levels and other supply augmentation measures in Sydney (including the Plant, recycling schemes and demand management programs); the need or urgency for SCA to augment its supply capacity appears to have been reduced, at least in the short- to medium-term. This may lead some to question whether the signalling effect of SCA's volumetric charge to Sydney Water is as significant or important as it was when water was scarcer, such as at the time of the 2005 Determination.

Alternatives to the current price structure

An alternative to the current fixed and volumetric price structure would be for SCA to charge Sydney Water a fixed price only, covering its efficient costs (or revenue requirement) related to servicing Sydney Water. This would provide revenue certainty to SCA and avoid difficulties that it may face in forecasting sales, given some current uncertainty over the operating regime of the Plant (and hence demand from Sydney Water) once the two year commissioning (or start up) period is over. A fixed price may also be appropriate as only a small proportion of SCA's costs are variable.

However, a fixed price would not send a signal to Sydney Water about the costs incurred (or avoided) from an increase (or reduction) in its consumption of water from SCA - regardless of this level of consumption. Depending on the level of this price, it may also have the effect of shifting more of the risk associated with variations in consumption onto Sydney Water (and its customers). Furthermore, given that Sydney Water has advised that it intends to run that the Plant at full capacity (or 250 ML a day) for its first two years of operation (from 1 January 2010), current uncertainty over the volume of water that will be supplied to Sydney Water from the Plant after its two year start up period is only likely to be a concern for SCA from 2011/12, which would be towards the end of SCA's upcoming determination period (if this period is aligned with that of Sydney Water).⁴³

⁴³ 1 July 2008 to 30 June 2012.

Between the range of options of having a fixed charge only or a volumetric charge only, a number of alternative pricing options are possible. This includes the current fixed and volumetric split of charges to Sydney Water. Another option, for example, would be for SCA to charge Sydney Water a fixed price for a given maximum quantity of water, with any consumption by Sydney Water above this amount charged at a volumetric price set with reference to an estimate of SCA's LRMC.

As listed below, IPART seeks stakeholder comment on the most appropriate pricing structures for SCA for its supply to Sydney Water as well as its other customers.

4.3.2 Charges to local councils

In the 2005 Determination, IPART decided to transition SCA's volumetric charges to Wingecarribee Shire Council and Shoalhaven City Council towards cost-reflective pricing. These councils do not currently pay a fixed service charge.

Under the 2005 Determination, SCA's usage charges to these councils increased from \$105.08 per ML in 2004/2005 to \$192.97 per ML in 2008/09. According to IPART, these charges reflected its decision that:

...water usage charges for Wingecarribee Shire Council and Shoalhaven City should be increased in an orderly manner so that their water usage charges reach a similar level to Sydney Water's charges in the next determination period.⁴⁴

With the Wingecarribee to Goulburn pipeline expected to be constructed by 2010 (see section 2.1.1), IPART will also have to consider pricing arrangements for water supplied from SCA's Wingecarribee Reservoir to Goulburn Mulwaree Council.

4.3.3 Charges to other customers

In addition to Sydney Water, Wingecarribee Shire Council and Shoalhaven City Council (and Goulburn Mulwaree Council, once the pipeline from Wingecarribee is complete), SCA also supplies water to about 60 smaller raw water and unfiltered water 'retail' customers who have direct off-takes from pipelines, canals and storages. Unfiltered water customers pay a fixed and usage charge, while raw water customers pay only a usage charge.

In the 2005 Determination, IPART decided to maintain the usage charges for these smaller customers in real terms (at \$0.77 per kL for 'Unfiltered Water' and \$0.45 per kL for 'Bulk Raw Water'). It also decided to maintain the fixed service charge for unfiltered water customers in nominal terms only, to place greater emphasis on the usage charge.

⁴⁴ IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services*, Final Report, September 2005, p 102.

4.3.4 Scarcity pricing

Scarcity pricing has been advocated by a number of commentators as a better means of bringing the demand for water into line with the available supply. Under such an approach, the price of water would increase during droughts when rainfall decreases and water storage levels decrease.⁴⁵ Conversely, lower prices would apply where water is in relative abundance, such as when water storages are at or near full storage level.

In the 2008 Sydney Water Determination, IPART recently examined the pros and cons of scarcity pricing.⁴⁶ It found that while scarcity pricing may be considered more economically efficient because water is allocated to its highest value uses, water restrictions appear to have broad community acceptance and may be more effective at managing short term supply/demand imbalances. Importantly, IPART also found that, given construction of the Plant, increases in water recycling, investment in demand management measures and recent rises in dam levels, there is likely to be a lack of water scarcity in Sydney in the short to medium-term. Due to this lack of water scarcity, IPART considered that scarcity pricing should not be implemented at this time.⁴⁷

IPART seeks information and explanation from SCA on:

- 18 SCA's proposed prices (including pricing level and structure, and prices per customer) over the upcoming determination period, and the reasoning or justification behind these proposals.
- 19 If SCA is proposing changes to its price structures, any perceived transitional issues that may arise.
- 20 SCA's calculation of its volumetric charges, and the methodology and assumptions behind these estimates.

IPART seeks comment on:

- 14 The structure of SCA's prices to Sydney Water, the councils and its other customers.

4.4 Implications of the Water Industry Competition Act

The NSW Government has recently introduced the *Water Industry Competition Act 2006* (WICA), which provides for private sector participation and competition in the NSW water and wastewater industry, in order to enhance efficiency.

⁴⁵ While the price would vary with storage levels, scarcity pricing can be structured so that it does not have an adverse impact on vulnerable customers – for example, a 'base' or non-discretionary amount of water for each customer could be made available at a low price, with the price for consumption above this level increasing as storage levels decrease.

⁴⁶ See: IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Final Report, June 2008, Chapter 10; and IPART, *Water scarcity: Does it exist and can price help solve the problem?*, January 2008.

⁴⁷ Ibid.

WICA provides for sales of water by SCA to the private sector. This means that new water utilities may seek to purchase water from SCA – although these purchases will be limited by section 10 of the WICA, which states that in granting a licence to a new utility the Minister must be satisfied that:

Sufficient quantities of the water supplied by the licensee will have been obtained otherwise than from a public water utility.

For this review, IPART will consider implications of WICA for SCA and its prices.

IPART seeks comment on:

15 The issues that should be considered as part of this review of SCA's prices, in light of the *Water Industry Competition Act 2006*.

4.5 Assessing the impacts of pricing decisions

As part of the 2008 Sydney Water determination, IPART assessed the implications of its pricing decisions on Sydney Water, its customers and the environment. This assumed that SCA's prices remained constant in real terms from 1 July 2009. IPART looked at Sydney Water's ability to pay dividends and its credit rating. In terms of environmental impact, IPART maintained its approach of allowing Sydney Water to fully recover, through prices, the costs it efficiently incurs in meeting its environmental obligations (as determined by government and regulatory requirements). To assess implications for Sydney Water's customers, IPART considered the affordability of water services for high and low water users and vulnerable customers, and the quality of services that customers will receive.⁴⁸

In this review, IPART will also assess the impact of its pricing decisions on SCA's customers, service standards, financial outcomes and the environment. Given Sydney Water's cost pass-through mechanism for SCA's costs (see section 2.5), IPART will also consider the impact on Sydney Water's customers of its 2009 determination for SCA.

IPART seeks information and explanation from SCA on:

21 The impact of SCA's proposed prices on its customers and end water consumers.

22 The impact of SCA's proposed prices on its financial performance and standing.

IPART seeks comment on:

16 The impact of SCA's proposed prices (outlined in its submission) on its customers and end water consumers.

⁴⁸ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008*, Final Report, June 2008, Chapter 12.

4.6 Adjusting prices to deal with risk

In addition to deciding on maximum prices for monopoly services over the determination period, IPART will need to consider its regulatory framework in relation to dealing with risk. This includes, for example, potential mechanisms to address the risks associated with:

- ▼ variations between SCA's forecast demand used in setting prices and the actual sales of its water
- ▼ any unforeseen costs.

4.6.1 Consumption variation mechanism

As discussed in section 4.1, forecasts of water sales by water businesses over the determination period are used to set prices to generate the determined revenue requirement.

In the 2005 Determination, IPART adopted a mechanism to address risk to an agency of variations between forecast and actual water sales (consumption). IPART considered several options to address the impact of consumption volatility, including:

- ▼ no adjustments for demand variation
- ▼ price adjustment in the subsequent determination period to account for variation outside a certain 'deadband'
- ▼ an annual price adjustment mechanism to account for variation outside a deadband of +/- 10 per cent, combined with a final 'wash-up' adjustment as part of the subsequent determination for all variations unrecovered/not passed through.

At the time, IPART considered that making no adjustments for demand variation may result in excessive risk borne by the water agency. It did not support the option of making annual price determinations as this was contrary to the objectives of price certainty and effectively allocates all risks to customers. IPART supported the option of making price adjustments in the subsequent determination where the variation was outside a deadband of +/- 10 per cent. It considered that a deadband at a level lower than 10 per cent transfers too much business risk to customers and is inappropriate in the incentive based regime applicable to the water industry.

For this review, IPART will consider whether this adjustment mechanism should be maintained. In doing so, it will consider potential incentives for SCA and implications for water prices (and hence consumer welfare). IPART notes that if an adjustment mechanism acts to guarantee revenue, it may reduce incentives for a utility to adequately plan and invest to avoid or mitigate potential supply/demand imbalances.

Notably, IPART did not incorporate a consumption adjustment mechanism in the 2008 Sydney Water Determination. IPART noted that, in the 2005 Determination, there was substantial uncertainty about water availability (due to the drought) and the period over which water restrictions would remain in place. However, it considered that this uncertainty has now lessened due to rising dam levels and will lessen further in the future owing to the construction of the Plant.

IPART will also need to review SCA's actual sales (and revenue) over the current determination period compared to those used in the 2005 Determination and consider whether some adjustment should occur as part of this review. This will depend on whether the consumption variation is outside the defined deadband of the 2005 Determination.

IPART seeks information and explanation from SCA on:

23 Actual sales and revenue over the current determination period compared to forecast sales and revenue used for setting prices in the 2005 Determination.

IPART seeks comment on:

17 The need for, and form of, a revenue volatility adjustment mechanism for SCA over the upcoming determination period.

4.6.2 Cost pass-through mechanisms to address risks associated with any unforeseen costs

At the 2005 Determination IPART considered whether to introduce a mechanism to deal with material changes in costs due to non-controllable external events, such as those relating to regulatory, licence or government policy obligations. IPART decided against introducing such a mechanism.

The primary reason for this decision was that the IPART Act does not allow IPART to review costs for the water sector during a determination period without making a new determination. If this were permitted, the costs associated with the pass-through event would be passed through without being subject to scrutiny by IPART. This would be inconsistent with the cost pass-through mechanisms IPART has adopted in the electricity sector and with IPART's general approach to regulation.

IPART has introduced a cost-pass through mechanism for Sydney Water in its 2008 Sydney Water Determination (see section 2.5). However, this is for changes to SCA's bulk water charges, which will be determined (following scrutiny of SCA's costs) by IPART in this review.

IPART seeks comment on:

18 The need for, and form of, other mechanisms to deal with risk throughout the determination period.

4.6.3 Costs associated with the Shoalhaven Transfer Scheme

At the time of the 2005 Determination, IPART noted that there was significant uncertainty about the timing and level of SCA's forecast capital expenditure on the Shoalhaven Transfer Scheme.

Consequently, IPART stated that it would adjust SCA's revenue requirement in this upcoming determination period to account for any unspent monies allowed by IPART in the 2005 Determination for the Shoalhaven Transfer Scheme. This means that if changes to the timing and scope of the Shoalhaven Transfer Scheme have resulted in the actual costs being lower than those forecast at the time of the 2005 Determination, SCA's revenue requirement (and hence prices) for the upcoming determination period will be adjusted downwards to reflect the cost difference.

In the report accompanying the 2005 Determination, IPART noted its decision to limit this end of period adjustment mechanism to 'exceptional circumstances' such as the Shoalhaven Transfer Scheme.⁴⁹

⁴⁹ IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services*, Final Report, September 2005, p 24.



Appendices

A SCA's 2006/07 water balance (for Total Supply System)⁵⁰

Total Supply System	Sources of water		Distribution of water	
	Volume (ML)	% of total	Volume (ML)	% of total
Storage volume				
Volume in storages at start of year			1,078,660	
Volume in storages at end of year			1,405,760	
Changes in storages			327,100	21%
Storages net evaporation			94,015	6%
Inflows				
All dams and weirs (1)	1,546,655	99%		
Groundwater	450	0%		
Fish River water supply purchases	3,115	0%		
Sub-total	1,550,220	100%		
Water supplied to customers				
Sales to Sydney Water			502,692	32%
Sales to Wingecarribee Shire Council			4,221	0%
Sales to Shoalhaven City Council			77	0%
Sales to Retail Customers			268	0%
Sub-total			507,258	33%
Water released under water management licence				
Releases to Shoalhaven City Council (Tallowa)			12,440	1%
Riparian releases			2,008	0%
Environmental releases (2)			41,195	3%
Other System release to river			499	0%
Sub-total			56,142	4%
Reservoir or Weir Spills			572,274	37%
Unaccounted difference (3)	6,568	0%		
Total	1,556,788	100%	1,556,788	100%

(1) Environmental Releases from Wingecarribee to Warragamba are not included as inflow for the Total System although this release has been included as Inflow for the Warragamba System.

(2) Only Environmental Releases that leave the system boundary are included in the balance.

(3) 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.

⁵⁰ Accessed from SCA's website on 19 June 2008, http://www.sca.nsw.gov.au/_data/assets/pdf_file/0008/2015/WaterBalance0607.pdf.

B Overview of IPART's regulatory framework

IPART currently adopts a CPI+X incentive regulation framework for setting metropolitan water prices. IPART regulates monopoly water, sewerage, stormwater and recycled water services by determining maximum charges.⁵¹ In making determinations under the IPART Act (the Act), IPART is required to have regard to a number of matters, as listed in Section 15 of the Act (and Appendix C).

To give effect to this requirement of the Act, IPART's approach to setting maximum prices for metropolitan water agencies involves the following steps:

1. Determine the agency's notional revenue requirement based on an analysis of the efficient operating and capital costs the business should incur in providing appropriate levels of service during the price path period.
2. Identify appropriate forecast metered water sales and customer numbers.
3. Identify the broad pricing approaches that could feasibly be applied to translate the agency's revenue requirement into prices, and assess the impact of each approach on customers and the agency. The approaches considered have included:
 - i) unsmoothed revenue requirement – where prices (and X factors) are set to match the profile of the notional revenue requirement
 - ii) smoothed revenue requirement – where a single X-factor is set to ensure that an agency's targeted revenue equals its notional revenue requirement in NPV terms throughout the determination period
 - iii) glide path – where a single X-factor is set to ensure that prices change smoothly over the determination period in real terms, and that an agency's targeted revenue in the final year of the determination period equals its notional revenue requirement for that year
 - iv) P-nought adjustment and glide path – where two X-factors are set. The first X factor is set to deliver a P-nought adjustment to prices in the first year of the determination period. The second X-factor is set so that average prices increase smoothly over the rest of the determination period and the expected revenue in the final year of the period is equal to the notional revenue requirement in that year.

⁵¹ In regards to the pricing of recycled water and developer charges, IPART has issued guidelines for establishing these charges. The exception to this is recycled water to Rouse Hill, where IPART sets a maximum charge to apply in this area. This is because this is a mandated, rather than voluntary, recycled water scheme to customers.

4. Identify feasible pricing structures and calculate actual prices for all or a selection of the pricing options identified in Step 3; then assess the implications of these prices in the context of the factors in section 15 of the IPART Act. Specifically, this includes considering the impact of prices on customers and the agency's financial viability:
 - i) in considering customer impact, typical analysis would consider the magnitude of real price increases in 2009/10 compared to 2008/09, and over the whole determination period, the effect of these increases on average bills, and relative bill size compared with other NSW agencies and other jurisdictions
 - ii) in considering financial viability and sustainability, IPART will need to examine the agency's forecast credit rating, taking into account its existing cash/debt levels and its ability to pay dividends, and the 'benchmark financial structure' consistent with the WACC parameter assumptions made by IPART in its determination
 - iii) in considering economic efficiency, IPART will need to examine the signals sent to customers and cost reflectivity.
5. Decide on the pricing structure and level for the determination to take account of the interests of the agencies, customers and stakeholders, recognising that the balancing of these different interests could mean that the target revenue derived by prices is less than IPART's determined notional revenue requirement.

For this price determination, IPART proposes to maintain the general approach to setting prices adopted in past metropolitan water price determinations.

C Section 15(1) requirements

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

- a) the cost of providing the services concerned
- b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
- c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales
- d) the effect on general price inflation over the medium term
- e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
- f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment
- g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets
- h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body
- i) the need to promote competition in the supply of the services concerned
- j) considerations of demand management (including levels of demand) and least cost planning
- k) the social impact of the determinations and recommendations
- l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

D Information that IPART will be seeking from SCA

To enable IPART to review SCA's prices, it will be seeking the following information from SCA (as listed and discussed at relevant sections throughout this Paper).

- 1 The risks or uncertainties in SCA's operating environment over the upcoming determination period and beyond, including the nature of these risks/uncertainties and the likelihood of these impacting on specific costs (for example, electricity charges). 28
- 2 How SCA has ascertained the appropriate service levels that it plans to provide over the upcoming determination period and how these service levels relate to forecast costs. 28
- 3 The impact of SCA's proposed prices on Sydney Water's customers. 28
- 4 SCA's capital expenditure over the current determination period, drivers of this expenditure and service outcomes to be achieved. 31
- 5 SCA's capital expenditure over the current determination period compared to expenditure allowed by IPART when it set prices in the 2005 Determination, and an explanation of variances. 31
- 6 SCA's projected capital expenditure program over the upcoming determination period, drivers of this expenditure and expected service outcomes to be achieved. 31
- 7 SCA's asset management practices and plan, and the relationship between its asset management framework and its capital expenditure program. 31
- 8 Any changes proposed by SCA for the calculation of depreciation, including asset classes and asset lives for each asset class and the methodology or assumptions used to determine these. 33
- 9 The value and timing of contributions (including contributed assets) to SCA from government and/or other sources. 34
- 10 SCA's operating expenditure over the current determination period, drivers of this expenditure and service outcomes achieved. 35
- 11 SCA's operating expenditure over the current determination period compared to expenditure allowed by IPART when it set prices in 2005, and an explanation of variances. 35

D Information that IPART will be seeking from SCA

12 SCA's projected operating expenditure over the upcoming determination period, including drivers of this expenditure, expected service outcomes, specific efficiency programs and the potential for efficiency gains.	35
13 Separate identification of the costs covered under the Section 16A direction issued by the Minister for Water.	35
14 SCA's performance against its output measures.	36
15 Projects or activities that SCA plans to undertake over the upcoming determination period and expected outputs or outcomes of these projects.	36
16 SCA's forecast water sales, by customer, over the upcoming determination period, taking into account effects such as the Sydney desalination plant.	39
17 The methodology and assumptions used in developing these forecasts.	39
18 SCA's proposed prices (including pricing level and structure, and prices per customer) over the upcoming determination period, and the reasoning or justification behind these proposals.	47
19 If SCA is proposing changes to its price structures, any perceived transitional issues that may arise.	47
20 SCA's calculation of its volumetric charges, and the methodology and assumptions behind these estimates.	47
21 The impact of SCA's proposed prices on its customers and end water consumers.	48
22 The impact of SCA's proposed prices on its financial performance and standing.	48
23 Actual sales and revenue over the current determination period compared to forecast sales and revenue used for setting prices in the 2005 Determination.	50

IPART is also interested in receiving SCA's response to the broader range of issues raised throughout this paper (and listed in section 1.4.1), as well as other information or its views on other issues that it believes are relevant to this review.

E SCA's compliance with its operating licence over 2006/07⁵²

IPART employed a risk-based approach for the 2006/07 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.

Overall, the auditor found that SCA achieved High to Full Compliance with the audited sections of its operating licence.

More specifically:

- ▼ Full Compliance was achieved for all of the audited clauses relating to Bulk Raw Water Quality.
- ▼ Full Compliance was achieved for eight audited clauses relating to Catchment Management and Protection, with four High Compliance ratings also achieved in this area.
- ▼ Full Compliance was achieved for three audited clauses relating to the Environment, with one High Compliance rating also achieved in this area.
- ▼ Full Compliance was achieved for five audited clauses relating to Management of Infrastructure Works and Water Conservation, with one High Compliance rating also achieved in this area.

SCA provided evidence of compliance with all of the operating licence conditions not subject to audit.

The full report on the 2006/07 audit of SCA's performance against its operating licence is available at IPART's website: www.ipart.nsw.gov.au.

⁵² IPART, *Sydney Catchment Authority Operational Audit 2006/07, Report to the Minister*, December 2007, pp 1 - 2.

F Recommendations of the 2007 Audit of the Sydney Drinking Water Catchment⁵³

The following recommendations were made in DECC's 2007 audit of the Sydney drinking water catchment (Catchment), undertaken in accordance with the *Sydney Water Catchment Management Act 1998*:

Raw water quality

- ▼ The operator and regulator(s) of the sewage treatment systems in the Catchment should continue efforts to reduce current levels of nutrient loads discharged into the Catchment.
- ▼ SCA should continue the process of understanding the causes of the 'high' incidences of algae in the water storages of the Kangaroo River (priority), Wingecarribee River (priority) and Lake Burragorang sub-catchments, to help ensure that specific management strategies are in place for the short, medium and long-term in each sub-catchment.
- ▼ SCA should investigate the causes of the continued presence of pathogens in the Nattai River and in the Wollondilly River, Mid Coxs River and Werriberri Creek (priority) sub-catchments.
- ▼ SCA should undertake sampling for the presence of pathogens in the Kangaroo River (priority) sub-catchment.

Managing water resources

- ▼ DWE should work with stakeholders to complete a Water Sharing Plan that covers the Catchment as soon as practicable.

Land condition

- ▼ SCA, DECC and CMAs (Catchment Management Authorities) should undertake programs that address soil erosion and salinity in the areas with identified and observed risk, and integrate them with other programs for riparian and vegetation management where possible.

Ecosystem health

- ▼ SCA should investigate the reasons and drivers for declines in both water quality and macroinvertebrate health in those regions where declines have been documented.

⁵³ NSW Department of Environment and Climate Change (DECC), *2007 Audit of the Sydney Drinking Water Catchment*, Report to the NSW Minister for Climate Change, Environment and Water, 2007, pp 132-133.

- ▼ SCA should review its water quality monitoring and macroinvertebrate sampling programs to ensure that integrated ecosystem monitoring is undertaken in all sub-catchments.
- ▼ SCA should undertake follow-up monitoring at macroinvertebrate monitoring locations that have significantly impaired or severely impaired AusRivAS ratings.

General

- ▼ The frequency of the Audit should be changed to every three years from 2009 to align with State of the Environment (SoE) and Monitoring, Evaluation and Reporting (MER) timeframes.
- ▼ Opportunities for the development of common or complementary indicators between the Audit SoE and MER reporting processes should be examined.
- ▼ SCA, DECC and CMAs should continued to work to establish a spatial information system to track and record information on all ground works being undertaken or funded by Government for the purposes of water quality and ecosystem health management in the Catchment.

Glossary

2005 Determination	<i>Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report, September 2005 (Determination Nos 5, 6 and 7, 2005).</i>
2008 Sydney Water Determination	<i>Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services from 1 July 2008, June 2008 (Determination No 1, 2008).</i>
Act	<i>Sydney Water Catchment Management Act 1998</i>
BASIX	Building Sustainability Index
BWSA	Bulk Water Supply Agreement
Catchment	Sydney drinking water catchment
COAG	Council of Australian Governments
current determination period	The period from 1 October 2005 to 30 June 2009, as set in the 2005 Determination.
CPI	Consumer Price Index
DECC	NSW Department of Environment and Climate Change
determination	price limits (maximum prices) set by IPART for a given period (determination period)
DWE	NSW Department of Water and Energy
GL	gigalitre
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act 1992</i>
kL	kilolitre

LRMC	Long Run Marginal Cost
Minister	Minister for Water
ML	megalitre
MMA	McLennan Magasanik Associates
NPV	Net Present Value
P-nought adjustment	P-nought is the price at time nought, which is for the first year of the determination period. A P-nought adjustment allows prices to increase more sharply in the first year of the determination period than subsequent years, to reflect a step up in revenue requirement.
RAB	Regulatory Asset Base
REP	Regional Environmental Plan
SCA	Sydney Catchment Authority
Sydney Water	Sydney Water Corporation
upcoming determination period	the period commencing 1 July 2009
WICA	Water Industry Competition Act 2006
WACC	Weighted Average Cost of Capital
X-factor	The rate by which prices can rise or fall over a determination period to account for efficiency gains and/or significant changes in the operating environment (such as new environmental standards or customer service standards).

