



The Hon **Greg Pearce** MLC
Minister for Finance and Services
Minister for the Illawarra

Ref:MC/11/3608

Mr James Cox PSM
Chief Executive Officer and A/Chairman
Independent Pricing and Regulatory Tribunal
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Dear Mr Cox

Thank you for the opportunity to provide input to the Tribunal's current review of prices for Sydney Water Corporation and the Sydney Catchment Authority (SCA), and the review of the SCA's Operating Licence.

Please find attached a Government submission to the review, including as attachments two joint submissions from the Office of Environment and Heritage and the Environment Protection Authority.

Should your officers wish to discuss this submission, they can contact Ms Alison White, Director, Metropolitan Water Directorate in the Department of Finance and Services on telephone 9372 8742.

Yours sincerely

Greg Pearce MLC
Minister for Finance and Services

Robyn Parker MLA
Minister for Environment and Heritage

NSW GOVERNMENT SUBMISSION TO IPART

REVIEW OF SYDNEY WATER'S WATER, WASTEWATER AND STORMWATER PRICES

REVIEW OF THE OPERATING LICENCE AND REVIEW OF PRICES FOR THE SYDNEY CATCHMENT AUTHORITY

including as attachments

JOINT SUBMISSIONS FROM THE OFFICE OF ENVIRONMENT AND HERITAGE AND THE ENVIRONMENT PROTECTION AUTHORITY

The following submission to the above IPART review processes focuses on matters that could potentially reduce financial impact on consumers. This is an area of high priority for the NSW Government and is being addressed by a range of priority actions under Goal 5 of **NSW 2021** - place downward pressure on the cost of living.

The attached submissions from the Office of Environment and Heritage (OEH) and the Environmental Protection Authority (EPA) focus on an area of equally high concern, protecting our natural environment (**NSW 2021** - Goal 22).

The core submission provides background, context and potential matters for IPART's consideration that may mitigate the impacts of price increases proposed by Sydney Water. It also includes reference to some issues related to the application of pricing and competition policy that may mitigate future price impacts and encourage innovation in the water sector, both in relation to Sydney Water and the Sydney Catchment Authority (SCA).

The OEH and EPA submissions provide context for and commentary on environmental regulatory and performance matters in respect of both Sydney Water and the Sydney Catchment Authority that relate to the management and delivery of bulk water, drinking water and wastewater services for the people of greater Sydney and associated impacts on the natural environment (see Attachments **A** and **B**).

The Government understands and respects IPART's independence as evidenced by previous pricing decisions for water utilities that have carefully considered the impacts of price increases on householders, business and industry, and an appropriate response to environmental considerations.

In making determinations, under section 15 of the *Independent Pricing and Regulatory Tribunal Act 1992*, the Tribunal has regard for a broad range of matters including:

- (b) 'the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
- (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
- (k) the social impact of the determinations and recommendations.'

Review of Sydney Water's water, wastewater and stormwater prices

Background and context

The NSW Government is very concerned about the effect of rising utility prices on consumers across NSW. In a time of economic uncertainty, rising power and water bills place additional pressure on household budgets and force families and those on fixed incomes to make difficult choices about their household expenditure.

For these reasons, the NSW Government is calling on IPART to ensure that approved Sydney Water price rises are kept as low as possible.

The Government recognises funding is needed to maintain Sydney Water's infrastructure, expand the water and wastewater network to service new housing developments and to ensure that Sydney Water manages the environmental impact of its activities.

However, we believe that IPART should look carefully at Sydney Water's proposed expenditure, to ensure that all proposed capital projects are necessary, prudent and needed in the timeframes proposed by Sydney Water.

Equally, we believe IPART should ensure that approved operating expenditure reflects the efficient costs of operating Sydney Water. Users should not have to pay for any waste or inefficiency in the delivery of Sydney Water's services.

The Government believes that regulated utilities, such as Sydney Water need strong incentives to delivery productivity and efficiency gains. Given the nature of Sydney Water's role in providing water and wastewater services to the vast majority of households and businesses across Sydney, productivity gains that lower costs not only benefit Sydney Water's users, but also have a role in promoting the economic activity in the broader NSW economy.

We encourage IPART to benchmark Sydney Water's performance against other relevant national and international water utilities. Relevant comparators can provide insight into where Sydney Water is performing well, and identify areas for improvement. We note the very good work IPART has done in other areas, such as transport, in benchmarking the performance of NSW services against those provided in other jurisdictions.

Finally, we believe that IPART should consider whether there are more appropriate tariff structures that provide sustained incentives for households and businesses to reduce their water use. The Government notes the perverse effect of the efforts of Sydney Water's customers to reduce their water use. Sydney Water's costs now have to be spread across a relatively smaller volume of water used – leading to higher charges. For households and businesses that have invested time, effort and money in reducing their water usage this outcome not only appears unfair, but reduces their incentive to invest in further water efficiency measures in future.

This submission notes a number of areas where we believe IPART could consider options for mitigating Sydney Water's proposed price increases.

Bulk water costs - approach to estimating desalination operating costs

The Government endorses Sydney Water's proposed pricing mechanism to adjust costs and prices if the desalination plant is shut down for a time during the pricing period. This will ensure that, over time, the costs to customers associated with desalinated water are not unnecessarily high.

However, an assumption underpinning the Sydney Water submission is that the desalination plant will operate at full capacity throughout the price determination period, and that the resulting operating costs should be factored up-front into water charges each year.

Unless drought conditions return in the near term, the assumed scenario of full time desalination operation may not arise in practice. Basing the price determination on this assumption could lead to substantial over-recovery of charges from customers (estimated to be in the order of \$50 million per year, depending on the cost per kilolitre set by IPART in its price determination for Sydney Desalination Plant Pty Ltd (SDP), or around \$30 per household per year).

Even if any over-recovery is subsequently adjusted as recommended by Sydney Water, this approach:

- risks exacerbating financial hardship at a time when Sydney Water proposes that water charges should increase by CPI plus 15 per cent
- has budgetary implications, since the amount of consolidated revenue required to support pensioner concessions for Sydney Water customers will need to rise in the short term.

The operating regime for the desalination plant was set out in the 2010 Metropolitan Water Plan and incorporated in licence conditions imposed on SDP by its network operator licence under the *Water Industry Competition Act 2006*.

Under the '70/80 rule', the desalination plant is required to operate at full capacity when storages fall below 70 per cent and until storages rise to 80 per cent. Once storages exceed 80 per cent and the proving period is complete, the plant is not required to operate at full capacity again until storages fall below 70 per cent.

The Government suggests that IPART considers further the likelihood of the desalination plant operating at full capacity throughout the price determination period in line with the 70/80 rule, and the methods for responding to uncertainty regarding storage levels. In this regard, we note that dam levels were at 78.6 per cent as at Thursday 27 October 2011.

There may be other options for responding to the lack of certainty that could reduce the impacts on customers, for example:

- IPART could have regard for historical patterns and, importantly, the most up-to-date data regarding storage levels, since this has a significant bearing on ensuing storage levels. Such analysis could inform the estimation of desalination operating costs and the setting of charges with a view to possibly reducing up-front price increases for Sydney Water customers.

Should actual operation of the plant differ from forecast, any additional costs incurred by Sydney Water could be recouped in arrears, for example by using the

same adjustment mechanism proposed by Sydney Water to return over-recovered funds to its customers (p111 of the submission).

This approach to estimating operating costs could:

- reduce Sydney Water's projected revenue needs and the level of charges required to recover revenue needs; this would in turn reduce the financial impact on customers
 - ensure Sydney Water and SCA tariffs are appropriately structured, using a more probabilistic approach to desalination operation and resulting drawdown on the SCA storage system
 - reduce the budget implications associated with pensioner concessions.
- Alternatively, an assumption could be made that the desalination plant will operate fifty per cent of the time (thus sharing the risk of uncertainty 50:50 between Sydney Water and its customers). It would then be possible to make an adjustment at the end of each year for 'overs and unders' via the annual indexation adjustment to which Sydney Water refers in its submission.

Such an approach would reduce the size of any adjustment required, compared with a situation in which the desalination plant is assumed to operate 100 per cent of the time but is in fact not operating for a part of the price path period.

- A further option could be to adopt a pricing mechanism that would allow for a review of the **actual** operation of the plant and an adjustment to be made to customers' bills in the following year via the annual indexation adjustment to which Sydney Water refers in its submission. This approach would see the costs to customers reflect the proportion of time the plant was actually in operation over the previous year.

Making such an adjustment would avoid over-recovery in the near term and also reinforce a water conservation message associated with dam storage levels and the operation of the desalination plant.

The Government notes that pricing approaches based on scenario forecasting of operations of the desalination plant are inherently subject to risk. The most important consideration for IPART should be ensuring that Sydney Water is compensated for actual costs incurred, and customers only pay for the actual costs incurred. This minimises business risk to Sydney Water and the risk of overcharging of customers.

The Government notes that IPART is also considering a price determination for Sydney Desalination Plant Pty Ltd prices. The Government recognises the importance of providing certainty of a commercial return on the desalination plant as a stand-alone entity, and notes that ensuring that Sydney Water is compensated for the actual costs incurred in purchasing water from the desalination plant supports such commercial certainty.

Capital expenditure and operating costs

In conducting its review, the Government notes that IPART will engage specialist consultants to assess Sydney Water's past and forecast operating and capital

expenditure. In its issues paper (p60), in relation to discretionary expenditure, IPART states:

'Our operating and capital expenditure consultants may provide a recommendation to us on whether some of this expenditure should be included or excluded in the amounts to be recovered through prices. We will take their recommendations, and the submission from Sydney Water, into account in making our decisions on the allowance for Sydney Water's revenue to be recovered through prices.'

The Government recognises that capital expenditure required to meet mandatory standards is essential. Indeed, deferring essential expenditure on infrastructure risks failing to meet operating and regulatory requirements, and impacting on future generations.

However, it may be possible to defer elements of capital expenditure related to discretionary standards set by Sydney Water where such deferral will not impact negatively on key areas of Sydney Water operations in relation to protection of public health and the environment. It is also important to ensure that all the proposed growth-related capital expenditure is in fact needed over the coming price path. Any reasonable deferral of growth-related capital expenditure into future pricing periods will lead to a reduction in revenue requirements and this in turn will mitigate impacts on prices.

IPART adopted this approach to future growth-related capital expenditure in its most recent pricing determination for Wyong Shire Council in May 2009. IPART's final report states:

'This decision is intended to enable more of the costs of growth-related assets to be recovered through future periodic charges and developer charges, rather than through current periodic charges, and so protect the Council's current customers from substantial price increases.'

In undertaking its review, IPART also states that it will investigate the efficiency of Sydney Water's operating costs and the scope for further efficiency gains over the upcoming determination period.

In relation to operating expenditure and especially labour costs, the Government encourages IPART to make sure the costs proposed by Sydney Water are efficient and appropriate.

While acknowledging that Sydney Water makes broad use of the private sector to deliver services, the Government encourages IPART to ensure Sydney Water does not impose any unnecessary extra costs on its customers by failing to make the best possible use of competitive forces in relation to efficient service delivery.

In undertaking its detailed review and analysis of Sydney Water's operating costs, we further encourage IPART to assess those costs against relevant benchmarks for other comparable entities in the public or private sectors.

A thorough and rigorous approach to analysing both capital and operating expenditure, drawing on the expertise of its specialist consultants, will help IPART to

identify those costs that are appropriately recovered through prices, and minimise bill impacts on Sydney Water's customers.

Factors affecting Sydney Water's financial viability

Given the nature of Sydney Water's activities (i.e. the essential nature of water supply and wastewater treatment), the Government encourages IPART to carefully consider the appropriate return on assets that would be justified on the basis of the systemic risk faced by the business.

Sydney Water has a relatively steady cash flow from a secure customer base – factors that IPART could take into account in setting the return on assets – particularly given the potential impact on household water bills.

Sydney Water's demand forecast is significantly below that of previous submissions. This should be carefully considered in assessing whether there is an ongoing risk of under-recovery for Sydney Water.

Even though historically Sydney Water has incurred significant shortfalls in sales compared to forecast, there now appears to be relatively little downside risk as consumption is at historical lows.

The Government considers it important that IPART ensures Sydney Water's demand projections are robust so as to avoid over-recovery of revenue from customers in the event that actual water consumption is higher than projected.

Using innovative procurement to deliver services at least cost to consumers

DFS would also welcome the opportunity to work with IPART and the water sector on investigating options that promote more efficient outcomes and reduce costs to water customers through innovative procurement approaches, such as those used in the electricity sector.

The approach adopted under the National Electricity Rules requires transmission network service providers (TNSPs) to undertake and publish the results of an annual planning review that forecast constraints and inability to meet network performance requirements.

This allows the market to identify potential demand management solutions to network constraints. The TNSP can issue a 'request for proposals' for augmentation or non-network alternatives to address these constraints.

A similar approach could be considered for the water industry. For example, IPART might consider imposing a requirement on Sydney Water (and Hunter Water) to issue a 'request for proposals' before they make any significant investments in wastewater systems. If solutions were identified that could deliver equivalent services at lower cost, such options could be delivered by the private party working in its own right using the framework provided by the *Water Industry Competition Act 2006* (WIC Act), or working 'for and on behalf of' the water utility'.

Implementing a policy such as this may be a means to encourage well targeted private sector investment, introduce greater 'competition' with business as usual approaches, and reduce pressure on prices for Sydney Water customers.

Review of prices for the Sydney Catchment Authority

Ensuring price increases are kept to a minimum while maintaining a safe and reliable water supply is a concern for Government. The SCA's submission to IPART proposes to limit price increases as close as possible to the Consumer Price Index. This commitment to minimise the impact of its prices on the end consumer where possible is commendable.

Ratio of fixed:usage charges

There is a direct relationship between the proposed changes to both SCA's and Sydney Water's prices and how these may impact on prices paid by the end customer.

The SCA submission proposes (as it did in 2008) that the ratio of fixed:usage charges should be set at 80:20. That is, 80 per cent of revenue needs would be recovered through fixed charges while 20 per cent of revenue needs would be recovered through the volumetric charge. The current ratio is 60:40 while, under the previous SCA price determination, the ratio was 20:80.

The high ratio of fixed:usage charges proposed by the SCA increases the risks faced by Sydney Water and may warrant IPART's consideration, having regard for the follow-on implications for water affordability for residential customers.

With the introduction of competition in the water industry, consideration may also be also warranted as to the possible implications for third party entrants when setting the ratio of fixed:usage charges for the SCA (and Sydney Water). A low SCA usage charge may deter potential new bulk water suppliers and DFS suggests that IPART have regard for such possible implications when setting tariff structures.

Scarcity pricing

In relation to scarcity pricing, DFS agrees with the SCA that the introduction of scarcity pricing is not warranted at this time and notes that such an approach is not necessary to organise the elements of the water portfolio given that this role is fulfilled by the Metropolitan Water Plan.

DFS also considers that imposing scarcity pricing at the wholesale level would create significant revenue risk for Sydney Water. This could impact the rate of return required to provide sufficient revenue streams and financial certainty for Sydney Water. This in turn could have adverse implications for household water bills.

Further, DFS notes that, should IPART adopt a pricing approach that would see Sydney Water's customer bills reflect the actual operation of the desalination plant the previous year, such an approach could be considered to constitute a simple form of drought surcharge. This approach could address some of the concerns that have been expressed by the Productivity Commission and others regarding the cost of restrictions, but without the administrative complexity and financial implications (for utilities and households alike) of more complex approaches to scarcity pricing.

Review of the Operating Licence for the Sydney Catchment Authority

Governance and reporting arrangements

Since the last major review of the SCA's licence the water market in Sydney has undergone a fundamental shift. With the commencement of the *Water Industry Competition Act 2006* there has been an increase in recycling schemes and under the Metropolitan Water Plan desalinated water has been introduced into Sydney's supply mix. The manner in which bulk water supplies operate is described in the 2010 Metropolitan Water Plan and this approach is reflected in the licence conditions applicable to the Sydney desalination plant.

In light of these changes, IPART is seeking comment on whether it remains appropriate for the SCA licence to 'contain detailed arrangements for governing the water supply market'.

While its operating licence includes requirements on the SCA to estimate yield and to operate its system in accordance with operating rules, these roles are distinct from the whole of government process that underpins the development of the Metropolitan Water Plan.

That planning process is used to identify the optimal mix of supply and demand measures to deliver water services at least cost. Once a portfolio of measures is agreed in the plan, the SCA estimates yield on the basis of that whole of government decision. In that sense, the SCA is not solely responsible for long term planning, though it makes a major contribution to the process.

As no major changes to bulk water supply governance arrangements in greater Sydney are envisaged in the near term, DFS supports the Tribunal's proposed approach of maintaining the SCA's existing licence obligations and revising them in future as appropriate.

That said, DFS considers that there is value in developing standard reporting requirements for bulk suppliers such as the desalination plant and other large suppliers of drinking and recycled water.

Such conditions could require water service providers to report regularly to government in relation to volumes of water supplied (drinking and otherwise) and intentions regarding planned outages.

Centrally collected data of this type will facilitate water planning (including tracking progress against the Metropolitan Water Plan) and, importantly, drought management. These matters will be further considered by DFS in the forthcoming review of the *Water Industry Competition Act 2006* and recycled water regulatory arrangements.

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

**Submission from the
Office of Environment and Heritage
and the
Environment Protection Authority**

October 2011

EXECUTIVE SUMMARY

The impact of sewage systems on the health of Sydney's waterways has been reduced significantly over the last 30 years. Ocean bathing beaches are now safe to swim at most of the time, Sydney Harbour water quality has improved, Blue Mountains streams have improved, sewage treatment plant discharges to the Georges River eliminated, the frequency of sewer overflows is being progressively reduced and, in the Hawkesbury Nepean, toxic blue green algae blooms have largely been eliminated. These improvements have been due to progressive programs working towards meeting long term environmental objectives for our waterways. However, there is still significant improvement required to meet the community's expectations in some areas, and maintaining improvements as population and urbanisation increases is a particular challenges.

Over the price determination period, existing environmental requirements will continue and two regulatory matters will be reviewed. No new environmental requirements significantly impacting on planned expenditure are currently anticipated. The Environment Protection Authority (EPA) and Sydney Water Corporation (SWC) have agreed to review the approach to regulating sewer overflow performance, and the discharge of nutrient loads to the Hawkesbury-Nepean River.

Both of these issues are areas where significant gains have been made to date, but increasing population, potential for diminishing environmental value for money, and changes in technology have led to the need for a review. The reviews have commenced, and are aimed at providing the certainty and flexibility to allow least cost achievement of environmental requirements.

The Hawkesbury-Nepean River is an important focus for OEH programs and EPA regulatory effort as the river is an important asset for drinking water, recreation, agriculture and fisheries, tourism, and mining, as well as an ecological asset adjoining the World Heritage listed Blue Mountains. Demand for water and increased pressure due to land use change, means that there are significant stresses on the river. Reduced river flows and elevated nutrient levels are the two major drivers for aquatic weeds and algae. Unless well managed, nutrient sources could continue to intensify in the future, with potential increases associated with the forecast population growth for Western Sydney.

The EPA regulates pollution of water under the *Protection of the Environment Operations Act 1997* (POEO Act), and the Hawkesbury Nepean River has been a focus for nutrient management for the past twenty years. There are a range of programs to reduce and regulate the sources of nutrients into the river. Sewage effluent is an important contributor to the nutrient levels in the river because of the continuous nature of the discharge, and the readily bioavailable nutrients in sewage effluent. The EPA's aim is to ensure that the nutrient load from Sydney Water is regulated in a manner that reflects its share of impacts on river health, and so that gains made to date through improvements through regulatory initiatives and other Government initiatives, such as the implementation of environmental flows and urban stormwater requirements, are not reduced.

The EPA approach to regulating SWC has been to develop progressively work towards achievement of ambient environmental objectives using efficient, cost effective regulation that promotes pollution abatement across sources at the lowest overall cost to the community. The EPA's regulatory approach involves polluter pays (through load based licensing), ongoing improvements (through pollution reduction programs) as well as the use of economic instruments such as trading schemes. The EPA is committed to working with SWC to establish a workable and cost-effective compliance path.

1. Introduction

The Office of Environment and Heritage (OEH) and the Environment Protection Authority (EPA) appreciate the opportunity to make this submission to the Independent Pricing and Regulatory Tribunal (IPART) on the review of the prices for Sydney Water.

OEH is a separate office within the NSW Department of Premier and Cabinet supporting the Premier, the Minister for the Environment and the Minister for Heritage in performing their executive and statutory functions. OEH was formerly known as the Department of Environment, Climate Change and Water (DECCW), and develops and leads policy and reform in sustainability, biodiversity and native vegetation, coastal protection and Aboriginal cultural heritage. OEH also manages 6.8 million hectares of national parks and reserves across NSW. Specifically it manages the Special Areas on behalf of SCA which helps to protect water quality in Sydney's drinking water catchments. OEH also now incorporates the Heritage Office which works with communities to identify important places and objects and provides guidance in looking after heritage items. The organisation also provides staff, services and other support to the Royal Botanic Gardens and Domain Trust, the NSW Environmental Trust and the Lord Howe Island Board.

The EPA is the new, separate and independent environmental regulator announced by the Government on 5 October 2011, and is the primary environmental regulator of the SCA under the Protection of the Environment Operations Act 1997.

Both the OEH and EPA have a direct interest in the environmental performance of Sydney Water due to its sewage management and for its contributions to water use efficiency and sustainability. This joint submission from the OEH and EPA therefore provides information to IPART to support its deliberations, particularly where those deliberations relate to:

- the funding necessary to allow Sydney Water to meet its statutory obligations to protect human and environmental health
- Sydney Water's contribution to the Government's 2010 Metropolitan Water Plan
- Sydney Water's other activities related to the environment.

This submission primarily focuses on environmental standards and efficient expenditure as raised in section 6.4 of IPART's Issues Paper. The submission also purposely identifies where an issue is of interest to either OEH or EPA or both. The submission identifies the relevant question number posed in the IPART issues paper or the relevant section number from the IPART issues paper in brackets after each heading.

2 ENVIRONMENTAL STANDARDS AND EFFICIENT EXPENDITURE (IPART 6.3)

NSW has established a regulatory framework for managing environmental impacts that is progressive and consistent with best practice regulation principles and cost-effective.

The framework includes outcome-based environmental requirements, pollution reduction programs, innovative economic instruments such as load-based licensing, tradeable credits and offsets, and financial assurances to complement the traditional regulatory regime and help ensure more integrated and less expensive environment protection. These instruments promote least-cost achievement of environmental outcomes by providing maximum compliance flexibility and mechanisms to align marginal abatement costs across sources.

Consistent with NSW Government practice, published regulatory impact assessment including cost-benefit analysis is used to ensure that regulatory requirements generate benefits for NSW that are substantially greater than their costs. Transparent consultation is carried out with those who will be affected, to harness their self-interest to ensure compliance costs are understood and benefits substantiated.

2.1 EPA approach to environmental regulation and key legislation

The EPA's regulatory approach is underpinned by four main elements. These are:

- performance and risk-based requirements – designed to minimise public health exposure, protect aquatic ecosystems and prevent future problems
- progressive improvements where impacts are of concern – often through pollution reduction programs for agreed outcomes over agreed timeframes, options studies and monitoring
- economic instruments for least-cost outcomes – to provide least cost compliance flexibility
- ongoing expectations – that all plant and equipment is maintained and operated in a competent manner.

The Protection of the *Environment Operations Act 1997* (POEO Act) is the key piece of environment protection legislation administered by the EPA. The POEO Act sets out the activities that must hold an environment protection licence and Sydney Water is required to hold a licence for its sewerage systems as they have a capacity greater than 750 kilolitres per day. The POEO Act also sets out the matters that must be considered by the regulator when a licensing decision is made and those matters particularly relevant to sewerage systems include:

- the pollution being caused
- the likely impact of that pollution
- the practicable measures to mitigate the pollution
- the environmental values of the waterway
- any economic instruments in place.

The POEO Act is closely linked to the planning system via the *Environmental Planning and Assessment Act 1979* (EP&A Act) and licenses issued under the POEO Act must be consistent with conditions imposed on proposals assessed under the planning system. Decisions on licensing matters must take into account public submissions received through the planning assessment process.

2.2 Policy Framework for regulatory decisions on water pollution

The EPA's policy framework for regulatory decisions on water pollution is to take performance-based approach that provides maximum compliance flexibility to select least cost options for compliance with environmental protection requirements, with requirements taking into account the environmental pressures and issues across a catchment. This approach ensures that regulatory requirements are proportionate to the impact of the discharge and integrate with other programs that may be in place in a catchment such as stormwater programs, agriculture, on-site sewage management and river restoration activities.

The EPA's environmental regulation is based on the NSW Government's principles for best practice regulation in particular:

- environmental objectives are established and clear
- alternatives are routinely considered along with the proposed option
- costs and benefits are analysed and well understood. Analysis of proposed regulations and alternatives are systematically undertaken, quantifying the environmental and health benefits of emission reductions to determine cost benefit ratios and net present values where possible
- requirements are proportional to the environmental issue being caused
- regulations are routinely reviewed to reduce regulatory burdens.

Alternatives to regulations, in particular, market-based instruments, have been actively pursued in order to reduce regulatory compliance costs.

2.3 Case studies on least cost frameworks for environmental regulation

Four case studies are presented in Appendix 1 to illustrate the EPA's use regulatory frameworks that focus on achieving environmental outcomes in a least cost framework and how the regulatory framework is moving to a performance-based model. The case studies are:

- Hunter River Salinity Trading Scheme (HRSTS) as an example of an economic instrument for managing water quality
- South Creek Bubble Licence and Nutrient Trading Pilot
- Load Based Licensing
- Toxicity Testing Reforms.

2.4 Environmental values and objectives

As noted above, under the POEO Act the environmental values of a waterway are one of the matters that the EPA is required to take into account in its licensing decisions. For each catchment in NSW, the State government has endorsed the community's environmental values for water, known as 'Water Quality Objectives'. They set out the community's values and uses for our rivers, creeks, estuaries and lakes (i.e. healthy aquatic life, irrigation, water suitable for recreational activities like swimming and boating, and drinking water); and a range of water quality indicators to help assess whether the current condition of our waterways supports those values and uses.

The water quality objectives were adopted by the Government in 2000 following extensive consultation with the community and supporting analysis of cost implications. A similar process produced the Marine Water Quality Objectives for NSW oceanic waters, agreed to by the NSW Government in 2005.

The environmental values, expressed as Water Quality Objectives, provide goals that help in the selection of the most appropriate management options. The guiding principles are that:

- where the environmental values are being achieved in a waterway, they should be protected
- where the environmental values are not being achieved in a waterway, all activities should work towards their achievement over time.

Consideration of the community's values and uses of waterways, as one consideration in when assessing and managing the likely impact of activities on waterways, is consistent with the policy and principles of the National Water Quality Management Strategy.

Sydney Water contributes to achievement of environmental objectives for catchments within the regulatory envelope for its share of the pollutant inventory. The EPA's regulatory framework for Sydney Water is designed to progressively reduce pollutant discharges over time where necessary, and to ensure there is no deterioration in the ability of a waterway to meet the community's expectations with population and economic growth.

The types of environmental values and uses protected by water quality objectives are shown in Box 1.

Box 1 Environmental values and uses protected by water quality objectives

	Aquatic ecosystems
	Aquatic foods (cook before eating)
	  Drinking water at point of supply
	
	Irrigation water supply
	Livestock water supply
	Primary contact recreation
	Secondary contact recreation
	Visual amenity

Other programs and initiatives that take into account environmental values and water quality objectives for catchments include:

- NSW 2021
- Metropolitan Strategy
- Metropolitan Water Plan
- Hawkesbury-Nepean River Health Strategy and Catchment Action Plan
- As a reference point in planning assessments.

3 ENVIRONMENTAL AND REGULATORY CONTEXT FOR SYDNEY WATER

The EPA undertakes ongoing reviews of licences and agreed programs to improve environmental performance and program efficiency. Sydney Water's 23 sewage treatment system licences were reviewed in 2010.

As a result of the review, two key areas were identified by the EPA as priorities to build on programs and environmental achievements to date. These are:

- a new approach to managing the discharge of nitrogen to the Hawkesbury-Nepean
- a new targeted approach to regulating sewer overflows.

Sydney Water has agreed to the development of new programs on both of these matters. This section provides the background to these decisions, while Section 4 provides more detailed information on the programs being developed and a number of smaller issues that arose during the review of Sydney Water's sewage treatment system licences.

The EPA does not expect either of these initiatives to lead to any increases in Sydney Water's costs of meeting environmental requirements in the current price path. Both initiatives will lead to better targeting of expenditure and more cost effective mechanisms to meet environmental standards over time.

3.1 Public Health and Environmental Context

There has been significant improvement in the environmental performance of Sydney Water's sewerage systems and many of the priority issues from the past have been largely resolved including:

- Beachwatch annual reports show that beach and harbour water quality has improved
- Hawkesbury Nepean – monitoring by Sydney Water and others shows that blue-green algae blooms are now rare. STP effluent toxicity has been assessed and reduced.
- Blue Mountains STPs have been closed and Sydney Water monitoring shows that creeks have recovered
- All dry weather sewer overflow upgrades are complete
- 20 of 27 systems have completed wet weather sewer overflow upgrades.

Sydney's ocean and beach pollution has significantly improved since the ocean outfalls were built, with overflows from sewerage systems near beaches and the Harbour targeted and, where necessary, new infrastructure constructed such as the North Side Storage Tunnel. Results from the Beachwatch and Harbourwatch Programs show that, most of the time, Sydney's beaches and Sydney Harbour are clean and safe for recreational use. However, monitoring shows that beaches are contaminated after rain and these impacts are most apparent at some estuary sites. Wet weather sewage overflows and stormwater remain the main concerns for protecting the health of swimmers.

The health of Sydney's estuaries and rivers, particularly the Georges River, has improved with the elimination of sewage treatment plant discharges to the river and reductions from sewer overflows. Similarly, Blue Mountains streams have improved with the elimination of sewage treatment plant discharges. The Cooks and Parramatta Rivers have also benefited from reduced sewer overflows. In all these catchments, the reduction of the impacts from sewerage systems has been complemented by initiatives to improve the quality of urban stormwater.

The Hawkesbury Nepean River has benefited from improvements in sewage treatment plants to reduce the loads of nutrients discharged to the river and the toxicity of effluent over the past two decades. However, priority attention is needed to ensure that regulatory frameworks have the capacity to manage future pressures on the Hawkesbury Nepean River as discharges increase due to population growth and, in established areas, as population growth places pressure on the capacity of existing sewer systems.

There are a range of pressures on Sydney's waterways including high population and growth rates, urban stormwater, sewerage system discharges, tourism and recreation impacts, discharges of pollutants, land use changes and practices, and discharges from diffuse sources of pollutants. Combined with a complex system that has significant maintenance needs these pressures could result in increased environmental impact and abatement costs, both to industry and the general community unless well managed.

3.2 Pressures on the Hawkesbury Nepean River

The demand for water and the increased pressure from land-use change mean that there are significant stresses on the river downstream of Sydney's major dams in the Hawkesbury Nepean catchment. There are a number of factors contributing to the current health of the lower Hawkesbury-Nepean, but reduced river flows and elevated nutrient levels are two major drivers.

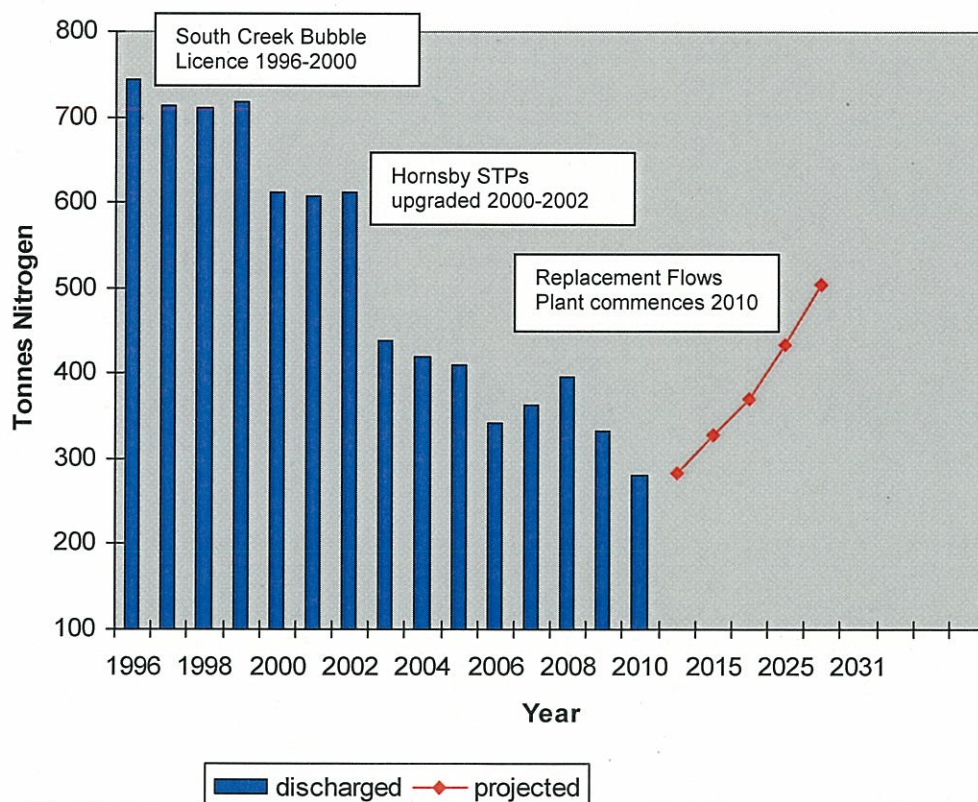
The impact of increased levels of nutrients – predominantly nitrogen and phosphorus – is most evident in the excessive growth of algae and aquatic weeds which can severely constrain recreation and commercial uses of the river, and affect aquatic life. There are two sources of nutrients entering the river, discharges from sewage treatment plants and runoff from various land uses.

The environmental impact of nutrients on the river is complex and influenced by a range of factors including the timing and location of discharges, and the bioavailability of the nutrients. Discharges from sewage treatment plants occur at all times during high and low flows and tends to have relatively high bioavailability. Runoff from land uses tends to occur during wet weather and its bioavailability varies widely depending on the source.

Sydney Water has significantly reduced nutrient loads from sewage treatment plants since the mid 1990s. Phosphorus loads have fallen by about 75% with some treatment plants now discharging near in-stream water quality objectives and others operating near the limits of installed technology. Nitrogen loads have fallen by about 45% over a similar period. The EPA aims to ensure that the environmental gains made through these investments and other programs, are not eroded by increasing loads from sewage treatment systems due to population growth.

Figure 1 illustrates how nitrogen loads have fallen significantly since the mid 1990s and how the load could increase if a 'business as usual' approach was taken to regulating the nitrogen load from sewage treatment plants, due to increasing population.

Figure 1: Hawkesbury Nepean River past and projected nitrogen levels



The Hawkesbury-Nepean River Environmental Monitoring Program – Final Technical Report (DECC 2009) indicated that:

- Long-term environmental monitoring data shows some improvements in water quality including improvements from what has been very poor water quality in some areas.
- Within the river, Phosphorus levels have markedly improved throughout most of the river system, although levels remain elevated at some sites. Nitrogen levels have also

- improved at many sites, but often remain well above levels needed to achieve water quality objectives at many sites throughout the river system.
- Algal blooms have been common in the past, making the river, at times, unsuitable for swimming, water skiing, boating and irrigation. Toxic blue-green algae are being replaced by non-toxic species in the river.
 - Aquatic weeds occur extensively throughout the river system and have become more abundant, particularly *Egeria densa* in the reach around Richmond and Windsor.

The OEH and EPA agree that improved management of nutrient loads from all sources is needed as aquatic weeds have become more abundant in recent years and there is a continuing history of algal blooms in the river.

Increased nutrient loads could result in increased costs to local industry and the general community as a result of:

- reduced access to the river for humans and livestock
- clogging of irrigation pipes due to weed fouling
- impeded boat navigation due to weed colonisation of main channels
- increased need for weed harvesting and chemical control
- fouling of fishing nets by weeds requiring increased fishing effort
- decline in commercial fish species
- health risks due to a higher risk of toxic algal blooms
- reduced opportunities for recreational uses of the river such as swimming, water skiing and boating.

As an example, the cost of controlling the *Salvinia* outbreak in the Hawkesbury River in 2004 was estimated to be over \$1.6 million. The cost was covered by various agencies, including contributions from the National Heritage Trust, Department of Primary Industry, Department of Infrastructure, Planning and Natural Resources and New South Wales Treasury. This figure does not include the in-kind costs from the contributing agencies.

Currently, annual costs of funded algal harvesting operations are approximately \$400,000 and if conditions were to deteriorate the costs of weed management would escalate.

3.2.1 Community preferences for the Hawkesbury Nepean

Consistent with the National Water Quality Management Strategy framework, the community's view on the Hawkesbury-Nepean and the specific uses that it wants for the river have been established. Broadly, the community wants to be able to fish, swim and boat in most of the river most of the time. This objective was established in the late 1990s and has been reiterated in numerous community fora since.

Water quality objectives were established for the Hawkesbury-Nepean River System through the Healthy Rivers Commission public inquiry in the late 1990s. The community's preferences were reflected in the set of environmental values and associated water quality objectives determined for the river and its tributaries through this inquiry. The objectives were defined and adopted by the NSW Government and are consistent with the agreed national framework for assessing water quality set out in the Australian and New Zealand Environment and Conservation Council 2000 Guidelines.

A number of more recent consultation processes have reinforced these community preferences. The Hawkesbury-Nepean River Management Forum worked from 2002 to 2004 and made recommendations to the government on provision of environmental flows from dams on the Hawkesbury-Nepean River. The Forum drew from a wide range of interested and informed members of the community and government.

The development of the Hawkesbury-Nepean Catchment Management Authority Catchment Action Plan 2007 - 2016 involved a broad consultative and inclusive process including

stakeholder refinement of the environmental values. This involved 110 organisations and close to 400 participants in ten community technical meetings, two forums and 20 structured workshops. The community's concerns about the condition of the river were also highlighted in the Hawkesbury-Nepean River Summit organised by the Hawkesbury City Council in 2008.

In 2009 the Government established the Office of the Hawkesbury-Nepean to coordinate Government action to improve the river. One of the aims was to facilitate a greater understanding within government about community views on the river and its management, through its stakeholder committee, as well as other public consultation activities to ascertain the views of the public and specific stakeholders about river management strategies.

A significant consultation exercise was undertaken in 2009 as part of the review of the NSW Government's Metropolitan Water Plan. The purpose of the review was to ensure there was enough water, throughout the prevailing drought and into the future, for Sydney, the Blue Mountains and the Illawarra. The Plan is also concerned with helping protect the health of the rivers impacted by Sydney's drinking water dams, including the Hawkesbury-Nepean River. An Independent Review Panel oversaw community consultation.

3.2.2 Economic Values of the Hawkesbury Nepean

The Hawkesbury-Nepean River directly helps to generate over \$230 million worth of goods and services produced, with many industries, commercial and recreational activities being directly dependent on the health of the river. These activities rely on the water quality, quantity and aquatic ecosystem health of the river being suitable for the uses of the river. The Hawkesbury-Nepean River supports the second largest commercial coastal fishery of prawns, oysters and fish in NSW, with a wholesale value of \$6.3 million annually. Tourism is also a major growth industry in the area, with total tourist expenditure valued at around \$1 billion annually.

Recent studies have indicated the economic values behind the community's preferences for a healthy Hawkesbury-Nepean River system.

A report for NSW Department of Environment and Climate Change in 2006 by AgEconPlus estimated the economic value of the direct uses of the Hawkesbury-Nepean water resources (excluding any value from the use of the water resources by either Sydney Catchment Authority or Sydney Water). Recreation and tourism were estimated to have a combined consumer and producer surplus of over \$90 million per annum. Measured on the same basis (i.e. producers' surplus rather than a gross value estimate) agriculture irrigated from the Hawkesbury-Nepean River was valued at around \$10 million per annum.

The Hawkesbury Nepean catchment was chosen in 2008 for a willingness-to-pay study using the choice modelling environmental valuation technique by the Crawford School of Economics and Government at the Australian National University. The study was provided to assist investment decisions by the Catchment Management Authority. The study estimated that the community was willing to pay in excess of \$110 million to improve the health of the waterways in the Hawkesbury-Nepean catchment.

3.2.3 Other programs to manage nutrient inputs to the Hawkesbury-Nepean River

The regulation of discharges of wastewaters into the Hawkesbury-Nepean river system by EPA, is co-ordinated with OEH input into broad scale water and land use planning processes and decisions, and supports the implementation of a range of other programs to improve water quality. The lower Hawkesbury Nepean Nutrient Management Strategy (DECCW 2010) draws together the range of initiatives underway to manage nutrient loads into an overarching framework. The Strategy identifies priority actions and nutrient sources as well as strategic priority areas for the development of new actions.

Priority diffuse sources of nutrients nominated by the Strategy include urban stormwater, agricultural practices, on-site sewage management systems, sewage treatment systems, and degraded land and riparian vegetation. Programs such as the Hawkesbury Nepean River Recovery Program and work of the Hawkesbury Nepean Catchment Management Authority on degraded land are identified.

3.3 Sewer overflows

Recreational water quality can be affected by a range of factors including from sewer overflows and treatment bypasses, on-site sewage management, urban stormwater runoff, animals and rainfall. Figures 2 and 3 below are an analysis of beach water quality data by Beachwatch and clearly show a marked improvement in recreational water quality at Sydney beaches and Harbour swimming sites coinciding with the commencement of Sydney Water's sewer overflow abatement program in 2000.

Figure 2 – Recreational Water Quality (95%ile) at Sydney Beaches 1995 to 2010

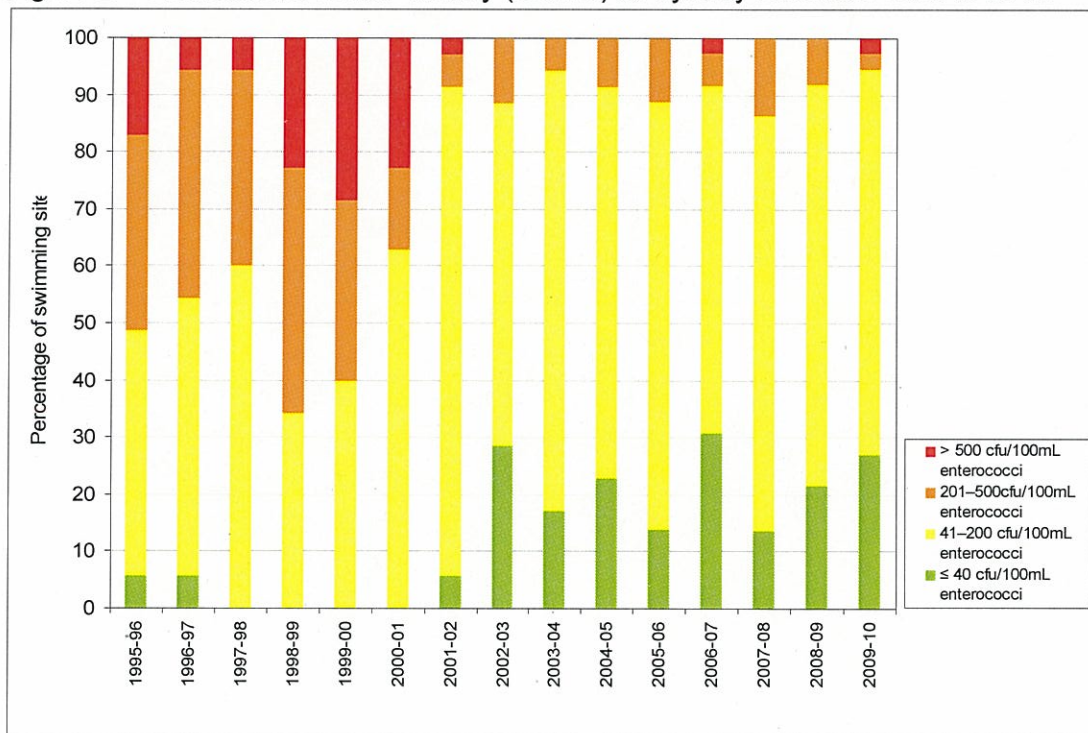
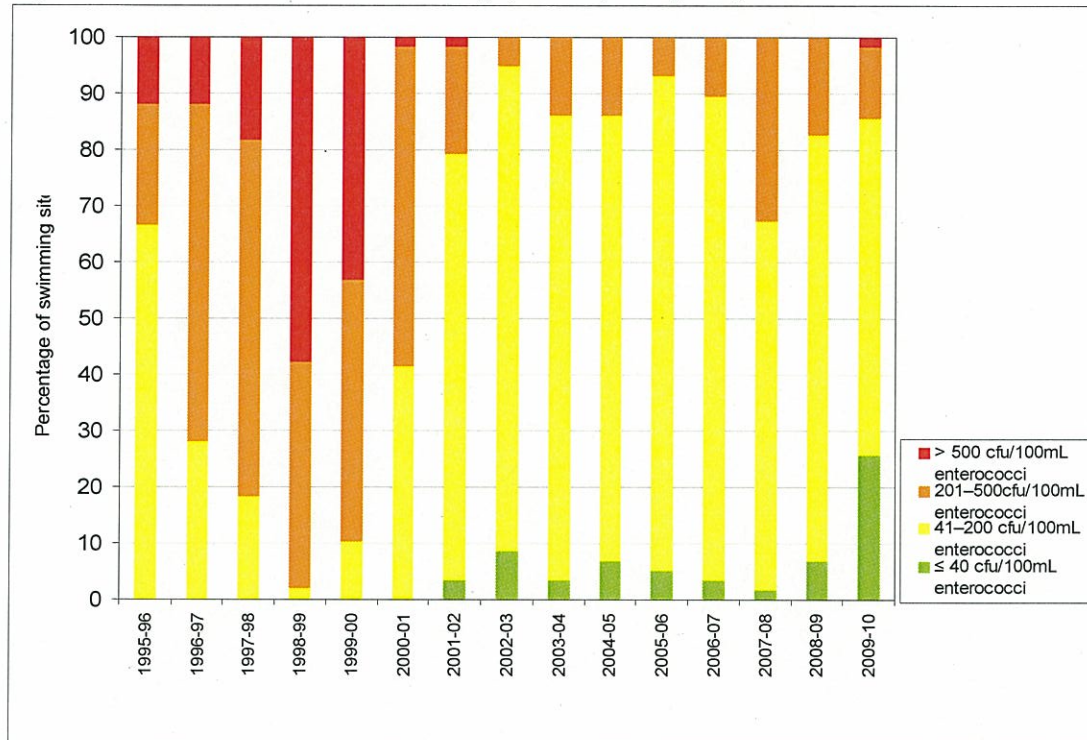


Figure 3 – Recreational Water Quality (95%ile) at Sydney Harbour beaches 1995 to 2010



Existing environment protection licence requirements have been successful in abatement of many overflows in priority areas and those with cost effective and operationally and technically simpler solutions. Much of the work to achieve targets for 2021, which were set through an Environmental Impact Statement process in 1998, have been achieved. Dry weather overflows (high public exposure) from pumping stations are now largely eliminated, and 20 out of 27 systems meet wet weather requirements.

The current licences place limits or targets on sewer systems as a whole, and were not tailored to reflect the requirements of local recreational or environmental sites. This means that while the licence requirements reflect the best information available when they were set, the link between the current limits and environmental outcomes is not optimal.

Further, the current requirements do not provide a clear indicator of emerging problems. Impacts on ocean bathing beaches have been significantly reduced but some sites, particularly in estuaries still require improvements to be graded as good or very good.

Costs are now potentially increasing to meet the original licence requirements for the remaining systems. To ensure that outcomes are delivered in an affordable and cost effective manner, the EPA is now discussing the review of sewer overflow licensing requirements with Sydney Water. The focus will be on recreational waters and sensitive environmental sites that are at risk from continued sewer overflows.

4 EPA ENVIRONMENTAL AND REGULATORY PRIORITIES

No change in environmental requirements impacting on planned expenditure is anticipated over the price determination period. However, OEH and SWC have agreed to review the approach to regulating the discharge of nutrient loads to the Hawkesbury-Nepean River and sewer overflow performance.

4.1 A new approach to managing Sydney Water's Nutrient Discharges to the Hawkesbury-Nepean River

The EPA has commenced discussions with Sydney Water to develop a long term, flexible and cost-effective mechanism for managing Sydney Water's contribution to nutrient loads in the Hawkesbury-Nepean River. This work will build on the South Creek bubble load limits to put in place a catchment wide load limit, allowing Sydney Water to find the most cost-effective approach to meeting the limit using approaches such as recycling, changes in technology or using offsets.

The EPA has proposed that a Pollution Reduction Program be developed to provide a structure for work towards an agreement on a final load limit in 2015. The Pollution Reduction Program will outline an agreed program of work that would provide the scientific, economic and planning information to allow finalisation of the load limit and regulatory framework.

The EPA has proposed that the framework will build on modelling and research to develop an environmental flow regime for Warragamba Dam and enable comparisons of the impacts of nutrients from different sources and locations and future scenarios. The EPA will also work with OEH to consider how complementary measures for cost effective emission reductions from other sources, and methods for ensuring competitive neutrality for private sector sewerage service providers might be implemented as a part of the regulatory framework.

It is intended that current SWC nutrient emission limits and licence conditions will apply up to 2015/16. Arrangements will be put in place so that investment in existing system capacity is accommodated and any new regime is not pre-empted by new proposals for augmentation. Economic analysis of the load limit and consideration of Sydney Water's sewerage servicing strategy for western Sydney will be included in the work program.

The EPA has also proposed that during the period it takes to finalise the framework options will be tested using real emission data and infrastructure strategies to provide a test framework for developing an understanding of implementation issues, costs, environmental outcomes, and other implications of a load limit.

4.2 Sewer overflow requirements

The EPA and Sydney Water are also discussing a strategic review of the wet weather sewage overflow program, which may result in both policy and regulatory changes to the management of wet weather overflows.

The terms of the review are still being finalised with Sydney Water, but it will include examination of the environmental achievements of the program to date, as well as the cost effectiveness of further overflow abatement works required to meet the current long term objectives. The aim is to build on work to date to develop new approaches to determining the need for abatement work, to be better targeted to the specific needs of sites such as high recreational use and environmentally sensitive areas. Initially, new licence conditions may be used in a pilot scheme across the 4 large coastal sewer systems. While the review is progressing the current licence provisions will continue.

The review will examine all options for licence requirements related to wet weather overflow performance including the potential for new regulatory indicators that could replace or complement current overflow frequency targets. It is expected that this work will be informed by both local and international practice. The costs and benefits of different approaches and requirements will be a part of the review.

The dry weather overflow provisions included in the 2010-2015 licences are not a part of the strategic review. However, the EPA continues to work with Sydney Water to ensure that the dry weather overflow provisions in the licences are operationally sound.

In 2010 new licence conditions for dry weather overflows were introduced on 13 large sewage treatment systems including reporting requirements on sewer sub-catchments when overflow numbers exceed specified targets. The revised regulatory requirements generally reflect the performance achieved to date, were developed consistent with previously agreed procedures, and are consistent with the agreed long term targets.

4.3 Other recent regulatory changes

As an outcome of the licence review several new licence requirements were negotiated and introduced to address specific issues and licence requirements for monitoring fine tuned. The new requirements included the introduction of three Pollution Reduction Programs to report on:

- educational and technical options to reduce oil and grease in Bondi STP effluent
- short term monitoring of endocrine disrupting chemicals in a limited number of STPs discharging to the Hawkesbury Nepean
- options to improve the nutrient removal from Winmalee STP effluent.

Requirements for monitoring and reporting were reduced where there would be no implications for the environment. This saved Sydney Water in the order of \$50,000 to \$100,000 per year. Toxicity testing protocols provide certainty that toxic chemicals will be identified and provide a mechanism to identify pollutants likely to have an impact on the environment and ensure that licence requirements are targeted on pollutants of concern.

5. OTHER MATTERS RAISED IN THE IPART ISSUES PAPER AND THE SYDNEY WATER SUBMISSION

Meeting discretionary standards and environmental expenditure (IPART s6.5 & 6.6)

IPART seeks comments on how costs related to expenditure that is not directly regulated by IPART or other agencies should be determined. Similarly IPART is seeking input on how costs should be determined in relation to expenditure to meet standards above regulatory requirements and notes that it would expect that broad community support for such expenditure can be demonstrated.

In making its determination, IPART should take into account the statutory objectives for Sydney Water under Section 21 of the *Sydney Water Act 1994* which includes protecting the environment by following the principles of Ecologically Sustainable Development. Section 22 of the Act then describes special objectives (reduce risks to human health and prevent degradation of the environment) and some of the means by which these objectives can be implemented.

The OEH and EPA note that these legislative requirements do not impose quantified standards or benchmarks. IPART may wish to note that in the case of the Special Objectives, the EPA is required to review and report on Sydney Water's progress to achieving these objectives annually.

The OEH and EPA are also aware that many of the environmental activities carried out by Sydney Water flow directly from the Environment Management Plan required under its Operating Licence or other statutory drivers. The OEH and EPA note that the Sydney Water submission provides a detailed explanation of the standards or requirements related to the broad range of its capital expenditure.

Expenditure on Heritage Assets (IPART s6.3)

Sydney Water has statutory obligations under s170A of the *Heritage Act 1977* to maintain a Heritage and Conservation register, and requirements under the Heritage Regulation 2005 to undertake maintenance and repair to State Heritage Register listings. OEH expects state agencies to maintain registered heritage assets in accordance with the State Agency Heritage Guide (2005).

IPART should also note that the *Heritage Act* was amended in 2009 to streamline and reduce administrative costs on State agencies and these amendments were made through the usual Government processes to evaluate the costs and benefits of statutory requirements.

As with any other commercial business, the compliance costs are a component of normal business costs. IPART should Sydney Water's costs associated with the management of heritage assets in the same way as any other statutory obligation. OEH notes that Sydney Water's submission is consistent with this view.

APPENDIX 1

CASE STUDIES ON LEAST COST FRAMEWORKS FOR ENVIRONMENTAL REGULATION

Case Study 1 – Hunter River Salinity Trading Scheme (HRSTS)

The HRSTS is a tradeable emission scheme, with an aggregate limit on saline water discharges by licensed premises to the Hunter River controlled through a system of tradeable discharge credits. While not directly relevant to Sydney Water, the scheme demonstrates the use of a catchment-wide load limit and efficient regime to allocate discharge opportunities such that industry is given regulatory certainty whilst promoting overall compliance costs minimisation.

The scheme was introduced in the context of increasing salt levels from mining operations during the 1990s that were reducing water quality to levels below that suitable for irrigation, and pressures from new mining development that would only exacerbate the problem.

Under the HRSTS, participants can discharge wastewater to the river subject to the number of 'salt credits' they hold. The total salt discharge allowed under the credits is calculated every half hour so that the salt concentration of the river at any time does not exceed the in-stream ambient water quality goal.

This scheme has been highly effective in meeting its environmental objective, with average in-river salinity halved, and no exceedences of water quality goals occurring due to discharges under the scheme.

Recent analysis of the scheme (Pu 2008) has been undertaken relative to the prior policy approach (the trickle discharge licensing arrangements). The analysis indicated that there were net savings to participants in the HRSTS of almost \$50m over the period 1993-2002, relative to the previous approach.

This innovative regulatory instrument has provided a transparent mechanism for balancing the interests of existing and new mines and Hunter River users.

Case Study 2 – South Creek Bubble Licence and Nutrient Trading Pilot

The South Creek Bubble Licensing scheme commenced in 1996, allowing Sydney Water to reduce nutrient pollution in the most cost-effective way between three STPs - i.e. Quakers Hill, Riverstone and St Marys. Effectively an emission trading scheme, the bubble license establishes a limit on the collective nutrient load released by the STPs, rather than specifying individual load limits or pollution control technology requirements. This allows efforts to reduce nutrient pollution to be focused on the means and sources where the costs are lowest.

The scheme has been highly effective in achieving an 83% reduction in total phosphorus and a 50% reduction in total nitrogen, relative to what would have been achieved under the previous licensing arrangements. Importantly, the scheme has achieved these pollution reductions at a cost to Sydney Water of \$45 million less than would have been the case had the pollution reductions been pursued through a traditional tightening of pollution discharge concentration standards.

Increasing population and development predicted for the catchment prompted Sydney Water, in conjunction with EPA, to examine opportunities for nutrient reductions from largely unregulated diffuse source offsets. Diffuse sources such as market gardens and stock grazing activities are significant sources of nutrients into the waterway. This led to the subsequent introduction of a pilot South Creek nutrient trading scheme in 2003. By 2006-07

six offset projects had been undertaken including settlement ponds, a constructed wetland and recycling systems.

The pilot nutrient trading scheme demonstrated that the cost of reducing nutrient pollution from some diffuse sources could be less than the cost of further measures at STPs, although costs vary considerably depending on the offset available and the type of improvement that might be necessary at an STP. Transaction and administrative costs were found to be high, leading to support for continuing to provide for opportunistic offsets under the licensing framework, rather than through a formalised a nutrient trading scheme.

Case Study 3 – Load-Based Licensing

The Load-Based Licensing scheme came into effect in NSW on 1 July 1999. The scheme sets limits on the pollutant loads emitted by holders of environment protection licences, and provides an incentive for 'beyond compliance' emission reductions through the use of load-based pollution fees.

Around ten percent of the largest activities licensed by the EPA that could cause environmental harm are required to pay the fees. The *Protection of the Environment Operations (General) Regulation 1998* sets out the licence fee system and lists assessable pollutants. The load-based licensing system provides the flexibility for licensees to enter into load reduction agreements with the EPA to obtain fee savings in return for future pollutant load reductions.

The fee level is set according to how environmentally harmful the emission is, which will depend on the type of pollutant, the state of the receiving environment, location and, in some instances, timing. In this way, the incentive force of the scheme is focused on the most harmful pollution emissions and associated community impacts.

The load-based licensing system provides a financial incentive to reduce emissions in order to incur lower fees, and provides greater flexibility by allowing licensees to decide whether, and how, to reduce their emission levels.

Case Study 4 – Toxicity Testing Reforms

From 1995 to 2003 Sydney Water was required to undertake detailed chemical monitoring of 114 substances listed under the Water Board (Corporatisation) Act 1994 at all 30 of its STPs.

Using a risk based approach the EPA has reduced the regulatory and financial burden for Sydney Water by modifying the monitoring program so that toxicity testing identifies any risks posed by effluent discharges. Frequent monitoring was undertaken during the initial risk assessment phase, but was reduced from monthly to twice per year from 2000, based on the risk posed by the chemical.

In 2004 a revision to this requirement was negotiated. The focus was changed from chemical-specific monitoring to a combination of effluent toxicity testing and chemical-specific monitoring for only those chemicals found to pose the highest risk at each plant. Effluent toxicity testing more clearly shows the environmental impact of the effluent and accounts for interactions between chemicals in the effluent mixture.

After the 2010 Licence Review, the EPA reduced the effluent testing requirements to monthly toxicity testing with an agreed protocol of action where toxicity test results breach a licence limit. At each plant, a small subset of the original list of chemicals is monitored on a monthly basis as they were found to pose a small risk or be close to posing a small risk. For some plants only 2 or 3 chemicals on the original list are still monitored, while at others, up to about 20 continue to be checked. These chemicals also have licence limits to ensure the levels do not increase.

**Review of the Operating Licence and review of prices for
Sydney Catchment Authority**

**Joint Submission from the
Office of Environment and Heritage
and the
Environment Protection Authority**

October 2011

1. Introduction

The Office of Environment and Heritage (OEH) and the Environment Protection Authority (EPA) appreciate the opportunity to make this submission to the Independent Pricing and Regulatory Tribunal (IPART) on the review of the Operating Licence and prices for the Sydney Catchment Authority (SCA).

OEH is a separate office within the NSW Department of Premier and Cabinet supporting the Premier, the Minister for the Environment and the Minister for Heritage in performing their executive and statutory functions. OEH was formerly known as the Department of Environment, Climate Change and Water (DECCW), and develops and leads policy and reform in sustainability, biodiversity and native vegetation, coastal protection and Aboriginal cultural heritage. OEH also manages 6.8 million hectares of national parks and reserves across NSW. Specifically it manages the Special Areas on behalf of SCA which helps to protect water quality in Sydney's drinking water catchments. OEH also now incorporates the Heritage Office which works with communities to identify important places and objects and provides guidance in looking after heritage items. The organisation also provides staff, services and other support to the Royal Botanic Gardens and Domain Trust, the NSW Environmental Trust and the Lord Howe Island Board.

The EPA is the new, separate and independent environmental regulator announced by the Government on 5 October 2011, and is the primary environmental regulator of the SCA under the *Protection of the Environment Operations Act 1997*.

Both the OEH and EPA have a broader interest in the environmental performance of SCA due to its contributions to water use efficiency, catchment health and sustainability. This joint submission from the OEH and EPA therefore provides information to IPART to support its deliberations in the review of the SCA Operating Licence and pricing so that:

- the Operating Licence remains consistent with the SCA's statutory objectives specified in the S14(1) of the *Sydney Water Catchment Management Act 1998*, which include:
 - (a) to ensure that the Catchment Area and the Catchment Infrastructure Works are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment,
 - (b) to ensure that water supplied by it complies with appropriate standards of quality
 - (c) where its activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development contained in section 6(2) of the *Protection of the Environment (Administration) Act 1991*.
- water prices enable SCA to properly fulfil these statutory objectives and its primary functions to provide customers with a safe drinking water supply, including protecting the drinking water catchments
- the context for setting prices includes efficient use of water resources.

This submission addresses Operating Licence issues in section 2 and pricing issues in section 3. The submission also purposely identifies where an issue is of interest to either OEH or EPA or both. The submission identifies the relevant question number posed in the IPART issues paper or the relevant section number from the IPART issues paper in brackets after each heading for the reader's reference.

2. Operating Licence Matters Raised in IPART Issues Paper

2.1 What is the level of support for a systems or framework standard approach to operational areas of the licence? (Q1)

OEH and EPA notes IPART's proposed systems approach for water quality, environmental management and asset management which is less prescriptive than current Operating Licence requirements and enables integration of business systems across different management areas. In particular, in relation to areas of OEH's and EPA's interest in SCA's performance, it is noted that IPART proposes amendments to require:

- an Environmental Management System (EMS) that is developed and certified in accordance with AS/NZS ISO 14001:2004 to replace the existing environmental management requirements,
- removal of some raw water quality requirements where these are separately required through implementation of the Australian Drinking Water Guidelines, and
- the development of an asset management framework to a specified standard.

OEH and EPA also note SCA's position that it agrees to adopt environmental management and quality assurance systems that are consistent with specified standards, but not necessarily required to obtain certification to a standard.

OEH and EPA support IPART's proposed amendments subject to:

- the new systems continuing to address the objectives set out in the current environment plan, namely to conserve water, to minimise the impacts of energy use, to manage and minimise resource use and waste, manage heritage in accordance with ecologically sustainable development principles, and minimise environmental impacts from infrastructure projects,
- frameworks clearly articulating the performance standards, objectives and targets to be achieved by SCA in these areas of environmental, raw water quality and asset management,
- public consultation in the development of these systems, and
- the audited performance against these benchmarks being readily accessible to the public, irrespective of whether the audited performance is through certification or independent IPART led audit processes.

2.2 Are the proposed reporting manual arrangements adequate to consolidate and coordinate reporting requirements under the Operating Licence? (Q9, s3.2.2)

OEH supports the proposed transfer of reporting requirements and performance indicators to a separate Reporting Manual to enable greater flexibility and to ensure that monitoring and reporting arrangements remain focused on key priority issues over time. Similar to the comments from OEH and EPA on the systems approach, OEH would expect that the Reporting Manual and information submitted to IPART in accordance with the Reporting Manual would be made publicly available.

2.3 Performance Indicators and availability of information for catchment health reporting (S3.3 and 4.3)

OEH has been providing input to IPART's recent review of Performance Indicators to assist with the rationalisation of information and data required to be reported by water utilities such as SCA. In respect to SCA indicators, OEH's input to IPART's review has sought to ensure information continues to be available for the audit of the Sydney drinking water required by

the *Sydney Water Catchment Management Act 1998* (the Act), irrespective of the mechanism(s) used to ensure information availability.

OEH notes that the NSW Office of Water (NOW) has developed 18 catchment health indicators for the drinking water catchments which were gazetted (Gazette No. 158) in December 2008 and that S42A of the Act requires an appointed catchment auditor to undertake the audit every three years having regard to these gazetted indicators. However, we also note that the Act does not confer a responsibility on any entity to collect the data for these indicators.

While the NSW Office of Water published a document titled *Development of Catchment Health-indicators for the drinking water catchments* in 2009 which sets out measurement and data sources for these indicators, this document only identifies agencies likely to be responsible for collecting those data. Consequently, there appears to be a gap in the mechanisms to ensure data on each of the catchment health indicators continues to be available to the appointed catchment auditor.

IPART may wish to consider for its review of the Operating Licence whether:

- the Reporting Manual may be used to fill this gap where SCA is the appropriate entity for collection of data for gazetted catchment health indicators,
- the Operating Licence can require SCA to co-ordinate agreements with agencies or other parties to ensure data is being collected for the audit for all other gazetted catchment health indicators over each audit period. This may be achieved through a mechanism such as a Memorandum of Understanding.

2.4 Is the amount of information on catchment health sufficient? (Q16, s4.3)

The audit of the Sydney drinking water catchments is undertaken once every three years. These audits provide a comprehensive assessment of the state of the catchments, and the audit reports are readily available to the public. SCA also publishes its Annual Water Quality Monitoring reports which include water quality data and analysis for raw water quality, catchment water quality and reservoir water quality. OEH considers the catchment audit and the Annual Water Quality Management Report provide adequate publicly available information on catchment health.

2.5 Is there any value in retaining specific water conservation obligations, rather than incorporating it into an environmental management system (Q18, s4.5)

OEH notes that the SCA has raised this issue with IPART as it believes there is a significant regulatory burden, that SCA does not have a significant number of customers and there are minimal opportunities for it to implement water conservation measures. OEH also notes from SCA's submission that it has completed all actions in relation to loss and leakage and that there is little opportunity for further conservation.

Notwithstanding SCA's position on this matter, OEH encourages IPART to consider that:

- water efficiency is one of four key elements of the Government's 2010 Metropolitan Water Plan for securing Sydney's water supplies to 2025. Water conservation not only contributes to managing environmental outcome through minimising extractions from natural systems, but is also now an integral element of long term water-supply planning with the Metropolitan Water Plan relying on water efficiency programs to deliver 145GL/year from long term average water use in Sydney¹,

¹ NSW Office of Water. 2010. *2010 Metropolitan Water Plan: Water for people and water for the environment*

- a continued focus on water conservation is important to ensure this water supply balance is maintained, and it is especially important for high profile water businesses such as SCA to be involved in these efforts, and
- at a practical level, SCA's customers include Shoalhaven City Council and Wingecarribee Shire Council that have a combined population of 128,000 receiving water supply services². Given that 73 percent of Sydney's water is used for residential purposes¹, SCA's potential to assist the water conservation effort may be larger than its numerical customer base suggests. Such efforts may include assisting water conservation programs of these smaller water utilities.

Given these matters, OEH suggests that IPART may wish to consider retaining separate water conservation obligations for SCA in the Operating Licence which require continued water conservation measures that are commensurate with its size, community profile and its potential to influence water demand outcomes.

3. Pricing Issues

3.1 Determining the notional revenue requirement (s5.2)

There are several areas where SCA's operations intersect with OEH and EPA interests, and for which OEH and EPA request IPART's analysis and consideration of prudent revenue need. In summary these areas are:

- i) funding for OEH Special Area management arrangements with SCA,
- ii) works required under the Government's 2010 Metropolitan Water Plan, and
- iii) the SCA's Accelerated Sewage Program.

These matters are discussed in the following sections.

3.1.1 Special Area Management

Special Areas protecting Sydney's drinking water include both Government owned and managed lands and private tenure lands. Over 68 percent of the Special Areas consist of reserves gazetted under the *National Parks and Wildlife Act 1974*. The maintenance of this portion of the Special Areas has been delegated to the OEH (NPWS) since 2002 following recommendations of the 1998 Sydney Water Inquiry (recommendation 31).

The Special Areas are managed in accordance with the Special Areas Strategic Management Plan 2007 (SASPOM 2007), which is required to be jointly prepared and implemented under sections 49 and 50 of the *Sydney Water Catchment Management Act 1998* by the OEH and SCA. The SCA provides funding to the OEH to assist in the management of the Special Areas. This funding arrangement is consistent with s45 (1a) of the *Sydney Water Catchment Management Act 1998* which requires that SCA must not alienate land in Special Areas unless done so either in favour of the Minister administering the *National Parks and Wildlife Act 1974* (at no cost to that Minister) or by an Act of Parliament. The management of the Special Areas includes costs for activities required to comply with all statutory obligations. IPART should note that total funding provided by the SCA for catchment maintenance has previously approximated \$3.4 million per annum, including some \$1 million per annum for the Catchment Remote Area Fire Fighting Team (CRAFT) which is important for maintaining vegetation, reducing erosion and preserving ecosystem functioning which all assist in protecting water quality.

² National Water Commission. 2011. *National Performance Report 2009–10, Part A—comparative analysis*

A ten year review of the 1998 Sydney Water Inquiry recommendations was chaired by the Hon Barry O'Keefe AM QC, with a final report published in 2010. The report noted, as did McClellan QC in the original Sydney Water inquiry that:

"The maintenance of the catchments in proper condition is fundamental to the protection of Sydney's water supply."

Consequently, the Review Recommendations included that:

"The recurrent funding [SCA to NPWS] for catchment management and maintenance be maintained at least at its current level (in real terms) and that consideration be given to an increase in such funding".

The NSW Government responded to the Review Recommendations in June 2010 advising that

"The SCA will maintain existing funding arrangements with DECCW, CPI adjusted, for important land management activities for two years, and future recurrent funding beyond this period will be subject to consultation between DECCW and SCA" (NSW Government 2010 p. 8).

IPART should be aware that OEH and SCA are currently negotiating the future funding arrangements for the management of the Special Areas beyond 2012. These negotiations are expected to be completed by June 2012. Given the critical importance of Special Area management to SCA's core business of supplying safe and reliable water to Sydney, OEH requests that IPART ensures its price determination enables the outcomes of these negotiations to be factored into SCA revenue requirements.

OEH representatives would also be pleased to meet with IPART to outline OEH's management of the Special Areas, and the purpose and nature of management needs.

3.1.2 Works under the 2010 Metropolitan Water Plan

The Government's 2010 Metropolitan Water Plan seeks to secure Sydney's water supply to at least 2025 and to make water available to protect river health using a least cost mix of measures. The 2010 Metropolitan Water Plan includes actions that may have capital expenditure implications for the SCA in future price determinations including:

- modifications to SCA's infrastructure to enable Warragamba Dam releases for environmental flows to the Hawkesbury River;
- works to upgrade the water supply transfer system in a manner that reduces the impact of SCA's run-of-river transfers between dams.

OEH notes that SCA has included activities associated with the Metropolitan Water Plan in its projected expenditure for the next price period, including investigation into options for environmental releases from Warragamba Dam to inform a government decision on this matter in 2014.

3.1.3 Accelerated Sewerage Program

The SCA's submission advises that it intends to conclude the Accelerated Sewerage Program (ASP), presumably after the completion of the current works in 2012. However, OEH and EPA note that the 2010 Catchment Audit report recommends continued efforts to reduce nutrient loads from sewage treatment systems in the catchments (Recommendation 20), and that SCA continue to investigate the cause of persistent detections of *Cryptosporidium* and *Giardia* oocysts/cysts in the catchments (Recommendation 19).

Given these Audit recommendations, OEH and EPA suggest that it would be useful for SCA to continue working with the operators of sewage treatment systems to identify and address these systems on a risk basis to ensure the continued provision of a safe bulk water supply.

OEH accepts that this may be achieved through the inclusion of appropriate measures in SCA's Catchment Health Strategy to be prepared for 2012-2016, rather than as a separate program. OEH and EPA therefore suggests that IPART consider in its price determination whether SCA will require funding for sewage management under its Catchment Health Strategy for 2012 to 2016.

OEH and EPA also request that IPART note that sewage management remains an issue in the catchments and this will require a watching brief for future price reviews.

3.2 Fixed/Variable Ratios for Cost Recovery (s6.2)

The SCA's submission calls for a shift from the current fixed to variable revenue ratio of 40:60 to an 80:20 ratio to address revenue volatility. SCA's rationale for this proposed change is that there are new revenue risks such as potential for reduced demand for SCA bulk water following the introduction of alternative supplies from other sources such as the Sydney Desalination Plant. SCA's submission calls for the variable price component to reflect only the short term marginal costs of supply, which the SCA submission states is the Shoalhaven pumping costs.

OEH accepts the need for SCA to increase certainty of revenue. However, IPART may also wish to consider in its deliberation on this matter that:

- the long run marginal cost (LRMC) of supply will include the broader costs of providing a safe and reliable water supply such as asset renewal costs
- current demand patterns have been achieved under the existing price structure, and a significant change may introduce an uncertainty to assumptions underpinning current water planning
- the pricing demand signal would change
- the interaction between volumetric based pricing and potential scarcity pricing would need to be taken into account.

3.3 Scarcity Pricing (s6.3)

IPART's Issues Paper notes that scarcity pricing at the wholesale level would create incentives for bulk water customers such as Sydney Water to source alternative supplies and/or pursue demand side options. OEH recognises the concept of scarcity pricing and the potential role it could play in continuing to meet the water demand-supply balance for Sydney over the long term. OEH suggests that in making a decision on scarcity pricing that IPART consider:

- there is no immediate scarcity issue for Sydney,
- there is little likelihood of a trigger for scarcity pricing in the next price period,
- how scarcity pricing would interact with current operation of the Sydney Water supply (for example rules for Shoalhaven transfers and the operation of the desalination plant) to enable bulk water customers to respond to price signals
- the interaction between scarcity pricing and the fixed component of SCA's price structure.

3.4 Customer Impacts (s6.4.4)

As noted in section 3.1.2, the 2010 Metropolitan Water Plan includes actions that may have capital expenditure implications for the SCA. These include modifications to Warragamba Dam to enable releases for environmental flows to the Hawkesbury River and works to upgrade the water supply transfer system that reduces the impact of SCA's run-of-river transfers between dams. IPART's Issues Paper has identified that should it pursue its normal building block approach to water pricing, that it would seek to recover costs as they are expended. This approach may cause price shocks.

OEH recognises there are significant capital costs for SCA in the Government's 2010 Metropolitan Water Plan, and that these costs are required to help achieve a water balance for Sydney until at least 2025 and maintain reasonable river health. OEH notes that the benefits accrue beyond the likely term of the next price period and therefore supports cost recovery mechanisms that more appropriately reflect the longer term period in which these benefits accrue but that also enable these important works for the community and the environment to proceed in an affordable manner.

3.5 Cost recovery for non-commercial obligations such as capital costs for environmental flows and heritage purposes? (S6.6, Q42)

SCA has obligations under a range of legislation. As with any other commercial business, the compliance costs are a component of total business costs. SCA costs associated with environment protection,, environmental flows and heritage should therefore be considered by IPART consistent with other statutory obligations. OEH and EPA note that SCA's submission supports this view stating that this type of expenditure is part of the costs of providing a reliable system of water supply.

3.5.1 Environment Protection

The environment protection actions undertaken by SCA are primarily related to the protection of catchment health which is an essential activity for providing safe bulk water supply for Sydney. This is supported by:

- the 1998 Sydney Water Inquiry into the management of Sydney's drinking water and its recommendations. The implementation of the recommendations has recently been reviewed by Barry O'Keefe QC, as noted in section 3.1.1;
- the Australian Drinking Water Guidelines which acknowledge catchment health as a preventative measure in a multi-barrier approach protecting water supply systems;
- SCA's Operating Licence which includes Part 4 related to catchment management and protection, and which IPART has indicated it does not intend making any substantive amendments; and
- s13 and 14 of the Sydney Water Catchment Management Act 1998 which requires SCA to promote water quality, protect and prevent degradation of the environment, and to undertake operations in compliance with the principles of ecologically sustainable development as set out by the *Protection of the Environment Administration Act 1991*.

Environment protection activities undertaken by SCA should therefore be considered an essential component of providing a safe drinking water supply for Sydney. To ensure future clarity about which catchment protection activities constitute core business for SCA, and to clearly separate these from "non-commercial" activities, IPART may wish to consider using an appropriate mechanism such as the Operating Licence to define the SCA activities necessary to support the catchment's role in providing a safe water supply.

3.5.2 Environmental Flows and Heritage Assets

The NSW Government, through the 2010 Metropolitan Water Plan, has determined a least cost mix of measures that both secures water supply for Sydney to 2025 and helps protect the health of rivers impacted by Sydney's water supply dams. The Metropolitan Water Plan involved considerable community consultation to develop a series of planning principles, which included ensuring enough water to meet both human and environmental needs³.

³ NSW Government *Water for Life* webpage. http://www.waterforlife.nsw.gov.au/mwp/community_planning_principles

River health will be partly protected through the continued environmental flow releases from SCA's Upper Nepean dams which have been funded from previous IPART pricing decisions.

Depending on the Government's 2014 decision on flow releases from Warragamba Dam, SCA may need to modify or install infrastructure at Warragamba Dam to allow environmental flows to be released. Given SCA's statutory objectives in relation to water quality and environment protection as detailed in section 3.5.1, OEH considers that works on SCA infrastructure required to support future environmental flow releases should be considered as core SCA business.

In making a determination on whether costs for environmental flows should be passed through in SCA prices, OEH suggests that IPART consider:

- SCA's statutory objectives under s14 of the Sydney Water Catchment Management Act 1998;
- the precedent of funding decisions for works to support the Upper Nepean environmental flow release; and
- that the Metropolitan Water Plan, inclusive of environmental releases, has been subject to considerable community consultation.

With respect to heritage assets, IPART should note that the SCA, like other public and private sector businesses, is subject to statutory obligations for heritage protection and management. These statutory obligations include requirements under s170A of the *Heritage Act 1977* to maintain a Heritage and Conservation register and requirements under the *Heritage Regulation 2005* to undertake maintenance and repair to State Heritage Register listings. OEH expects state agencies to maintain registered heritage assets in accordance with the *State Agency Heritage Guide (2005)*.

IPART should also note that the Heritage Act was amended in 2009 to streamline and reduce compliance costs for state agencies. It is further advised that OEH will be reviewing heritage management requirements for State Agencies under the Heritage Act in 2012, having regard to conservation outcomes and agency operational requirements, as well as compliance costs.

The SCA notes in its submission that expenditure on these activities is a part of the cost of having a reliable water supply.