Office of Water

Mr James Cox

File ref: WS09/1323

Chief Executive Officer
Independent Pricing and Regulatory Tribunal of NSW
Level 8, 1 Market Street
SYDNEY NSW 2000

Dear Mr Cox

NSW OFFICE OF WATER SUBMISSION FOR 2010 BULK WATER PRICE REVIEW

I am pleased to provide you with the NSW Office of Water's (the Office's) submission to IPART's 2010 review of bulk water prices. Two copies of the submission are enclosed and an electronic copy has been sent via email.

As you are aware, the Office is facing significant uncertainties in revenue and workload due to water availability in the current severe drought and unfolding reforms driven by the Commonwealth. In preparing this submission, the Office has developed mitigation strategies which address these uncertainties to the greatest extent possible, including proposals such as an increase in revenue, a shift to fully fixed water charges and a shorter determination period.

It should be noted that the submission indicates a shortfall in user revenue of $19.4 million over the 2006-10 determination period. Following an assessment of the November billing, this shortfall is now expected to be around $18.3 million.

As requested by IPART, the Office engaged Walter Turnbull to complete an external quality check of the submission, the Special Information Return and other supporting documents. I am satisfied that the information used in the Office's submission is complete and accurate.

I look forward to working with IPART during the determination process. Debra Bock, Chief Financial Officer will be available on Ph: 8281 7309 or email: debra.bock@dwe.nsw.gov.au to clarify any information within the submission and to provide you with further information.

Yours sincerely,

David Harriss

Commissioner, NSW Office of Water
2.12.09

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NSW GOVERNMENT | Office of Water

Review of 2010 Bulk Water Prices

New South Wales Office of Water submission to IPART

December 2009

Department of
Environment, Climate Change and Water NSW

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The Independent Pricing and Regulatory Tribunal of NSW (IPART) is responsible for determining maximum prices for bulk water services provided by the NSW Office of Water (the Office) and the State Water Corporation (State Water).

For the Office, these services comprise the overall planning and management of the State's water resources and the licensing of water extraction. IPART determines water management charges by water source – regulated river, unregulated river and groundwater – and valley or region. Transaction fees for the issuing of new water licences and works approvals or those created through water dealings such as water trading are set by IPART on a state-wide basis. For State Water, IPART determines a water delivery charge for the storage and supply of water to regulated river users from the State's major rural storages. IPART's last determination on bulk water services in 2006 set prices from 1 October 2006 to 30 June 2010.

Expenditure and achievements against the 2006-2010 Determination

Since 2006 when IPART last reviewed the agency's costs and set charges, there have been significant institutional changes at both the Federal and State level affecting water resource management.

At the national level, in 2007 the Commonwealth, State and Territory Governments signed a Memorandum of Understanding setting out new arrangements for the management of the water resources of the Murray-Darling Basin. This was followed by the passing of the Commonwealth Water Act in September 2007 and the signing of the Inter-Governmental Agreement on Murray-Darling Basin reforms in July 2008, resulting in the increased involvement of the Commonwealth Government in water management in the Basin.

The most significant changes include:

- the establishment of the Murray-Darling Basin Authority to develop a Strategic Basin Plan by 2011 which will set new (and expected lower) water extraction limits for each catchment in the Basin
- the involvement of the Australian Competition and Consumer Commission (ACCC) in developing water market, trading and water charging rules
- the expansion of the water information functions of the Bureau of Meteorology
- the entry of the Commonwealth into the Murray-Darling Basin as a major purchaser and holder of water licences.

Through the $12 billion *Water for the Future* program announced in April 2008, the Commonwealth is directing significant resources to water recovery for the environment in the Murray-Darling Basin. Water is to be recovered via water infrastructure projects and through an unprecedented water licence buyback program which will see a significant increase in the number of water licences held for environmental purposes across the Basin.

At the state level, the NSW Department of Natural Resources was abolished in April 2007 with the water management and licensing functions transferred to a newly formed Department of Water and Energy (DWE). More recently, DWE has been abolished and the water functions moved to the NSW Office of Water (the Office) within the Department of Environment, Climate Change and Water (DECCW). In addition, the Office of the Hawkesbury-Nepean (OHN) was established in April 2009 to act as a single point of information, advice and Government

coordination on management strategies for the Hawkesbury-Nepean River system. A small complement of staff from the Office of Water were transferred to the OHN.

During this period, NSW has experienced drought across inland areas of the state and, in the southern valleys in particular, stream flows lower than the worst on record. This has required a concerted effort focussed on managing, prioritising, sharing and delivering limited water supplies to meet critical needs. At a time of increasing call on the agency's resources, there has been reduced revenue from water management charges and fiscal constraints have reduced the agency's budgetary funding and staffing levels. The net result over the past three years has been ongoing changes to the agency's budget, financial systems and reporting requiring re-alignment of water management activities and staffing redeployment.

Total expenditure on IPART regulated water management activities by the Office from July 2006 to June 2010 is $177 million (m), of which $93.6m has been contributed by the State Government and $83.4m by water users via water management charges. Given restricted water availability over recent years, the revenue received from water users is 19 per cent less than was forecast for the four-year period and the Government contribution increased to cover this shortfall. For water consent transactions, the fees are expected to return only $9.2 m, while the costs associated with these activities amount to $24.3m over the four years.

Despite limited resources during this period, the Office has delivered significant outcomes in its water management activities. As a result, NSW remains at the forefront of water management in Australia and has delivered the nation's most robust system of water licensing and trading and contributed significant volumes of water to the environment.

Future costs

Although a number of changes to water management have been announced since 2006, the implementation of many of these new arrangements will roll out from 2010/2011 once the new Basin Plan has been developed and the proposed water infrastructure projects move from the planning and feasibility stages to implementation. As a result, the Office is proposing that IPART set a three-year determination rather than the normal four-year determination. This will allow the Office to re-assess the activities and resources required to deliver its water management responsibilities once the Basin Plan has been established and determine the impact on extraction limits.

While it is impossible to fully assess what will be required from the Office, the resources needed to work with the Murray Darling Basin Authority on the development of the Basin Plan, implement the Commonwealth Water Act and achieve the required progress on national water reforms will be significant over the next three years. In particular, while the Commonwealth has given in-principle approval for $708m in water infrastructure projects to be delivered by the NSW Government (known collectively as the State Priority Projects), the Commonwealth has advised that payments for these projects will be tied to NSW progress in implementing water reforms. NSW will also be responsible for the ongoing operation, maintenance costs and increased compliance costs associated with these projects which will not be able to be properly determined until these projects are implemented.

Future water management costs – core activities

From 2010/11 to 2012/13, the Office requires an additional 47.5 staff to undertake the core new activities that will arise. The additional staff for core activities are required to:

- support the $6m expansion and upgrade of the Office's hydrometric network
- support the $8.3m upgrade of water data network in NSW and the transfer of data to the national water database
- undertake the development, gazettal, and public consultation on the 38 water sharing plans to be completed across inland NSW by 2011 and the coast by 2012, and associated licensing processes as the licences are converted to fully tradeable and separate licences under the *Water Management Act 2000*
- implement the rules under more than 80 water sharing plans across NSW requiring increased metering, monitoring, compliance, water allocation assessment processes, and administer the resulting increase in water trading activity across the State
- monitor and evaluate the ecological and economic performance of existing water sharing plans while also implementing the monitoring requirements of the large number of additional plans to be gazetted over the next few years
- ensure water sharing rules and licence conditions are complied with. The ongoing drought conditions and intense competition for water has highlighted the urgent need for additional licensing and compliance officers
- finalise and implement a number of key operational planning initiatives over the next three years such as floodplain harvesting, reasonable use rules for basic landholder right extraction, aquifer interference from activities such as mining and water return flows which are essential to protect existing water sources and rights to that water.

New South Wales is also required to fund a jurisdictional contribution to the Murray-Darling Basin Authority (MDBA) of $29m per year until 2010/2011. However NSW is seeking a review of the MDBA river operations and natural resource management programs to determine the priority and the most efficient delivery mechanisms for the programs. The bulk water charges funding include the continuation of the current MDBA-NSW contribution. The NSW user share of these activities amounts to $6.7m in 2010/11. This has increased from the previous determination because of the increased focus on water resource management activities of the MDBA.

Costs associated with the Border Rivers Commission (BRC) amount to $0.4m and the user share is $0.3m per year.

The total operational staffing level required by 2013 is 303.5 to undertake the core water management activities throughout NSW. As a result, the Office requires an increase in its annual revenue (compared to the average over the past four years). This includes operating expenditure, capital expenditure and the return on capital requirements, plus the contribution to the MDBA and BRC. The Office estimates that the user share of these costs based on the previous split of user/government contributions to water management and planning activities at $49.6m for 2010/11.

Additional costs associated with Commonwealth reform requirements

Over and above the additional core activities, there are activities that will need to be undertaken by the Office as a result of the requirements to implement the *Commonwealth Water Act 2007* and to accelerate the water reform agenda. It is estimated that these activities will require an additional 57 staff at a cost of around $10.5m per year from 2010.

For example, the Office will be required by June 2013 to revise its 14 inland water sharing plans gazetted in 2004 to be consistent with the new extraction limits and to apply trading and environmental rules in the Basin Plan and to have these plans accredited by the Murray-Darling Basin Authority. The Office will also be responsible for the implementation of the ACCC's new water trade, charge and market rules and the adoption of new institutional and regulatory changes and additional monitoring to enable the delivery of the Commonwealth's environmental water holdings.

NSW is seeking to have these additional water reform activities funded by the Commonwealth consistent with the 'no additional net cost' provisions in the 2008 Murray-Darling Basin Inter-Governmental Agreement. In the absence to date of any positive response, the Office has included the estimated costs associated with these activities in this submission, and has itemised these separately. Failure to deliver on national water reforms could put at risk the progress payments under the $708m State Priority Projects to be funded by the Commonwealth.

Contribution to NSW State Priority Projects

The Commonwealth is requiring a 10 per cent State contribution to the State Priority Projects. The projects to be implemented by the Office involve the rollout of metering across the Murray-Darling Basin for groundwater and unregulated river users, acceleration of the licensing of floodplain harvesting and construction of pipeline projects to create water delivery efficiencies. NSW considers that the ongoing operation, maintenance and compliance costs associated with these projects represent a significant contribution to these projects and is seeking agreement from the Commonwealth along these terms.

Proposed service charge for metering

For the Hawkesbury-Nepean, the Commonwealth Government is providing $28.6m to the Office to install some 2000 telemetry enabled meters along the Hawkesbury-Nepean River. Work has commenced on the roll-out of these meters. For the Murray-Darling Basin, the Commonwealth has given in-principle approval to provide $131m to the Office for the capital cost of installing 9,000 new or replacement meters on unregulated river pumps and groundwater bores and $90m to State Water for the replacement of 5,500 meters on the regulated rivers. Work is not expected to commence until the second half of 2010 and this is subject to final Commonwealth approval.

The metering systems to be installed will be latest technology, tamper proof and low maintenance, meeting the requirements of the new national metering standards and providing immediate real time information on water use. The systems will provide substantial benefits to water users through better securing their water rights and allowing better on-farm management of their water allocations as well as improved water delivery and management overall.

The ongoing cost of operation and maintenance of the meters is estimated to be an average of $426 per meter per year. These costs could be recovered from works approval holders through a service charge applied once meters have been installed or through water management charges. As the operation and maintenance costs are not expected to be significant within the next three years, it may be possible to defer such charges to the next determination if a three-year determination period is agreed.

Tariffs structures

In regard to water management tariff structures, the Office considers that:

- there should be full cost recovery
- the pricing structure should be based on 100 per cent fixed costs (entitlement) or, at a minimum, 70 per cent fixed (entitlement) to 30 per cent variable (usage). This reflects the fact that the Office's costs are virtually all fixed and do not vary from year to year as a result of water availability. In fact, the Office's water management activities increase during drought periods because of the greater effort required in sharing very limited resources amongst a range of users, development of extraordinary interstate sharing arrangements, increased compliance and information provision. The Office's revenue from water management charges totals $19.4m less for the four years than was forecast
- the usage or variable component of the tariff structure if determined to apply, should be based on the average water use over the last 15 years for regulated rivers rather than long term modelling over 100 years. This reflects the uncertainty in the current climate, expectations of reduced water availability and recognises that lower cost recovery in lower usage (i.e. dry) periods can be at least partially offset by higher cost recovery in wetter periods
- the valley-based tariffs for regulated and regional tariffs for unregulated rivers should be maintained. For groundwater, the Office proposes some further regional consolidation of tariffs, in recognition that aquifers extend across valley boundaries and that the cost drivers are aquifer based, not valley based
- prices should include a rate of return on assets consistent with other price-regulated businesses
- a number of new types of licences – floodplain harvesting, Great Artesian Basin conveyance, adaptive environmental and tidal pool access licences – and their associated works approvals should be incorporated into the water management and transaction consents charging regimes.

Transaction fees for water consents

The Office considers that the marginal costing and fee structuring approach applied in the 2006 Determination should be maintained for transaction consents for licences and approvals. However, a review of the costs of processing such transactions has identified significant under-recovery of around $3.8m per year. Therefore, the transactions fees should be revised to incorporate actual processing costs.

Price increases

Since 2006, water management arrangements across most of NSW, particularly for the inland, have seen and will continue to be impacted by significant changes in the water management landscape, heralded by the substantially increased role of the Commonwealth Government. While the Commonwealth has committed capital expenditure on the Office's hydrometric, groundwater monitoring and water data systems and has given in–principle commitment to a far more significant $708m water infrastructure program, this comes with increased operation, maintenance and compliance costs for NSW and increased expectations with regard to accelerating national water reforms.

Bulk water charges are therefore proposed to be increased to reflect the additional water management costs and also an increase in the transaction fees to better reflect actual processing costs. Without increased charges, adequate service delivery and the ability of the Office to participate in and contribute to the decisions at the national level will be impacted.

At 100 per cent fixed cost prices, the increase in regulated river prices over the three years would be up to 267 per cent but in most valleys around 100 per cent. In the unregulated river valleys increases could be up to 359 per cent, but mostly around 200 per cent and similar levels for groundwater systems. While significant in percentage terms, the price increases equate on average to between $2 to $4 per megalitre.

1. Introduction and overview

Bulk water services in New South Wales are provided by the NSW Office of Water (the Office), and State Water Corporation (State Water). In general, the Office's services relate to water management within regulated rivers, unregulated rivers and groundwater sources and transaction consents for water access, works and for water dealings. State Water's services relate to the storage and delivery of water within regulated river systems (i.e., rivers that have their flow regulated by dams or weirs). The Independent Pricing and Regulatory Tribunal of NSW (IPART) is responsible for determining the maximum prices the Office and State Water can charge for these services.

The NSW Office of Water is responsible for:

- determining how water available during a year is allocated to towns, industry, irrigators, and farmers and the environment
- developing statutory water sharing plans which set the broader rules for water sharing on a longer-term basis
- negotiating inter-state and national water agreements and representing NSW interests at water forums
- approving the extraction and use of water, and setting the policies and procedures for the permanent trade of water entitlements and the annual trade of available water
- monitoring water extractions and the quantity, quality, and health of our aquatic ecosystems and evaluating the effectiveness of management strategies.

The report is structured as follows:

Chapter 2 – discusses how the institutional environment has changed since the 2006 review and how these changes impact on the Office's water management activities.

Chapter 3 – compares the expenditure and revenue over the period of the 2006-2010 Determination and outcomes over this period.

Chapter 4 – discusses the regulatory framework for the next determination.

Chapter 5 – outlines the agency's additional resources required for its core activities.

Chapter 6 – discusses the agency's forecast capital expenditure.

Chapter 7 – covers the NSW costs associated with the operation of the Murray-Darling Basin Authority and the Border Rivers Commission.

Chapter 8 – covers the agency's base level forecast revenue needs.

Chapter 9 – describes additional requirements arising from the Commonwealth water reforms.

Chapter 10 – outlines the need for charges associated with the capital funded metering projects.

Chapter 11 – discusses some of the key assumptions that underpin the bulk water prices such as assumed levels of water extraction and the entitlement volumes of different licences.

Chapter 12 – describes the overall approach to setting bulk water prices and the impacts on individual services.

Chapter 13 – discusses proposed prices for water management and planning activities, including the structure of prices.

Chapter 14 – sets out the cost associated with processing water transaction consents and proposes future fees.

2. Key reforms and programs since the previous review

This chapter outlines the key reforms and programs within NSW and across the Murray-Darling Basin since the previous review and identifies how they impact on the activities undertaken by the Office of Water. A substantial proportion of the new activities are being undertaken via specific NSW Treasury and Commonwealth funding and costs are not included in water management charges, yet these activities will provide substantial water management benefits to users and the environment.

2.1. National changes and requirements

Since 2006, there have been major changes at the national level, with the transfer of some State water management powers in the Murray-Darling Basin to the Commonwealth. The Murray-Darling Basin extends across Queensland, NSW, Victoria and South Australia. The larger proportion (some 57 per cent of the land area and some 51 per cent of the surface water extractions) occurs in NSW. All of inland NSW with the exception of the far north-west corner of the State is within the Murray-Darling Basin. The majority of NSW's water use and licence holders are within the Basin and therefore changes to Murray-Darling Basin water management significantly impacts on the Office's water management activities.

This transfer of some State powers to the Commonwealth in relation to the Murray-Darling Basin has not reduced the level of the the Office's water management activities, but added a substantial extra layer of policy development and implementation, information provision, consultation, reporting and negotiation with the Commonwealth that the Office is required to undertake. The passage of the Commonwealth Water Act in September 2007 and the signing of the Inter-Governmental Agreement on Murray-Darling Basin reforms in July 2008 have resulted in:

- the creation of the Murray-Darling Basin Authority with a key role of developing a Strategic Basin Plan by 2011 setting new (and expected lower) water extraction limits for each catchment in the Basin
- the involvement of the ACCC in the setting of water trading rules and water pricing across the Basin
- the need to meet standards of water information required by the Bureau of Meteorology
- re-affirmation of commitment to water reforms under the National Water Initiative
- the entry of the Commonwealth as a major buyer and holder of water licences for the environment in the Murray-Darling Basin.

In turn, the Commonwealth has committed to provide $12.9b in funding over 10 years across the Basin including:

- $5.8b for rural water use and infrastructure projects to return water to the environment
- $3.1b for water purchases for the environment
- $1.2bm on for urban water efficiency and desalination projects
- $250m for grey water /rainwater initiatives
- $600m to establish the independent Murray-Daring Basin Authority
- $450m to the Bureau of Meteorology for improving water information
- $250m for improving water security for rural cities and towns
- $200m for additional stormwater harvesting projects
- $85m on for a third stage of the Cap and Pipe the Bores program across the Great Artesian Basin.

2.1.1 Murray-Darling Basin State Priority Projects

Under the rural water use and infrastructure funding, the Commonwealth has allocated $1.358b in principle, subject to detailed due diligence assessments, to NSW for water infrastructure projects in the Murray-Darling basin. These projects are:

- Basin Pipe North and South – up to $137m for the piping of stock and domestic water supply systems. This project, to be implemented by the Office, would replace delivery through otherwise ephemeral streams with a piped supply, allowing these streams to return to natural wet/dry regimes, reducing transmission losses.
- Regulated River Metering – up to $90m for the replacement of 5,500 existing meters that are used to measure the amount of water irrigators take from NSW regulated rivers, with the new high-tech meters to be installed by State Water. New meters will be high accuracy, tamper proof and low maintenance, reducing inaccurately metered extractions and minimising water theft.
- Groundwater and Unregulated River Metering – up to $131m for the installation and upgrading of metering for groundwater and unregulated rivers. The project, managed by the Office, will install or upgrade about 9,000 meters. It will provide more accurate information on water usage.
- Healthy Floodplains – up to $50m for the delivery of a project which will reform the management of water on floodplains through licensing of floodplain structures and control of extractions. This project will be implemented by the Office.
- Irrigated Farm Modernisation – up to $300m for works which will increase water use efficiency of irrigated agriculture in NSW. This project, to be implemented by Industry & Investment NSW (I&I NSW), will be achieved by investing in management, information and technological farm infrastructure where it improves water use efficiency, makes water savings and increases water-related productivity of the irrigated farming system.
- Private Infrastructure Upgrades – about $650m for water saving upgrades of private infrastructure. The Commonwealth will manage this project and work directly with NSW irrigator groups

The projects to be managed by NSW agencies are known collectively as the State Priority Projects and the Office will be directly implementing three major projects (Basin Pipe, Groundwater and Unregulated River Metering, and Healthy Floodplains) with funding of up to $318m. The projects to be managed by the Office will provide substantial benefits to NSW water users and water management through improved management of water extractions protecting the integrity of all licensed rights and water designated for the environment. However the Commonwealth capital funding comes with significant conditions:

- The projects must be able to deliver defined and agreed water savings that can be transferred to the Commonwealth in the form of environmental water licences.
- Detailed business cases for each project are required which are subject to due diligence assessment by the Commonwealth and will only be approved on the basis of value for money for the Commonwealth investment.
- The State must provide a 10 per cent contribution to the projects.
- The Commonwealth funding is for capital costs only, it does not cover the ongoing operation and maintenance and increased compliance costs.
- Progress payment for the projects will not only be tied to project milestones but also delivery of broader national water reforms.

At this stage, NSW has developed project plans, undertaken some preliminary studies and submitted a detailed plan to the Commonwealth for the preparation of the business cases. The business cases will require some four to five months of intensive analysis and assessment and this work is expected to commence early in 2010 and will be included in the Commonwealth funding. If the projects are subsequently approved by the Commonwealth, implementation will commence in the later part of 2010. NSW is seeking to have the ongoing operation, maintenance and compliance costs of its projects and State Water's regulated river metering project recognised as the 10 per cent State contribution to these projects.

2.1.2 Restoring the Balance – Commonwealth's buyback program

In addition to acquiring water entitlements for the environment through infrastructure projects, the Commonwealth will spend $3.1b on the direct purchase of water licences in the Murray-Darling Basin. The buyback program commenced in 2008.

In April 2009, as a result of concerns that the Commonwealth was purchasing a disproportionate amount of NSW water entitlements, the NSW Minister for Water placed a temporary embargo on further environmental purchases in April 2009. This led to the signing on 23 September 2009 of a Memorandum of Understanding (MoU) between the NSW and Commonwealth Governments that no more than 890 GL of general security entitlement (or equivalent) would be purchased by the Commonwealth from NSW by 2013. This includes 532 GL that the Commonwealth has already purchased from NSW licence holders or will finalise from its 2008/09 tender.

The 890 GL general security volume limit was determined after consideration of the relativity with a similar limit that has been agreed by the Victorian Government. This NSW limit represents almost 15 per cent of the State's general security entitlement and is in addition to some 410 GL that has or will be purchased by 2011 through separate programs such as The Living Murray, Water for Rivers and Riverbank. Further environmental entitlements will also be created for the Commonwealth through the water infrastructure projects.

The MOU requires the Office to develop a further agreement with the Commonwealth on the principles, procedures and arrangements for water shepherding, that is, the transfer of water available from the Commonwealth's environmental water holdings from one location to another and protection of this water from extraction.

2.1.3 Murray-Darling Basin Authority and the Basin Plan

The Murray-Darling Basin Authority replaces the Murray-Darling Basin Commission and has been established to take on the former river operations and natural resource management functions of the Commission but also to prepare and implement an overall Basin Plan by 2011 which will:

- set new extraction limits on the amount of water (both surface and ground water) that can be taken from Basin water resources
- include strategies to manage risks to Basin water resources, such as climate change
- include water trading rules
- provide an environmental watering plan specifying environmental objectives, watering priorities and targets
- provide a water quality and salinity management plan
- provide monitoring, evaluation and compliance plans
- specify the aspects that the State water sharing plans for each water source must address.

The Basin Plan will set the overarching rules that will have to be applied across the Basin. Each State will be responsible for implementing and operationalising these rules in their water sharing plans and for allocating water on an annual basis consistent with these rules. Once the Basin Plan is in effect, all subsequent State water sharing plans must be consistent with the Basin Plan and accredited by the Murray-Darling Basin Authority.

To date, the Office has provided modelling expertise and resources to the CSIRO's study of the water availability under climate change scenarios which will inform the Basin Plan. The CSIRO study predicts that run-off across the Murray-Darling Basin could decrease by as much as 33 per cent, with an average reduction in water availability of around nine per cent.

The Office has also committed significant resources this year to undertake surface and groundwater and climatic modelling for the MDBA for the Basin Plan and provided advice to the MDBA on key environmental assets and water requirements.

2.1.4 ACCC and water charging, water market and water trading rules

The role of the Australian Competition and Consumer Commission (ACCC) has been expanded to provide advice to the Commonwealth Minister for Water on water market, trade and charge rules for storage and delivery, planning and management and for infrastructure operators which will apply within the Murray-Darling Basin, and for ensuring these are enforced. The ACCC has now set termination fees for the trade out of Irrigation Corporations that commenced on 1 September 2009 and water market rules that apply from 1 January 2010. The Office will be required to facilitate the implementation of these rules which will have implications for compliance, metering and licensing activities.

With regard to pricing, while this is to be determined by IPART for NSW for the 2010 period, how pricing will subsequently be undertaken by the ACCC has yet to be determined.

2.1.5 Bureau of Meteorology and water information

The Bureau of Meteorology role has been expanded to include collecting and publishing water information on a national basis. These publications will include a National Water Account and periodic reporting on water resource status, usage and forecasts of future availability. The Bureau is to develop a national water information system that will collate information about river flows, groundwater levels, storage volumes, water quality, water use, groundwater entitlements, and trade from more than 200 water sources across Australia.

The Bureau will also issue national standards for water information. The Bureau has allocated $80m over five years under its modernisation and extension program to assist the states in upgrading their water data systems. For 2007/08, the Office was provided with $2.9m, $1.8m in 2008/09 and $3.6m in 2009/10 in capital funding for replacing data loggers, obsolete gauging and stations structures, improving water datasets and accessing groundwater data, replacing water quality sensors, and improving databases and transferring the information to the Bureau. Bids for capital funding are placed annually. However the ongoing operation and maintenance of the monitoring network and databases will remain a State responsibility.

2.1.6 Expansion of the hydrometric network

The Office is receiving $6m over three years from 2008/09 to 2010/11 to install, upgrade or relocate some 178 hydrometric river gauging stations (up to 128 new stations and relocation or upgrade of 50 stations) to improve flow and surface/groundwater connectivity monitoring and to meet the requirements of the water sharing plans and river operations. Improved real time continuous technology is being installed at over 600 sites. The project will improve the accuracy of flow data and assist in improved allocation of water, ensuring that environmental assets are protected and improving compliance with licence and water sharing plan conditions. A condition of the funding is that the Office continues to operate these sites to national standards. This will require a doubling of visits per year at existing sites from three to six and the additional responsibility for the ongoing operation and maintenance of the expanded network.

2.1.7 Expansion of groundwater monitoring

The Office is also installing telemetered water level data loggers at 206 groundwater sites across NSW in water sharing plan areas and establishing an internet interface for NSW groundwater monitoring bore data, which will improve the level of information about groundwater levels and behaviour available to water managers and users. This is a collaborative project between the National Water Commission, which is contributing $300,000 in 2008/09 and $372,000 in 2009/10, and the NSW Government which has contributed $710,000. The project will improve the level of information available to water managers, users and the community on groundwater behaviour in New South Wales and assist the decision-making process for groundwater trading and overall groundwater management.

Similarly, there is substantial investment in extending bore monitoring across the Great Artesian Basin which extends across four states – NSW, Queensland, Northern Territory and South Australia. Stage 1 of the program will comprise establishing a network of 202 monitoring bores across the Basin, 29 of which are to be located in NSW. Bores within the network will be monitored annually for pressure, temperature, flow and water quality. Commonwealth funding has been provided to the Office of $463,700 in 2009/10, and $519,860 will be available in 2010/2011. However, as with the expansion of the hydrometric network funded by the Commonwealth, the ongoing operation and maintenance of the groundwater monitoring network will be a State responsibility and will incur additional costs for the Office.

2.1.8 Cap and Pipe the Bores Program

The Great Artesian Basin lies beneath 22 per cent of Australia and is one of the largest underground water resources in the world. The Cap and Pipe the Bores program, through capping free flowing bores and replacing bore drains with efficient piped reticulation schemes, reduces water loss occurring in the antiquated open-bore drains, reduces loss of artesian pressure and improves water use efficiency.

The Commonwealth and NSW Governments jointly funded the $57m Cap and Pipe the Bores program in NSW (phases 1 and 2) until June 2009. Landholders also contribute financially to the works. In total almost 47,000 ML of water have been saved that would have otherwise been lost in the open drains. The program provides financial incentives to landholders to offset the cost of rehabilitating bores and installing efficient piped systems. In-principle agreement has been reached with the Commonwealth to extend the program to a third phase, finishing June 2014. It is anticipated that the program will be of a similar size to the previous years (i.e. $5-$6m per year) with joint 1:1 Commonwealth/State funding and 50 per cent landholder contribution.

2.1.9 Pipeline NSW

Pipeline NSW is a $7m jointly-funded project between the Commonwealth and NSW Governments to pipe open channels which deliver stock and domestic water from NSW rivers. NSW funding comes from the Environmental Trust. The Office has the responsibility for the implementation of the program.

The program will construct three demonstration pipeline projects in the Lower Gwydir, Lower Barwon and Lower Lachlan rivers. Funding was approved in early August 2009. The program will be completed by May 2011. This project is separate to the pipeline proposal in the State Priority Projects but will inform the Basin Pipe project.

2.1.10 Darling River Water Savings Project

A range of options is being investigated to improve the water supply and management of the entire Darling River system. This includes measures to reduce evaporation losses from Menindee Lakes which can be as high as 750 GL in dry years. NSW and the Commonwealth Governments are jointly funding these investigations.

The preliminary report identified six potential water saving schemes aimed at reducing the losses from the Menindee Lakes, securing water supply for Broken Hill and high security users, increasing water use efficiency, and delivering water for the environment. The water saving schemes include possible structural and operational changes of the Menindee Lakes. Work is now underway to refine the six strategies and identify the most efficient and effective way to reduce evaporation from the Menindee Lakes and to secure the water supply for Broken Hill. Subject to these studies and associated assessment and approvals, the Commonwealth has agreed to provide up to $400m for structural works at Menindee Lakes.

2.1.11 National Water Initiative and Water Reform Commitments

The Intergovernmental Agreement on a National Water Initiative (NWI) was signed at the June 2004 Council of Australian Governments meeting. The NWI represents a shared commitment by governments to increase the efficiency of Australia's water use, leading to greater certainty for investment and productivity, for rural and urban communities, and for the environment.

Under the NWI, governments are required to:

- prepare water plans with provision for the environment
- deal with over-allocated or stressed water systems
- introduce registers of water rights and standards for water accounting
- expand the trade in water, including across border trade
- improve pricing for water storage and delivery
- meet and manage urban water demands.

More recently the jurisdictions have been required to accelerate specific reform areas including:

- work towards progressively lifting the cap on trade out of irrigation areas, with total removal by 2014
- make information on water trading publicly available and work towards developing a common registry system of water licences and water trade, including environmental water licences
- improve the processing times for water trade and make this information publicly available
- develop a national water market system
- develop national metering standards
- develop consistent planning guidelines across jurisdictions
- develop common water accounting processes across jurisdictions
- develop a national hydrologic modeling strategy
- develop a best-practice risk-based compliance and enforcement framework
- assess the associated risks to the State's water resources from aspects such as climate change, bushfire, afforestation, groundwater extraction, irrigation return flows, and farm dams
- establish national urban water planning and pricing principles and market-based approaches.

2.2 State changes and activities

2.2.1 Agency restructuring

A key change at the State level has been the agency restructuring within NSW. Following the 2006 Determination, the former Department of Natural Resources was abolished, with the water management activities largely being amalgamated into the then Department of Water and Energy (DWE) and other natural resource management activities transferred to the Department of Environment and Climate Change. This required division of staff, corporate services and budgets, complicated by many water management activities having previously been integrated with land, soil and vegetation activities within a department more broadly responsible for natural resource management.

More recently, the Government announced a further major restructure of all Government services creating 13 new super departments within the NSW Public Sector from 1 July 2009. The water planning and management functions previously performed by DWE have now been amalgamated into a separate NSW Office of Water within the newly formed Department of Environment, Climate Change and Water. In April 2009, the Office of the Hawkesbury-Nepean was established to focus solely on the management of the Hawkesbury-Nepean. These changes have resulted in re-adjustment and re-allocation of staff and associated budgets.

While all the administrative changes have added to the complexity of reporting and delivery of the agency's water management responsibilities, the recent creation of the NSW Office of Water provides the focus for the majority of water management services. The key exceptions are the management of specific environmental contingency allowances in the regulated rivers and environmental water licences which are the responsibility of an environmental water section within the Department of Environment, Climate Change and Water and the oversight of river management for the Hawkesbury-Nepean by the Office of the Hawkesbury-Nepean.

2.2.2 Development and implementation of water sharing plans

The progressive finalisation and implementation of statutory water sharing plans across the State has been a key commitment of the NSW Government. The development and negotiation of these plans is a significant and resource-intensive exercise which has been undertaken progressively within available resources. While the Office's previous submission indicated that the plans would be completed by 2010, work on the inland plans was delayed for some time while clarification was sought over the Commonwealth's role in the Murray-Darling Basin and how the Basin Plan and the State's inland water sharing plans in the Basin would be aligned.

The recent confirmation that the Basin Plan would set new extraction limits in each catchment and aquifer and that State water sharing plans are still required, has intensified the need for the Office to have the inland plans completed by 2011. It is important that the 18 remaining inland NSW water sharing plans be completed to provide a benchmark against which to measure the impacts of the Basin Plan extraction limits, to assess the cost-sharing implications set through the risk assignment framework, and to determine to what extent the Commonwealth's water recovery programs will contribute to the lower extraction limits of the Basin Plan. From 2010, all subsequent water sharing plans will have to be revised to conform with the Basin Plan and this will initially apply to NSW's first round of 31 water sharing plans gazetted in 2004.

2.2.3 Conversion of water licences

The completion of a water sharing plan brings with it the requirement to convert all existing licences in the water source to separate water access licences and works and use approvals under the Water Management Act. This will require the conversion of some 10,000 licences, the verification of the ownership and rights of each licence and the registering of security interests and their uploading to the Water Access Licence Register administered by the Land and Property Management Authority. The Office had expected to complete this process, but the delay in the completion of water sharing plans has also meant a delay in the conversion of water licences.

Licences are converted at no cost to the licence holder and this process brings with it significant benefits to licence holders through the right to a perpetual and fully tradeable licence which increases its value.

2.2.4 Operational planning

The Office needs to finalise and implement a number of operational planning issues which are essential to protect existing water sources and licensed users' rights. These include:

- the licensing and management of the floodplain harvesting extractions. On 3 July 2008 the Minister for Water announced that no further capture of floodplain water would be permitted and such works and their access to water would be required to be licensed. This is major undertaking requiring on-site investigations of existing works, assessment of their water capture, final licensing and development of compliance monitoring systems. Implementation of the policy will benefit existing floodplain harvesters by giving them a clear licensed right to take or capture a defined amount of floodplain flow. It will also benefit downstream water users and the environment by ensuring floodplain harvesting does not increase, floodplain flows are protected for the environment and protecting the investment in environmental licences. This is a key NSW planning issue which must be

undertaken irrespective of any additional funding provided by the Commonwealth. The $50m allocated in principle by the Commonwealth, if received, will allow this rollout to be accelerated across a four to six-year timeframe, instead of a much longer period

- application of measures to address unconstrained extractions through basic landholder rights. This will involve the development and application of reasonable use rules for basic landholder right extraction and legislative regulations for managing basic landholder right proliferation. The *Water Management Act 2000* provides domestic and stock rights for those landholders whose land fronts a river or overlays an aquifer – these are known as basic landholder rights. These landholders may take water for domestic and stock purposes without the need for a water access licence. Currently, there is no limit to the amount of water that can be extracted under this right. The only limitation is on the purpose for which that water can be used (i.e. normal domestic use and stock watering). In addition, rural land subdivision results in a proliferation of domestic and stock rights. This has the potential to impact on the reliability of access for other water users. The rules will set an upper limit to the amount of water that can be extracted under these rights and regulations will be developed to limit additional rights arising from land subdivision
- development of guidelines and licensing and approvals for aquifer interference activities. This will include the licensing of the taking of 'incidental' groundwater or connected surface water associated with an aquifer interference activity such as mine dewatering via a water access licence, and an approval for managing impacts of the aquifer interference activity on the water sources and dependent ecosystems. This is essential to ensure that extraction of incidental groundwater associated with aquifer interference activities is undertaken efficiently and clearly accounted for in the overall water budget for each groundwater source and therefore protects the rights of other groundwater and surface water users
- licensing and management of water return flows. The *Water Management Act 2000* allows licence holders to have water allocations that are returned to the water source, re-credited to their licence. There is significant demand for used water allocations to be re-credited. Examples include discharge from sewerage treatment plants, fish farms, and paper mills. However, the extent to which used water allocations can be re-credited needs to be determined in accordance with return flow rules. These rules will have to consider and deal with issues such as the quality, timing and rate of discharge as well as the connectivity between the water sources the water was taken from and discharged into
- ability to use harvested urban stormwater to meet water requirements in urban areas, primarily by local government. These measures will improve the security of water supplies for households and industry within these areas whilst providing the clearer rights and entitlements to this water. However significant resources are required to assess the additional water availability due to urbanisation, the capability of urban stormwater harvesting schemes to take runoff and the impacts on water resources
- numerical daily extraction rights. Water sharing plans provide for secure water sharing arrangements between water users and the environment on a long-term or annual basis. However, in regulated rivers there is currently no mechanism which provides a secure share of the water that can be delivered to water users on a daily basis. Such arrangements would provide water users with greater security of

access to their water allocations. It will also provide users with a more tradeable product that will allow them to more proactively adjust their water extraction practices to better meet their business requirements. The application of daily extraction rights will require assessments of water supply system delivery constraints and determination of the appropriate shares between the environment and water users and between different categories of water users.

2.2.5 Repeal of the *NSW Water Act 1912*

The regulation of water in NSW is currently governed by both the *Water Act 1912* and the *Water Management Act 2000*. The *Water Management Act* provides a more comprehensive regime for the management of water in NSW providing most licence holders with separate, perpetual and fully-tradeable water licences and recognises water for the environment through the rules in statutory ten-year water sharing plans. The current phased repeal of the *Water Act 1912* is tied to the rollout of water sharing plans.

Having two separate pieces of legislation that govern water planning and management in NSW has meant added complexity for users and the need to maintain two administrative systems for the regulation of water. The aim is to repeal the *Water Act 1912*. This will mean that all remaining *Water Act 1912* licences will legally convert to a transitional water access licence, incorporating a works approval and a use approval, although there will be no change to their entitlements or conditions. Once the water sharing plan for the respective water source is gazetted, the licences will be full water access licences with separate works and use approvals subject to the rules and provisions of the water sharing plan.

2.2.6 Office of the Hawkesbury-Nepean

The Office of the Hawkesbury-Nepean (OHN) was established in April 2009 to provide a single point of information, advice and Government coordination on management strategies for the Hawkesbury-Nepean River system. The OHN is administering and coordinating a $77.4m recovery strategy funded in the main by the Commonwealth Government. This includes $28.6m to the Office of Water to install some 2,000 telemetry enabled meters along the Hawkesbury-Nepean River.

3. Water management expenditure and service delivery over the current determination period

Since 2006, the agency has undergone a number of organisational changes and the water management framework has altered significantly with greater involvement of the Commonwealth. During this period, NSW has been subjected to extended drought and the agency to ongoing budget constraints. All these aspects have meant re-direction of resources to meet service delivery in the face of constrained revenue. The following chapter shows water management revenue received against forecasts, expenditure of user share against forecast and the agency's outcomes and deliverables over the 2006-2010 period.

3.1 Revenue received

Under IPART's 2006 pricing framework, the price was charged to reflect the business's revenue needs comprising of:

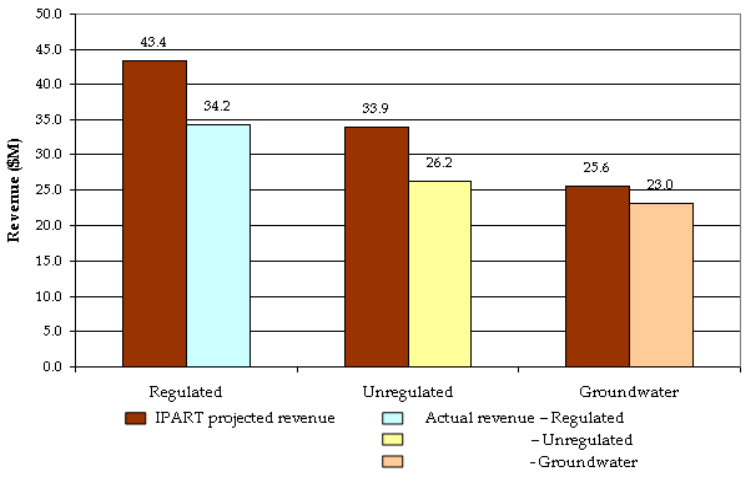
Operating costs (opex) + Murray-Darling Basin Commission costs + Border River Commission costs + Depreciation on the regulatory asset base.

IPART, in its price determination, attributes the revenue needs of the water resource activities between users and Government (on behalf of the community) based upon the nature of the activity. These revenue needs are therefore recovered from two sources:

- **Water users' revenue**
  Subject to IPART's view of affordability, this revenue is recovered from water users and represents the IPART determined share of the Office's revenue needs attributed to water users. To the extent that this revenue is based upon consumption, the revenue levels are variable.
- **Government revenue**
  This represents IPART's assessed proportion of the Office's revenue needs attributed to the community. This is not a Government subsidy.

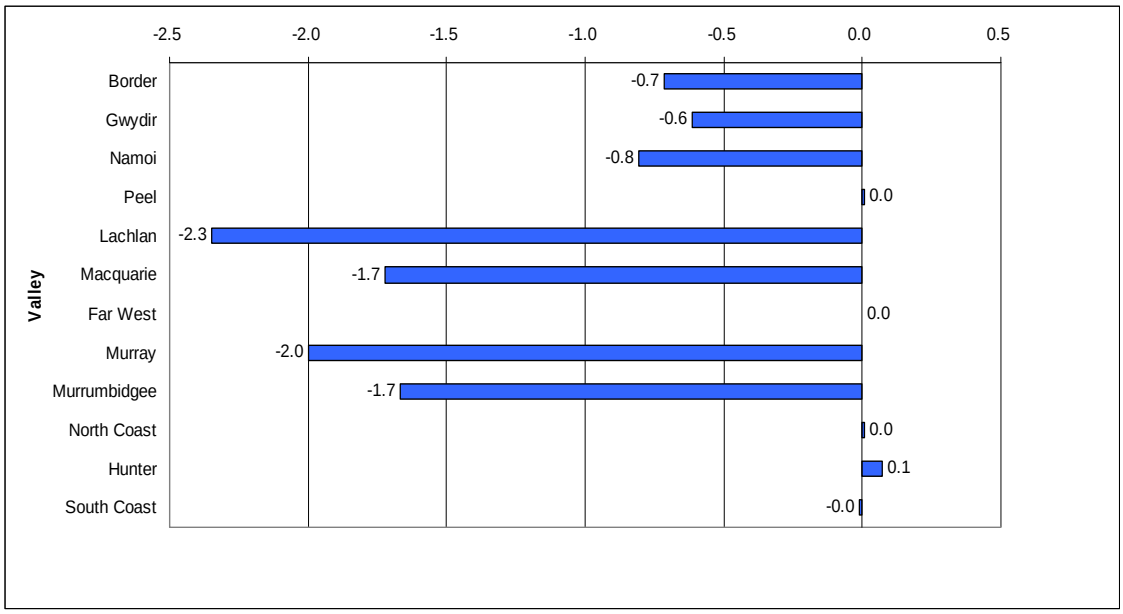
The total revenue received by the Office from water user contributions for water management over the four years was $19.4m less than was forecast, with the most significant shortfalls in the regulated river and unregulated river revenue as shown in Figure 1. It should be noted that the 2006 IPART Determination did not provide for full cost recovery in all areas, and that the projected revenue shown below is that provided for in the IPART Determination.

Figure 1: Comparison of aggregated actual users' revenue for the period 2006/7 to 2009/10 against that projected in the 2006 Price Determination ($ nominal)



The total under-recovery against forecast user revenue for the four years for the regulated rivers is $9.8m. A comparison of the users' share of actual costs against the 2006 IPART forecast revenue for regulated rivers in each valley is as follows:

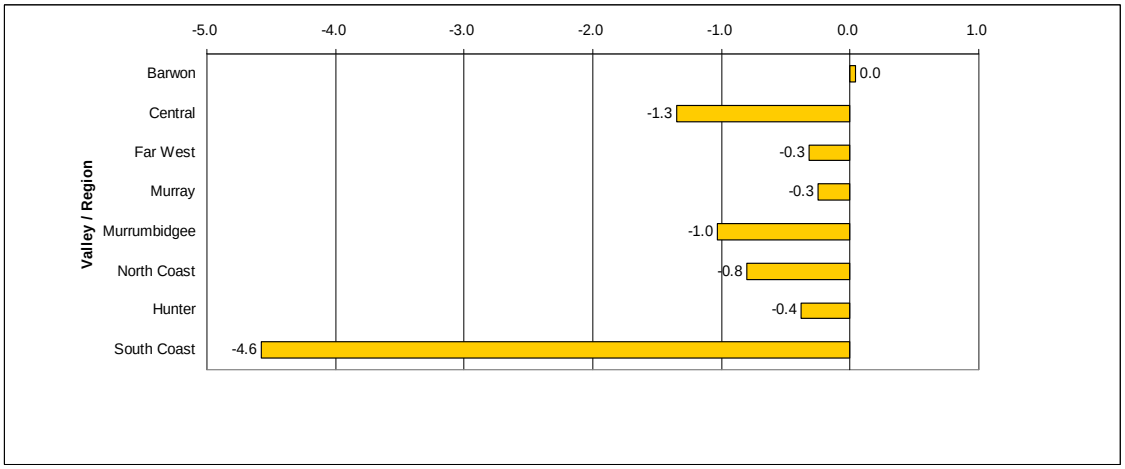
Figure 2: Variance of regulated river actual revenue against the IPART 2006 forecast users' share of revenue needs for the period 2006/7 to 2009/10 ($ nominal)



Note: 2009/10 revenue is budgeted revenue

The total under-recovery against forecast user revenue for the four years for the unregulated rivers is $8.7m. A comparison of the users' share of actual costs against the 2006 IPART forecast revenue for the unregulated rivers in each valley is as follows:

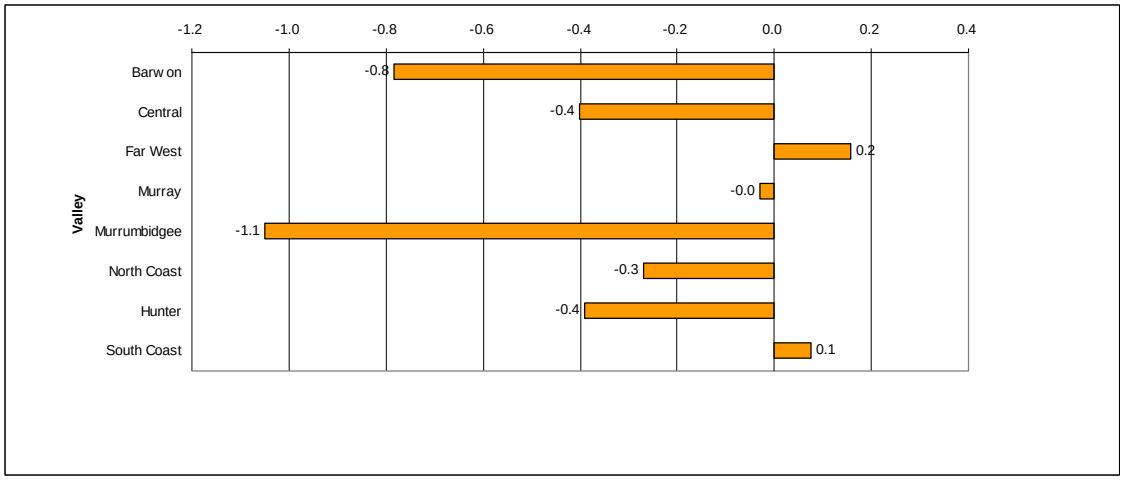
Figure 3: Variance of unregulated river actual revenue against the IPART 2006 forecast users' share of revenue needs for the period 2006/7 to 2009/10 ($ nominal)



Note: 2009/10 revenue is budgeted revenue

The under-recovery against revenue for groundwater is $2.7m and is proportionally less than for the regulated rivers and unregulated rivers because groundwater use increases during drought periods when surface water supplies are limited. A comparison of the users' share of actual costs against the level of users' revenue recovered in the 2006 Price Determination for groundwater in each region is as follows:

Figure 4: Variance of groundwater actual revenue against the IPART 2006 forecast users' share of revenue needs for the period 2006/7 to 2009/10 ($ nominal)



Note: 2009/10 revenue is budgeted revenue

3.2 NSW contribution to the Murray-Darling Basin Authority and Border Rivers Commission

A comparison of the NSW Government's contribution to the Murray-Darling Basin Authority (MDBA) and the Border Rivers Commission (BRC) for all services provided against that forecast in the 2006 pricing determination is as follows:

Table 1: Comparison of total New South Wales contributions to MDBA and BRC against that allowed for in the 2006 Price Determination ($ nominal)

	MDBA		BRC	
Year	**Forecast contribution $m**	**NSW's actual contribution $m**	**Forecast contribution $m**	**NSW's actual contribution $m**
2006/7	26.3	26.3	1.7	1.1
2007/8	27.2	27.4	1.8	1.1
2008/9	27.8	28.4	1.9	1.1
2009/10	28.5	29.5	1.9	1.1
Total	**109.8**	**111.6**	**7.3**	**4.2**

Note: BRC actual expenditure was less than forecast.

3.3 Capital programs

The agency's 2006 pricing submission included the following capital expenditure programs:

- **Groundwater monitoring**
  This program extended the current groundwater monitoring program by increasing bore coverage in key locations. This program's outcome was to monitor aquifer levels and pressure for real time management and to assist in implementing and assessing the effectiveness of the rules in the groundwater sharing plans.
- **Metering and data systems**
  This program provided metering and site reconnaissance to quantify the magnitude and timing of water extractions from unregulated rivers and groundwater systems.

In addition to the programs forecast in 2006, the Office also developed corporate water databases to store the water management data and to improve public access to the data.

The following table shows that the total actual expenditures exceeded those forecasted by the Office in its 2006 pricing submission by some $7m.

Table 2: Comparison of actual capital expenditures (capex) to forecast capital expenditures for the period 2006/7 to 2009/10 ($ nominal)

Capital program	2006/7 $m	2007/8 $m	2008/9 $m	2009/10 $m	Total $m
Groundwater monitoring					
Capex forecast (note 1)	0.1	0.1	-		0.2
Actual capex	0.8	2.0	3.0	1.7*	7.5
Over (Underspend)	0.7	1.9	3.0	1.7	7.3
Metering and data systems					
Capex forecast	1.1	0.7	0.7		2.5
Actual capex	-	0.2	0.2	0.9*	1.3
Over (Underspend)	(-1.1)	(-0.5)	(-0.5)	0.9	(-1.2)
Corporate water database					
Capex forecast	-	-	-	-	
Actual capex	0.4	0.1.	0.1	0.3*	0.9
Over (Underspend)	0.4	0.1	0.1	0.3	0.9

* Expenditure budgeted for in 2009/10.

Note 1: There is a difference between the capex forecast as per the submission and that included in the data information upon which the 2006 pricing was based; the forecast costs are those included in the submission.

3.4 Operating costs

The Office's staff undertake a range of water management activities. These can be categorised broadly as:

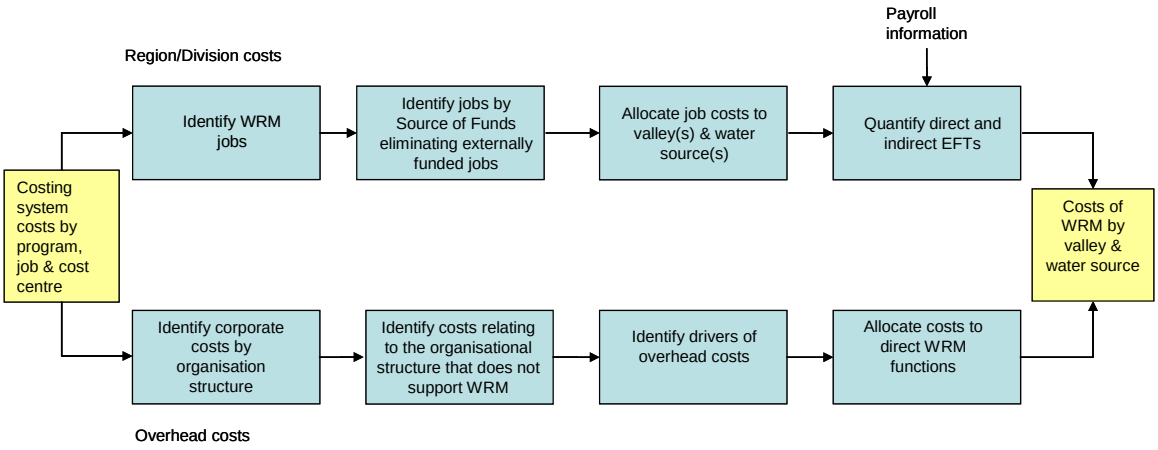
1. water management activities to support New South Wales' water users and the environment. The cost of these activities is recovered through a combination of charges to water users set by IPART, and New South Wales government funding to reimburse the Office for the costs of the Government's share of these activities

2. contracted work undertaken on a commercial basis or directly funded by third parties, e.g. Murray-Darling Basin Authority, Bureau of Meteorology, State Water, Catchment Management Authorities, State Emergency Service, Councils, and Utilities.

The operating costs in this submission relate solely to the activities supporting water users and the environment, i.e. in 1 above.

Historical operating costs for water resource management (WRM) activities are captured as detailed in the 2006 pricing submission by the following process:

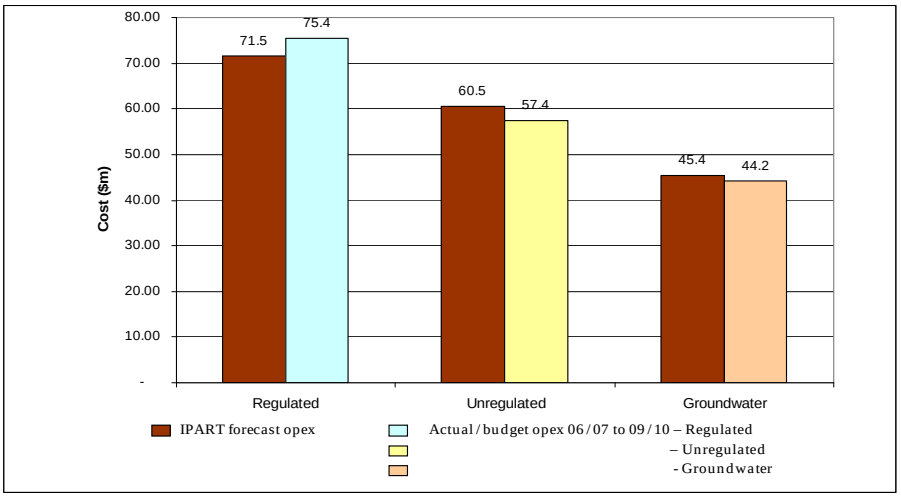
Figure 5: Methodology for capturing historical costs



A comparison of the four-year total actual costs of water management activities (those specifically covered by the IPART determination) against those included in the 2006 Determination shows that there has been a minor underspend of $428,000 over the four years. This is despite user revenue being under the forecast by $19.4m. The additional funding required to maintain water management activities was achieved by a one-off supplementation of the Office's budget of around $5m by the State Government and by the Office drawing on cash reserves.

The following charts shows the Office's operating expenditure against the IPART forecast over the four years for water source type.

Figure 6: Comparison of opex costs allowed for in 2006 Price Determination against actual expenditure for the period 2006/7 to 2009/10 ($ nominal)



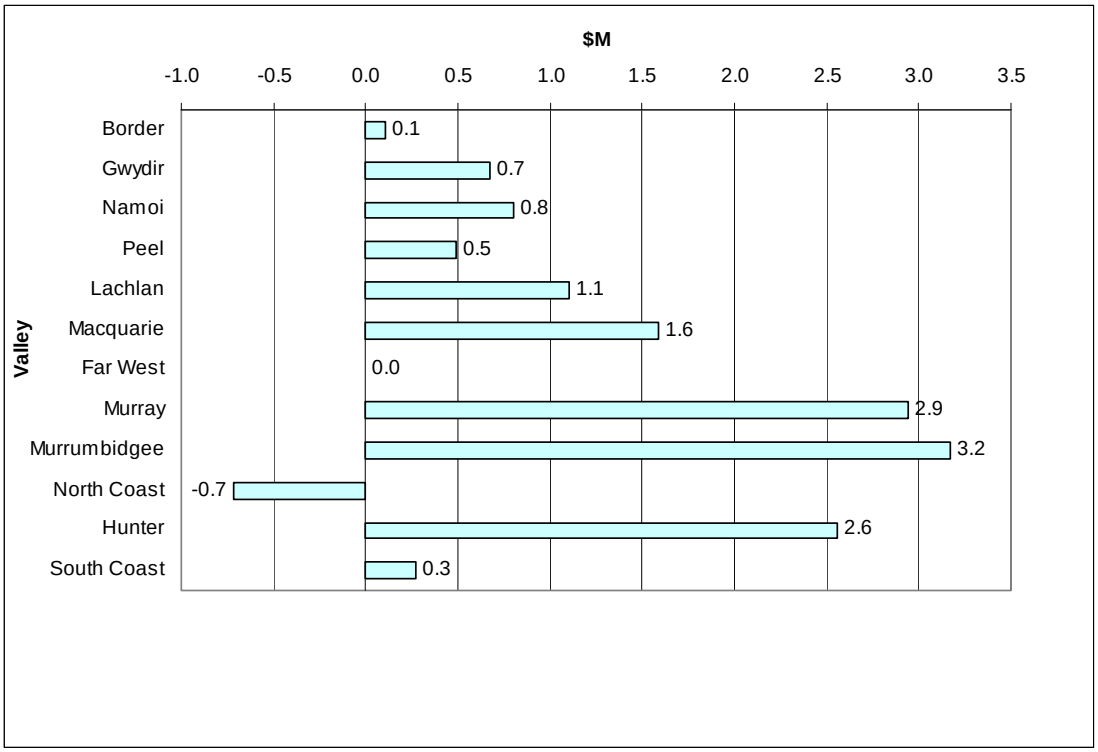
3.5 User share expenditure

The prices set in the 2006 Determination were designed to recover the users' share of costs (subject to the cost recovery and maximum invoice increase cap set by IPART). While the total expenditure on water management activities is in line with the opex forecast, the actual activities undertaken have resulted in a greater proportion of these costs attributable to the user share component.

A comparison of the user share of actual opex against that forecast in the 2006 Price Determination period is shown in the following figures.

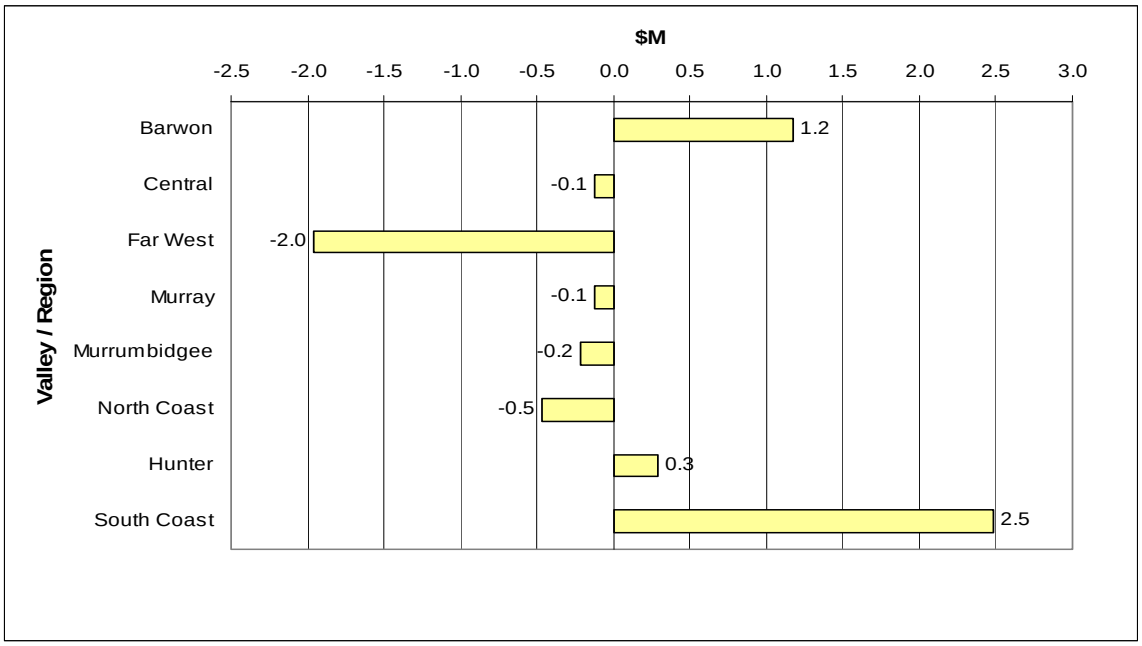
For regulated rivers the total spend is $3.9m greater than that allowed for in the forecast the Office opex costs on which water management charges were determined by IPART in 2006. However, the share of actual the Office opex costs that would have been attributed to users based upon the actual activities undertaken is $13.1m greater than the forecast user share.

Figure 7: Regulated rivers – Variance of users' share of actual opex against IPART's 2006 Determination's forecast users' share of opex for the period 2006/7 to 2009/10



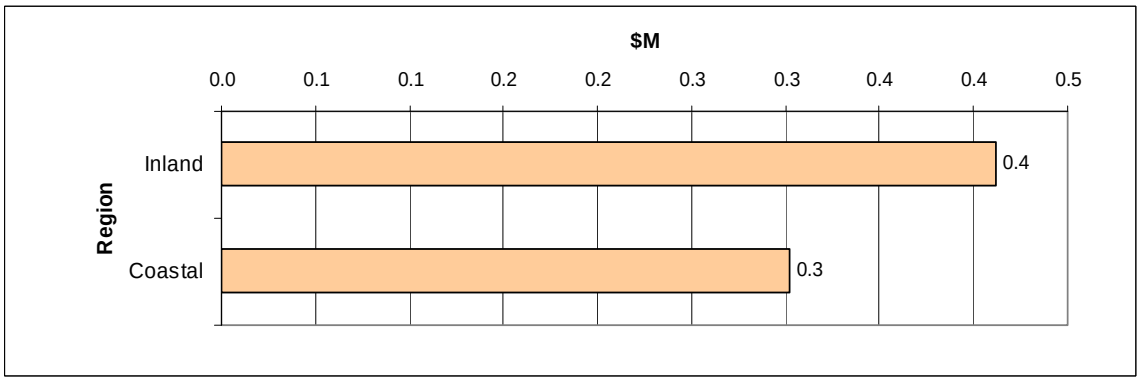
For unregulated rivers, the total spend over the four year period is $3.1m less than that allowed for in the forecast the Office opex costs on which water management charges were determined by IPART in 2006. However, the share of actual opex costs that would have been attributed to users based upon the actual activities undertaken is $1.1m greater than the forecast users' share.

Figure 8: Unregulated rivers – Variance of users' share of actual opex with IPART's 2006 Determination's forecast of users' share of opex for the period 2006/7 to 2009/10



For groundwater, the total spend over the four-year period of $1.2m is less than that allowed for in the forecast the Office opex costs on which the water management charges were determined by IPART in 2006. However, the share of actual opex costs that would have been attributed to the users based upon actual activities is $0.7m greater than the forecast.

Figure 9: Groundwater – Variance of users' share of actual opex with IPART's 2006 Determination's forecast of users' share of opex for the period 2006/7 to 2009/10



3.6 Achievements over the determination period

While only a proportion of activities are funded by users through water management charges, the agency's total water management activities provide substantially more benefits to water users and ensure the long-term sustainability of water resources. The Office, in recent years, has also managed to leverage significant capital funding from Commonwealth sources to improve its water monitoring and information systems and overall water management. The following shows the range of activities undertaken by the agency by November 2009, i.e. after three and a quarter years.

3.6.1 Water information

- Operated the largest water data monitoring system in the nation involving continuous monitoring at 814 river, lake and storage surface water gauging stations sites. This includes river gauging stations that are externally funded. There are 385 stations not externally funded and the costs of these stations is included in the IPART Determination.
- Maintained a network of 3,825 bores and directly monitored 3,448 of these bores per year, at a frequency required to meet the information needs.
- Obtained Commonwealth funding for and implemented a $6m expansion and upgrade of the State's hydrometric network and a $ 8.3m upgrade funded by the Bureau of Meteorology of the monitoring equipment and technology to improve measurement accuracy and reliability, convert significant datasets to electronic format, improve the utility of large datasets already captured, improve consistency of database systems, data transfer and network management. This constitutes a significant capital investment that would have otherwise have had to be recovered from beneficiaries.
- Significantly upgraded the access to real-time data with the implementation of a new telemetry computer system and software. Forty per cent of telemetered sites are capable of providing hourly updates of river flows and dam levels.
- Facilitated the transfer of data to the Bureau of Meteorology (BOM) for inclusion in the national water data system.
- Provided river levels and flow information to the State Emergency Service and the Bureau of Meteorology's Flood Forecasting Division during flood events on the North Coast and Hunter Valley.
- Commenced work on enhanced real-time groundwater monitoring across the State with $1.3m in funding obtained from the National Water Commission and NSW Government.
- Commenced work on installing 29 monitoring bores in the NSW portion of the Great Artesian Basin which will provide real-time data with $510,000 of funding from the Commonwealth.

3.6.2 Resource condition monitoring

- Established benchmark resource condition information for riverine and groundwater systems and monitored against these. This information was provided for State of the Environment Reporting and for the development of the State of the Catchment report cards across each of the 13 Catchment Management Authority areas in NSW.
- Undertook water quality monitoring across 117 monitoring sites collecting more than 2,000 samples on a regular basis to assess long-term trends and condition of water quality in the State's major river systems. Additional samples were also undertaken to monitor locations subject to algal alerts.
- Coordinated and implemented the response to a major bloom of blue-green algae in the Murray River and for numerous smaller blooms, and commenced the review of algal response strategies across NSW.

3.6.3 Monitoring of environmental flows

- Continued to monitor environmental flows in the State's major rivers under the Integrated Monitoring of Environmental Flows Program (IMEF). This program assesses the environmental flow rules in the water sharing plans and provides information on how environmental flows affect ecosystem health. The IMEF program includes the development of models on how environmental flows reach wetlands.
- Carried out specific research projects to better target environmental releases including assessing ecosystem response to flows in the Lachlan; the response of wetland plants and animals to the release of environmental flows in the Macquarie; fish breeding and recruitment response to stimulus flows in the Gwydir Valley; the dissolved organic carbon inputs from flow releases in the lower Namoi River; and assessment of whether algal blooms in the Border Rivers and Lower Darling are related to flow and stratification.
- Developed a program for the monitoring of the environmental impacts of water sharing rules in unregulated rivers across NSW. This included defining the minimum environmental water requirements in running water habitats; development of predictive models to determine the ecological impact of water extraction in unregulated rivers; assessment of the environmental water requirements for fish passage; assessing the value of aquatic refuges during drought and no-flow periods; and identification of NSW estuaries most at risk to water extraction.
- Led the science in developing new environmental flow rules for the Shoalhaven River below Tallowa Dam producing data on river condition, and developing hydraulic and hydrodynamic models. Scientific support was also required to contribute towards the development of environmental water rules for the Hawkesbury-Nepean River.
- Completed a major assessment of the first stage of environmental flows to the Snowy River and developed data, models, and information that has assisted in improving the way in which water is released to the Snowy River including identifying key flow thresholds for releases.
- Supported the Snowy Scientific Committee which was established to provide independent advice to the NSW Government regarding environmental flow requirements for the Snowy River. A revised flow release strategy for the Snowy River below Jindabyne was developed.

3.6.4 Water sharing plans

- Implemented 45 water sharing plans covering 90 per cent of water extraction in NSW providing users with greater security of entitlement and expanded water trading opportunities.
- Placed 12 draft water sharing plans on public exhibition for comment.
- Completed and gazetted 14 water sharing plans.
- Assessed and released progress reports on the implementation of 34 water sharing plans.
- Administered $135m in financial assistance to groundwater licence holders and communities as a result of entitlement reductions in the six major inland groundwater aquifers.

3.6.5 Water licensing and compliance

- Converted and uploaded 6,200 Water Management Act licences to the Water Access Licence Register.
- Developed an on-line register of security interests for licences converted to the Water Management Act.
- Processed and assessed around 45,000 applications for water licences and approvals.
- Commenced controlled activity provisions of the Water Management Act in February 2008 to ensure riparian areas are not adversely affected by proposed development on waterfront lands, and assessed and approved 386 applications.
- Completed 451 compliance inspections and audits, including an audit of structures within the Macquarie Marshes to determine their impact on delivery and effectiveness
  of environmental flows and whether they are authorised and operating within their licence conditions.
- Issued 81 directions and orders to cease unlawful activities such as unauthorised excavations, works or extraction of water which impact on the rights of legitimate water users.
- Issued 23 penalty notices and completed seven successful prosecutions for illegal activities.
- Completed the reviews of the work approvals for all State Water's dams and regulatory structures in five river valleys.
- Ensured that major water utilities operated within their licence conditions.

3.6.6 Water trading

- Assessed 2,233 applications for permanent water dealings covering change of extraction location, sale of a proportion of licence entitlement, individual exit from a group holding, subdivision and consolidation of licences.
- Provided publicly available information on the location, volume and price of 35,208 water allocation trades and 3,049 permanent water licence trades through a web-based register.
- Developed an on-line lodgement of applications for new water access licences.
- Provided data on processing times for water dealings on the web register.
- Formalised agreements with Victoria and South Australia on inter-state trade.
- Continued negotiations with Commonwealth and other States on reducing barriers to trade such as the four per cent annual cap on trade out of Irrigation Corporation areas.
- Developed new dealings such as zero share application and ability to separate holdings in jointly-owned or irrigation corporation areas.
- Negotiated a Memorandum of Understanding capping Commonwealth purchases of water licences for the environment to ensure a balanced approach to licence buyback across the Basin.
- Commenced the development of a register of environmental water licences.
- Continued working with other States and the Commonwealth to develop a system of compatible water licence registers to facilitate interstate trade.

3.6.7 Water availability and management

- Assessed water availability on a fortnightly basis and announced new allocations for the regulated rivers.
- Assessed groundwater availability and announced annual allocations for groundwater sources and implemented local water pumping rules in some systems to protect the quality and quantity of the resource.
- Managed unregulated river extractions on an annual basis and in compliance with cease-to-pump licence conditions.
- Assessed and reported annually on NSW's performance under the Murray-Darling Basin cap on extractions to the Independent Audit Group and negotiated agreement on the cap for ACT and determined the Barwon-Darling cap.
- Embargoed new groundwater licences in the Basin and most of the coastal region to protect groundwater supplies from over-extraction.
- Completed initial assessment of six major risks to water resources in the Murray-Darling Basin, including climatic change, increased groundwater extraction, interception by forests, increased farm dams, irrigation return flows and bushfires.
- Trialled the shepherding of water from the Toorale Station on the junction of the Warrego and Darling Rivers in north-west NSW to the Murray River at the request of the Commonwealth Government and commenced negotiations on a long-term strategy with the Commonwealth for the shepherding of Commonwealth environmental allocations.
- Assessed the impacts of over 1,000 major project applications for impacts on water quantity/quality and geomorphology and over 350 planning and rezoning referrals from local Councils.

3.6.8 Water modelling

- Operated and upgraded nine surface water models and eight regional groundwater models to support the development and implementation of the water sharing plans and collaborated on the use of hydrologic models with the MDBA.
- Carried out collaborative modelling with the CSIRO on the impacts of climate change on future water availability across the Murray-Darling Basin.
- Assessed and published the results of a detailed assessment of the impacts of climate change on runoff and water availability across NSW.
- Calculated and made publicly available water reliability estimates in regulated rivers.
- Quantified water recovery estimates for various programs including The Living Murray, Water for Rivers, State Water and Riverbank.
- Carried out modelling for the MDBA for the determination of new extraction limits under the Basin Plan.
- Collaborated in the development of a national hydrologic modelling strategy.

3.6.9 Drought response

- Suspended five water sharing plans and introduced critical water sharing arrangements in response to severe drought conditions, including the construction of temporary regulators in some systems to more closely control flows, the closing down of supply into some lakes to reduce water losses, and modification of timing of replenishment flows into some effluent creeks.
- Maintained emergency stock and domestic water supply infrastructure.
- Managed water supplies during record critical water shortage in the Murray Valley to ensure the survival of permanent plantings and key industries.
- Established Critical Water Advisory Groups in the Murray, Murrumbidgee and Lachlan River Valleys.
- Negotiated policy on aligning town water restrictions in the Murray and Murrumbidgee with high security allocations.
- Held monthly meetings with local councils in critical water supply areas to discuss town water supply issues and emergency drought assistance.
- Prepared monthly Critical Water Communiqués for the Murray/Lower Darling and Murrumbidgee and as required for the Lachlan.
- Issued a number of water shortage orders restricting irrigation and domestic and stock extractions in critical areas.
- Issued water shortage orders as required in the Barwon-Darling River to ensure supply to Broken Hill.
- Represented NSW on the Senior Officers Group on Contingency Planning for the Murray and re-negotiated extraordinary water sharing arrangements between the States.
- Participating in the review of the Murray Inter-Government agreement for the sharing of the waters of the River Murray to better reflect latest drought conditions.

3.6.10 Water Infrastructure and Recovery for the Environment

- Secured $77.4m for the Hawkesbury-Nepean water recovery strategy and set up the Office of the Hawkesbury-Nepean to oversight the implementation of the program.
- Under the Living Murray Initiative for which the NSW Government has committed $115m, developed and implemented a number of water savings measures such as the Great Darling Anabranch pipeline project which will save 47 GL of water on average per year, provide improved supply to domestic and stock water users and allow the re-introduction of more natural flow conditions along the 460 km of the Great Darling Anabranch.
- Completed a number of environmental works and measures projects to improve flows into critical environmental areas and to re-snag rivers to improve fish habitat.
- Worked with Water for Rivers to implement structural measures such as modification of Barren Box Swamp project to save up to 20,000 ML per year through reducing evaporation losses and alternative stock and domestic supply to Forrest Creek to save 26 GL of water as well as water purchases, which in total have recovered 200 GL in NSW for the Snowy and Murray Rivers.
- Administered the Cap and Pipe the Bores program in the NSW portion of the Great Artesian Basin which has saved around 47,000 ML of water to date, reduced land salinisation and led to improved artesian pressure.

- Investigated structural and operational measures to reduce the water losses from Menindee Lakes.
- Developed and approved a number adaptive environmental water use plans for environmental water licences.
- Operated salt interception schemes in the Murray and Darling Valleys to reduce groundwater saline input into rivers and completed investigations for a salt-interception scheme adjacent to the Barwon-Darling River at Louth.

3.6.11 Water Policy

- Coordinated the implementation of the State Government's strategy for the mitigation of cold water pollution arising from releases from major storages.
- Developed the draft Floodplain Harvesting Policy and carried out targeted consultation with peak stakeholders.
- Developed the trading policy and rules for embargoed groundwater sources in inland NSW.
- Developed guidelines on coastal sand aquifer management.
- Prepared the draft set of reasonable use rules for basic landholder rights for public consultation.
- Progressed the development of a draft aquifer interference policy and guidelines for the management of the take of groundwater through activities such as mining.
- Developed operational policy for water licence requirements for open-cut and underground mining activities.
- Undertook a process for allocating a portion of water savings generated in the Great Artesian Basin through the Cap and Pipe the Bores Program for consumptive use. This involved the auctioning of parcels of water entitlements to members of the public with the funds allocated to additional works.

3.6.12 Amendments to the Water Management Act 2000

- Amended the *Water Management Act 2000* so that it specifically addresses cold-water pollution.
- Amended the legislation to enable the transfer of some powers to the Commonwealth as agreed under the Murray-Darling Basin Inter-Governmental Agreement.
- Amended the legislation to improve compliance capabilities and powers and to enable the establishment of mandatory guidelines for domestic and stock use under basic landholder rights.
- Developed legislative amendments to provide for meters to be installed, operated and maintained by the Government.

3.6.13 COAG water reforms, National Water Initiative and Murray-Darling Basin IGA

- Represented NSW on over 12 committees and working groups to develop national processes on water trading, compatible licence registers, pricing, water planning, meter standards, and water accounting.
- Developed the NSW implementation plan for the National Water Initiative.
- Provided information for the 2007 and 2009 Biennial Assessments of the National Water Initiative undertaken by the National Water Commission.

- Advised the Government on the Murray-Darling Basin Inter-Governmental Agreement and implications of the Commonwealth's Water Act on NSW water interests and rights.
- Continued to negotiate with the Commonwealth over funding of additional activities arising from the national water reforms.
- Secured in-principle approval from the Commonwealth for $1.358b of water infrastructure projects in NSW, with $708m directly administered by NSW agencies.
- Developed project plans and undertook initial feasibility work for the metering, floodplains and pipeline State Priority Projects.
- Obtained $7m funding and commenced work on three major pipeline projects to deliver domestic and stock water more efficiently in some systems.
- Advised the Murray-Darling Basin Authority on the proposed extraction limits, NSW water sharing arrangements, environmental requirements and assets for the Basin Plan.
- Advised the ACCC on the impacts of its water market, trading and charging rules.
- Finalised the Border Rivers Agreement with the Queensland Government providing for the sharing of cross-border flows between Queensland and NSW.
- Represented NSW on the Border Rivers Commission and MDBC and now the Basin Official Committee for the MDBA.
- Represented NSW on 16 committees and working groups for the MDBA.

3.6.14 Response to community

- Responded to over 5,000 items of correspondence on water management matters.
- Provided thousands of briefs to the Minister on water management issues.
- Provide information to Parliament and responded to hundreds of questions on notice.
- Responded to hundreds of telephone calls per day from landholders on their water rights, licences, water allocations, and water trading.
- Attended hundreds of stakeholder and community meetings to outline drought response and broader national water reforms.

4. Regulatory framework for the 2010 Determination

This chapter provides an overview of the key aspects that the Office believes should be included in the next determination and how the Office's water management activities are identified.

4.1 Length of the determination

In deciding on the length of the 2010 Determination period, there are a range of issues that will need to be considered. These include:

- costs of preparing for determinations
- uncertainty regarding a range of additional obligations that may be imposed on the Office at the national level
- the transitional arrangements for the ACCC in taking over the role of price regulation for parts of NSW.

The Office's preferred position is to adopt a three-year determination period. A shorter period is not favoured as the preparation for a determination imposes significant costs on the organisation and is a distraction from the Office's role in delivering water management services.

A three-year price determination period offers sufficient time for some of the major uncertainties regarding the Office's future obligations to be resolved. In particular, the Basin Plan is expected to be in place by 2012, at which point the Office's obligations under this new Plan will be clearer and the operation, maintenance and compliance costs associated with the Commonwealth-funded metering projects will be able to be determined.

As outlined in Chapter 2, water management activities undertaken by the Office have been impacted by a range of activities that could not have been foreseen in 2006 and therefore were not included in its last submission to IPART. Therefore, the Office has had to bear the costs associated with these new obligations.

Therefore, if IPART adopts a longer-term price path, it would be appropriate to include a mechanism to allow for adjustments to prices to incorporate major changes in expenditures. This is particularly important given the Office's inability to borrow additional funds to meet any changes in its service obligations during the regulatory period.

4.2 Price setting approach

The Office generally supports IPART's price setting approach adopted for the 2006 Determination. However, some refinement is recommended to the existing approach and to incorporate new licence types into the price framework.

4.2.1 Regional-based prices for groundwater

In the past, IPART has adopted a valley-based approach to setting prices. The basis of this was to remove the potential for cross-subsidies between valleys, assuming that each valley may have its unique cost structures. While the Office supports maintaining the existing approach to price setting for regulated and unregulated rivers, it is proposed that groundwater sources be amalgamated for pricing purposes. The key reason for this is that the groundwater aquifers often overlap several valleys and that the cost drivers are aquifer based, not valley based.

Further, the provision of water management services is often on a regional basis, with only a small proportion of costs valley-specific costs. Given this, the Office proposes a move away from a valley-based pricing approach for groundwater sources and adoption of a regional-based pricing approach. The most appropriate split is to adopt two regions: Inland and Coastal. This split also recognises the importance of managing the inland aquifers from a whole-of-basin perspective.

4.2.2 Increased emphasis on fixed charges

The Office's costs do not vary with the level of volume of water consumed from the water source. If anything, the Office's activities are inversely related to the volume of water consumed. For example, the Office's water management activities increase in times of drought where water sources are more stressed.

The Office therefore considers that prices should be set on a fixed (entitlement) basis. However, if a two-part tariff is to be considered then this should be set such that a minimum of 70 per cent of revenues are recovered from fixed charges.

4.2.3 Revenue required to fund capital expenditure

In its 2006 Determination, IPART included depreciation on certain assets but not a return on capital. The Office seeks to include in its revenue needs both depreciation and return on its asset base. The rate of return being sought is 7.9 per cent real pre-tax, the same as that requested by State Water. The justification for this rate is included in State Water's submission to IPART.

The rate of return on assets provides a regulated business with a funding source to manage the financial risks of its business. The Office as a budget sector Government department is unable to borrow funds. A comparison of the percentage of revenue needs of a range of NSW price regulated water businesses met by the combined depreciation and rate of return component is as follows:

Table 3: Depreciation and rate of return on assets of price-regulated businesses

Business	% of revenue needs attributed to depreciation + return	Period covered
State Water	60%	2010/11 to 2013/14
Hunter Water	64%	2009/10 to 2012/13
Sydney Catchment Authority	58%	2009/10 to 2011/12
Gosford City Council	49%	2009/10 to 2012/13
Wyong Shire Council	45%	2009/10 to 2012/13
NSW Office of Water	**4%**	**Proposed for 2010/11 to 2012/13**

Inclusion of depreciation and a rate of return would provide $4.4m in 2010/11 increasing to $4.8m in 2012/13.

4.3 Incorporation of additional new types of licences

There are a number of new licences that need to be provided for in the water management charging and water transaction consents. These are:

4.3.1 Floodplain harvesting licences

The Office intends to manage and licence the harvesting of water from floodplains. This remains the last significant extraction of water that currently remains outside of the licensing framework. This requires assessing all existing structures, determining their volumetric entitlement to water and establishing how the extractions will be measured and monitored. While these licences will be progressively determined and issued across the State, this activity will require resourcing by the Office for management, implementation, compliance and enforcement. As a result, the Office proposes that for the 2010 Determination, floodplain harvesting be:

- subject to the same application fees as other access licences and works approvals
- subject to a water management and planning charge based on the rate of supplementary access licences in regulated rivers which pay usage-only charges. This is because floodplain harvesting occurs during high flow periods when floodwaters spread across the floodplain similar to the uncontrolled flows that supplementary licence holders are permitted to extract. The charges will be applied once the licence has been issued.

4.3.2 Licences with adaptive environmental conditions

These licences (more commonly referred to as environmental licences) are created through direct purchase of existing licensed entitlements or through water infrastructure projects (either on farm or within a water supply system) that provide water savings that are then converted into an environmental licence. Where the environmental licence originates from an existing licence (i.e. by direct purchase of an existing licence or an on-farm saving under an existing licence) it retains the category and characteristics of the original licence. Where the environmental licence originates from a water supply system saving, the licence category applied will be an existing category which best reflects the characteristics of the water saving.

Similar to licences for commercial purposes, costs will be incurred by State Water when storing allocated water and delivering water orders in regulated rivers and by the Office in determining allocations, protecting their rights and ensuring compliance with conditions of extraction and use in regulated rivers, unregulated rivers and groundwater. Annual water management charges should apply to all these licences as they do with other licences of the same licence category – e.g. high security, general security, conveyance etc. In the unregulated rivers and groundwater, these licences should also be subject to usage charges if the water is diverted or extracted.

4.3.3 Great Artesian Basin conveyance licences

The water sharing plan for the Great Artesian Basin was gazetted in 2008. The plan provides for the introduction of domestic and stock (conveyance) access licences, commencing in 2013, for conveying water through open-bore drains. These licences will apply to water lost in the process of conveyance, not the actual water used for domestic and stock purposes, which remains a non-chargeable basic landholder right. They will be specific purpose access licences, which are non tradable. When the bore is capped and piped, the conveyance licence will be cancelled.

These conveyance access licences will have a volumetric share component, which will be determined through calculating the average water lost a year in the corresponding bore drains. An annual water management charge based on this volume should be applied.

This charge will enable the Office to recover some of the cost of managing the impacts of the water wastage in the open drains and also provide an additional incentive for landholders to pipe the water.

4.3.4 Tidal pool licences

Unlicensed water extractions from the tidal pools of a number of coastal river systems have been occurring over many years. These tidal pools are an important part of river ecosystems. In order to ensure that tidal pools are properly managed, the Office intends to bring these users into the licensing system where these extractions were previously exempted from requiring a licence under the *Water Act 1912*. The Office will also be increasing its monitoring of water quantity and quality in these tidal pool areas.

4.4 Simplifying the billing process

The 2006 Determination has resulted in an extremely complex billing system that is required to be managed by the Office. Apart from the multiplicity of charges for the different types of licence holders in each of the valleys, the 2006 Determination also included formulas for 'conversion factors' to take account of changes to the volume of entitlements held as licences were converted from the *Water Act 1912* to the *Water Management Act 2000*. With the major inland groundwater sharing plans complete, there is not expected to be any significant changes to entitlements with the introduction of the remaining water sharing plans.

IPART's 2006 Determination also included caps on the size of the bill increases. The cap on annual increases in water management bills imposed by PART in the last determination, reduced the Office's revenue from water users by some $1m per year. The cap needs to be adjusted to take account of any changes to usage or entitlement volumes from year to year. This process is complex, time consuming and costly to administer.

The cap also has the potential to cause a number of anomalies in the billing as a result of:

- administrative difficulties in separating a user's normal bill from the impacts of water allocation trading
- different usage from year to year can mean that under the two-part tariff, users receive a discount on their bill simply because their usage is higher in that year than the previous year. In this respect it is difficult to allow for supplementary water in the regulated rivers is charged at a usage only rate
- the application of the invoice cap where a new licence has been issued (where there was no licence previously). In this instance, the customer was not previously issued with a bill
- the invoice cap reduces incentive for water users subject to a two-part tariff to reduce their use.

4.5 Definition of water management activities

Water management activities arise from the need to manage a resource that is consumed by a wide range of user groups. The overriding aim of these activities is to protect the resource, to allow continued water extraction and maintain the health of the natural ecosystem. At a conceptual level, water management activities include those:

- to promote the long-term sustainability of the resource, to allow continued water extraction and to maintain the health of the natural ecosystem
- that are necessary to manage the impacts of past, current and future patterns of extractive water use
- that are concerned directly with the hydrology of the NSW surface and groundwater systems (as opposed to wider catchment management activities, although there are close linkages)
- that protect the integrity of the entitlement system and the security of users' authorised access to water.

The Office undertakes these activities on behalf of the Water Administration Management Corporation. The water management activities for which IPART regulates prices involve:

- monitoring the quantity and quality of the State's water resources and sharing this information
- collecting data to gain a better understanding of the levels of extractions as well as the potential implications of this extraction for river and groundwater systems
- developing models to assess water sharing arrangements
- developing and implementing policies to manage the resource, including the interstate sharing of resources
- developing and implementing plans to allocate water among users and the environment, and to remediate problems such as salinity, acidification and blue green algae
- monitoring the effectiveness of and compliance against the plans.

4.5.1 Activities profile

For costing purposes, the Office's water management activities are grouped as follows:

C01 – surface water monitoring

C02 – groundwater monitoring

C03 – surface water and groundwater metering

C04 – surface water and groundwater analysis

C05 – water modelling and impact assessment

C06 – water planning and management implementation

C07 – water planning and management planning

C08 – river management works

C09 – water licensing administration

C10 – water consents transactions

C11 – business administration

Within these groups, there are also activities with specific sub-codes. Appendix 1 contains a description of the individual activities undertaken within each of these activity groups and their outputs, outcomes, measures and performance indicators. The activities are also carried out to satisfy legal and other obligations on behalf of the government and these are listed in Appendix 2. The rational for allocating costs between these activities and the cost drivers are provided in Appendix 3.

There have been some changes to the current activities as compared to those used previously. These changes are the result of activities that represent new services which have not been provided by the Office in the past, activities that were not previously classified, or the amalgamation or deletion of some past activities to better reflect the current focus. However, overall, the user share of activities has not been altered and where activities have been consolidated the weighted average of the users' share of the 2006 activities has been adopted. Appendix 4 provides a matching of the old activity codes to each new activity.

Water consents transactions are included in the activity list (C10), although for pricing purposes, this activity is treated separately from other water management services. Water consents transaction costs are charged directly to the applicant as a 'fee for service' arrangement. Further information on the cost and the proposed fee structure of consent transactions is provided in Chapter 14. However water licensing administration (C09) is a broader activity that supports and protects the rights of all water users and for this reason those licensing staff that are working directly on water management activities are included in the assessment of water management costs.

5. Additional resource requirements for core water management activities from 2010

This chapter outlines how the agency's activities are costed and the additional requirements and resources over the next three years to enable it to undertake core activities.

5.1 Staffing numbers

As at October 2009, the Office has a total of 619 full-time equivalent (FTE) staff of which 256 are directly undertaking water management activities included in the costings for the IPART submission. Executive, corporate services, business and administration staff amount to around 86 FTEs (with their costs spread across the entire agency). The other 277 FTEs are either externally funded; working on water management activities that are not included for funding in the IPART submission such as the Country Towns Water Supply and Sewerage Program and Cap and Pipe the Bores Program; part of the groundwater drilling unit which is operated on a commercial basis; involved in the processing and assessment of water consents the cost of which are recovered separately under the fees for these (see Chapter 14); or other separately funded licensing activities such as corporate licensing or controlled activity consents.

5.2 Costing of water management activities

Staff FTEs and costs are accounted against each of the activities (as listed in Appendix 1) according to hours allocated by staff to the specific activities. Labour costs represent 60 per cent of the direct costs of water management activities. Labour costs for staff directly working on water management and planning activities are costed at the annual salary plus a factor for long service leave, payroll tax, superannuation and workers' compensation premiums. Non-labour costs include costs such as contractors, consultants, travel and accommodation and also include the costs of service level agreements with other NSW agencies, primarily State Water for metering of unregulated and groundwater usage and billing on behalf of the Office.

The costs associated with the small number of staff of the executive services and the business services units are accounted for as indirect costs and are spread across all activities of the Office (including non-IPART regulated activities).

The costs of corporate services staff such as finance and accounting, human resources, information technology and the costs of office facilities are spread across all of the Office's activities according to the number of staff working directly on each activity, including those working on activities not regulated by IPART. Costs of corporate services have been calculated as a corporate overhead charge and allocated to each water management and planning activity in accordance with the proportion of direct staff hours allocated to the activity.

At the time of the 2006 Price Determination the then Department of Natural Resources was regionally structured and activities were generally organised on a regional basis. This regional focus changed to a State-wide focus when the Department of Water and Energy was established and this will continue. From a cost forecasting perspective this means that the allocation of operating costs across water sources and valleys is now determined by each functional program manager setting priorities on a State-wide basis. This may give rise to greater regional variation in year-on-year costs as the needs and issues of different areas are incorporated into the work program.

This change in focus has resulted in an adjustment to the way in which forecast costs have been allocated across water sources. The set of cost drivers used in the preparation of the cost forecasts for the submission are shown in Appendix 3 together with the rationale justifying the use of the driver for allocation of the costs for the activity.

the Office recognises the need for continual improvement at both an output performance and financial level. As an agency that has a sole focus on water matters, the Office is planning for an efficiency saving in the level of its overhead and indirect costs of four per cent in 2010 and a further four per cent in 2011, and these savings have been incorporated into the cost projections.

5.3 Future water management costs – core activities

For the 2010 to 2013 period, the Office requires an additional 47.5 direct operational FTEs by 2013 to undertake the core new activities that will arise. These requirements will progressively increase.

The additional staff are attributed to the activity groups as follows:

C01 Surface water monitoring

An additional 16.8 FTEs are required by 2013 to:

- support the $6m expansion and upgrade of the Office's hydrometric network. While the capital costs of the expanded hydrometrics network is being funded by the Commonwealth, the ongoing operation and maintenance of the 128 new stations and 50 upgraded gauging stations is a the Office responsibility requiring additional staff to service these stations
- meet the new national gauging standards. These standards will require the Office staff to increase their visits to each of the gauging stations in the expanded network from the current three to six visits per year to ensure greater reliability in the gauging information
- support the upgrading of surface water databases and the transfer of data to the Bureau of Meteorology for inclusion in a national database. The capital costs are Commonwealth funded through progressive annual payments made by the Bureau of Meteorology. To date, the Office has received $8m to modernise its monitoring network and is estimated to receive some $11m in total by 2012. However, as with the expansion of the hydrometric network, ongoing operation and maintenance of the expanded and improved databases will remain a the Office responsibility
- undertake additional surface water quality monitoring associated with the cold-water pollution strategy and collate data and report on the effectiveness of the works
- as required under the National Water Quality Management Strategy, develop regionally-based water quality targets to allow more accurate and appropriate reporting of water quality conditions across NSW taking into account natural variability
- upgrade the surface water quality database and check historical sampling period data for the 114 water quality sampling sites using appropriate quality assurance protocols
- create a database for storage of biological data collected under the performance monitoring and evaluation programs for water sharing plans. This is a major dataset spanning nearly ten years, and covering a wide spatial area and number of parameters.

C02 Groundwater monitoring

An additional 4.5 FTEs by 2013 to:

- monitor a number of additional groundwater sources where extractions are increasing rapidly in response to drought conditions
- introduce real-time monitoring in high extraction aquifers and undertake spot audits of water usage in low use aquifers
- include this additional information in the water databases and groundwater status reports
- provide information for the development of groundwater models
- improve decision making on management of local impacts on groundwater, in particular the trigger levels for pumping limitations where quantity and quality are being affected.

C04 Surface water and groundwater analysis

An additional 1 FTE by 2013 to:

- increase the Office's Water Laboratory capacity to process the additional water quality samples which is a function of increased investment in water quality monitoring
- enable faster responses to major water quality events in NSW, such as blue-green algal blooms and fish kills. The limiting factor in timely processing of samples at present is skilled staff, as opposed to lack of equipment.

C05 Water modelling and impact assessment

An additional 1.9 FTEs by 2013 to:

- develop climatic modelling applications to assess risk to water users of reduced water availability
- integrate interception activities (i.e. land use change, farm dams and water harvesting) into surface water valley models
- integrate surface water and groundwater models to improve the assessment of connectivity to develop water management rules
- undertake additional resource assessments to better respond to changing water availability
- upgrade hydrologic models for water balance and water accounting requirements
- develop groundwater models for the remaining groundwater sharing plans
- develop coastal groundwater models to assess impacts of urban expansion.

C06 Water management implementation

An additional 7 FTEs by 2013 to:

- implement the rules under the 82 water sharing plans that will be completed by 2012 across NSW. As at 30 October 2009, the current number of commenced water sharing plans is 45
- ensure that the rules of the water sharing plans are implemented and there is compliance with water sharing plan flow management
- assess water sharing plan implementation, including impacts of environmental flow rules and socio-economic assessment
- review and improve the operational management of the water sharing plans

- develop Ecological Response Models, linking these to spatial and flow models (IQQM) so that the various water sharing plan provisions and flow scenarios can be tested
- identify risks to Groundwater Dependent Ecosystems
- develop environmental water registers and provide improved water trading data and reporting systems
- develop and implement flow response monitoring and modelling program and river management strategy for the Snowy and Montane Rivers. This includes the development of hydrological, hydraulic, hydrodynamic, and ecological and decision support models over the coming years and collection of detailed near infrared aerial photography, LIDAR, topographic surveys, sediment sampling, water quality, and biological sampling (vegetation, water bugs, fish)
- improve management response to blue-green algal blooms across NSW and update all current Regional Algal Contingency Plans.

C07 Water management planning

An additional 6.4 FTEs by 2013 to:

- undertake the development, gazettal, and public consultation on the remaining 38 water sharing plans to be completed across the State by 2012
- accelerate the work on the 18 inland water sharing plans to enable completion by 2011 and 20 coastal plans to complete by 2012 to ensure that all NSW licence holders' access is managed on a similar basis and they receive the benefits of improved licences and tradability
- review and remake 31 water sharing plans before 2014, prior to their 10-year expiry date, with those in the Murray-Darling Basin being consistent with the Basin Plan
- finalise and implement a number of key operational planning issues over the next three years such as for the floodplain harvesting – reasonable use guidelines for domestic and stock rights, aquifer interference, water return flows, stormwater harvesting and daily extraction rights which are essential to protect existing water sources and rights to that water
- develop an administrative framework and systems for the management of increasing numbers of environmental water licences and the accounting for these under water sharing plan diversion limits to ensure that consumptive extractions are not impacted
- assess increasing number of mines and major project proposals to ensure that their extractions are appropriately managed and licensed
- increase ability to respond to national water management issues
- provide legal advice for water industry regulation.

C09 Water licensing administration

An additional 9.2 FTEs by 2013 to:

- increase the number of compliance staff by nine. The ongoing drought conditions and intense competition for water has highlighted that current compliance staffing levels are seriously inadequate
- ensure there are at least two compliance officers located in strategic locations around NSW so that alleged illegal activities can be investigated in a timely manner

- ensure water sharing rules and licence conditions are adhered to so that legitimate water extractors are not affected
- ensure there is a credible deterrent for people considering illegally extracting water so that the regulatory framework is not undermined
- improve capacity to inform the community about their rights and obligations which will assist in increasing the level of compliance and protecting the rights of legitimate users.

C11 Business administration

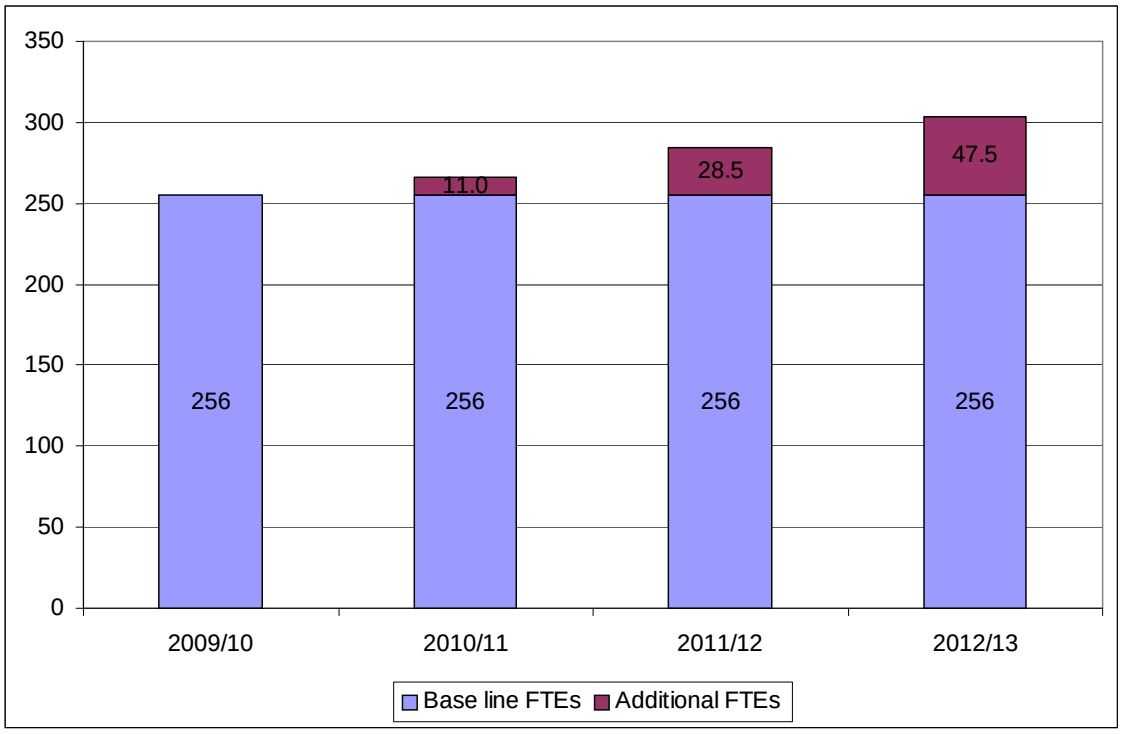
An additional 0.7 FTE by 2013 to:

- improve the financial administration of water management activities for reporting and billing purposes.

5.4 Forecast water management operating expenditure

The additional water management activities will bring the total operational staffing level required to 303.5 by 2013 to directly undertake the core water planning and management activities throughout NSW as shown below .

Figure 10: Level of direct FTEs required to undertake water management for the period 2009/10 to 2012/13



As a result, the forecast operating costs for the period 2009/10 to 2013/14 (based on 2009/10 costs i.e. not CPI indexed) is $50.2m in 2010/11 increasing to $56.8 million in 2012/13 as shown below:

Table 4: Summary of the NSW Office of Water's operating costs for the period 2009/10 (as per current budget) to 2012/13 ($m 09/10)

Water source	2009/10 $m budget	2010/11 $m	2011/12 $m	2012/13 $m	% change over the period
Regulated rivers					
User share	15.0	15.4	16.3	17.1	14%
Government share	6.3	6.4	7.0	7.4	17%
Total	**21.3**	**21.8**	**23.3**	**24.5**	**15%**
Unregulated rivers					
User share	10.9	11.4	12.3	13.0	19%
Government share	3.7	3.9	4.6	5.0	35%
Total	14.6	15.3	16.9	18.0	23%
Groundwater					
User share	11.6	11.8	12.2	12.7	9%
Government share	1.3	1.2	1.5	1.6	23%
Total	**12.9**	**13.0**	**13.7**	**14.3**	**11%**
Total water management					
User share	37.5	38.6	40.8	42.8	14%
Government share	11.3	11.5	13.1	14.0	24%
Total	**48.8**	**50.1**	**53.9**	**56.8**	**16.4%**

The increase in operating costs reflects the proposed increases in staff required to undertake water management activities.

6. Forecast capital expenditure

The Office is undertaking a range of capital projects over the forthcoming determination period. Most of these comprise continued and new capital projects funded by third parties. While water users do not contribute in any way to the capital costs of third-party-funded projects there are two implications for water users namely:

- invariably new capital investment requires additional operating funds on an ongoing basis and these costs have been included where applicable in the Office's forecast operating costs
- in the longer term renewal/refurbishment capital funds are required to maintain the service potential of the assets.

However during the determination the Office will also be undertaking the following capital programs which have not been externally funded:

- Water Extraction Monitoring Program – this is a continuation of the program commenced during the last determination period and requires $1.1m for completion in 2010/11 for some monitoring works in specific areas.
- Installation of hydrometric gauging stations in water sharing plan areas – this is a continuation of the program commenced during the last determination period and requires $200,000 for completion in 2010/11 for gauging stations in specific areas.
- Corporate water database – $100,000 to complete the corporate water database commenced in 2006/07.
- Upgrade and/or replacement of hydrometrics infrastructure - the replacement and refurbishment of gauging stations not funded by third parties needs to be provided for. The hydrometric stations and the supporting infrastructure have different economic lives, namely:
    - electronic and sensing equipment – five years
    - civil infrastructure – 20 years
    - support vehicle-based equipment – an average of 10 years.

The forecast Office capital expenditure is some $2.2m in 2010/11 and $2.0m each year thereafter.

The following shows capital expenditure requirements over the next three years:

Table 5: The NSW Office of Water's capital expenditure requirements for the period 2010/11 to 2012/13 ($09/10 prices)

	2010/11 $m	2011/12 $m	2012/13 $m
Water Extraction Monitoring – NSW Office of Water capex	1.1		
Corporate water database – NSW Office of Water capex	0.1		
Upgrade/replacement/refurbishment of hydrometric network – NSW Office of Water capex	0.2	2.0	2.0
Total	**1.4**	**2.0**	**3.6**

Capital expenditure programs are not directly included in the revenue requirements.

7. Murray-Darling Basin Authority and Border Rivers Commission forecast costs

NSW is obligated to fund a jurisdictional contribution to the Murray-Darling Basin Authority (MDBA) and the Border Rivers Commission (BRC). This funding is currently set at $29m per year plus CPI until 2010/2011 for the MDBA. For the Border River Commission (BRC), funding of $1.1m is required.

The component of these costs that relate to water management activities undertaken by the MDBA and the BRC is recovered through water management charges. While funding contributions for the BRC have been agreed, a strategic review of MDBA's future programs has been proposed by NSW for funding after 2011/12, given that the MDBA is now a Commonwealth statutory authority and the Basin Plan will be completed

The activities of the MDBA and BRC include both river operations for the delivery of water and natural resource management. This submission includes the New South Wales component of the budgeted water management costs, while the costs of river operations are included in State Water's submission. The NSW contribution has been allocated across the activities identified in the *MDBA Corporate Plan for 2009/10* and the *BRC Five-Year Plan* and these have guided the allocation of costs to the relevant the Office water activity.

The natural resource management component of the NSW contribution to MDBA has increased significantly compared to the 2006 Determination, which will correspondingly increase the water users' share of these costs. Previously, NSW's share of MDBA water management activities amounted to $3.7m, but this has now increased to $18m for 2010/11 and slightly less for subsequent years, with the MDBA placing an increased focus on resource management. In 2009/10, $1.7m of MDBA resource management costs were sought from water users but it is now proposed to pass on $6.5m on through water charges with the balance of $11.5m to be funded by the NSW Government.

With regard to BRC costs, of the $1.1m NSW contribution some $700,000 per year is for works and this is included in the State Water submission.

A summary of the allocation of costs for the MDBA and BRC is as follows:

Table 6: MDBA and BRC costs for the period 2010/11 to 2012/13 ($09/10)

	2009/10 $m	2010/11 $m	2011/12 $m	2012/13 $m
MDBA				
Regulated rivers				
User share	1.7	4.9	4.7	4.6
Government share	2.0	10.5	9.3	7.9
Total	**3.7**	**15.4**	**14.0**	**12.5**
Unregulated rivers				
User share	0	0.4	0.4	0.4
Government share	0	0.5	0.5	0.5
Total	**0**	**0.9**	**0.9**	**0.9**
Groundwater				
User share	0	1.2	1.0	0.9
Government share	0	0.6	0.8	0.8
Total	**0**	**1.8**	**1.8**	**1.7**
Total MDBA program	**3.7**	**18.1**	**16.7**	**15.1**
BRC				
Regulated Rivers				
User share	0.2	0.2	0.1	0.1
Government share	0.1	<0.1	0.1	0.1
Total	**0.3**	**0.2**	**0.2**	**0.2**
Unregulated Rivers				
User share	0.1	0.1	0.1	0.1
Government share	0.1	0.1	0.1	0.1
Total	**0.2**	**0.2**	**0.2**	**0.2**
Groundwater				
User share	<0.1	<0.1	<0.1	<0.1
Government share	0.0	0.0	0.0	0.0
Total	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Total BRC program	**0.5**	**0.4**	**0.4**	**0.4**

In the event that NSW's contribution to the MDBA is reduced after 2011/12, bulk water charges will also be reduced.

8. Base level revenue needs for water management core activities

To meet requirements over the next three years for the additional core activities plus capital depreciation and return on revenue and the MDBA and BRC contributions, the Office requires an increase in its revenue for water management activities from the current $57m per year (2009/10) to $77.1m per year in 2012/13, with $49.6m through users' water management charges.

8.1 Projected revenue to be recovered from users

The Office is seeking full cost recovery of the user share of water management activities. The Office's projected revenue requirements for its core activities, including depreciation and return on capital and MDBA and BRC contributions, are as follows:

Table 7: Base revenue requirements

	2010/11 $m	2011/12 $m	2012/13 $m
User share of revenue needs	49.6	51.4	53.4
Government share of revenue needs	23.5	24.3	23.7
Revenue needs.	73.1	75.7	77.1

Full recovery of user share would result in an increase in the planned recovery of user share revenue from the $29.23m determined by IPART in 2006 to $49.6m in 20011/12. Revenue needs are derived from user share expenditure. The table below illustrates the increase in revenue distributed between the four sources of user share expenditure. The major portion of this increase is not being driven by cost growth but is due to full cost recovery ($4.33m), the increases in MDBA charges attributable to the Office ($4.88m) and the increased depreciation and return on assets ($3.36m).

Table 8: Break-up of base revenue needs

	Usershare 2009/10 per 2006 Determination $m	Required user share 2010/11 $m
Operating costs	30.7	38.6
Depreciation and return on assets	0.84	4.2
MDBA contribution	1.62	6.5
BRC contribution	0.40	0.4
Total	**33.56**	**49.6**

The increases in operating costs of $7.9m have occurred due the correct attribution of licensing overhead costs ($2.4m) and a shift in the focus of activities towards activities with a higher user share ($4m). A smaller increase of $1.5m has occurred due to cost growth driven by the increase in required staffing of 11 FTE in 2010-11.

8.2 Revenue needs for core activities split between water sources

The following tables outline the agency's revenue needs spread between regulated river, unregulated river and groundwater sources. The tables exclude the costs associated with the rollout of the metering programs in the Hawkesbury-Nepean and the Murray-Darling Basin to be funded from the monitoring service charge and those associated with the assessing and processing of water consents transactions which are direct costs recovered from the applicants and are discussed in Chapter 13.

Table 9: Revenue needs for regulated rivers for the period 2010/11 to 2012/13 ($09/10)

	2010/11 $m	2011/12 $m	2012/13 $m
Operating costs			
Users' share	15.4	16.3	17.1
Government share	6.4	7.0	7.4
Total operating costs	**21.8**	**23.3**	**24.5**
Depreciation			
Users' share	0.1	0.1	0.2
Government share			
Total depreciation	**0.1**	**0.1**	**0.2**
Return on assets			
Users' share	0.05	0.4	0.4
Government share	0.05	0.1	0.1
Total return on assets	**0.1**	**0.5**	**0.5**
MDBA & BRC costs			
Users' share	5.1	4.8	4.7
Government share	10.6	9.4	8.0
Total MDBA & BRC costs	**15.7**	**14.2**	**12.7**
Total Users' share of revenue needs	**20.6**	**21.6**	**22.4**
Total Government share of revenue needs	**17.1**	**16.5**	**15.5**
Total revenue needs	**37.7**	**38.1**	**37.9**

Table 10: Revenue needs for unregulated rivers for the period 2010/11 to 2012/13 ($09/10)

	2010/11 $m	2011/12 $m	2012/13 $m
Operating costs			
Users' share	11.4	12.3	13.0
Government share	3.9	4.6	5.0
Total operating costs	**15.3**	**16.9**	**18.0**
Depreciation			
Users' share	0.3	0.4	0.5
Government share	0.1	0.2	0.3
Total depreciation	**0.4**	**0.6**	**0.8**
Return on assets			
Users' share	0.05	0.1	0.2
Government share	0.05	0.1	
Total return on assets	**0.1**	**0.2**	**0.2**
MDBA & BRC costs			
Users' share	0.5	0.5	0.5
Government share	0.6	0.6	0.6
Total MDBC & BRC costs	**1.1**	**1.1**	**1. 0**
Total User share of revenue needs	**12.3**	**13.3**	**14.2**
Total Government share of revenue needs	**4.6**	**5.5**	**5.9**
Total revenue needs	**16.9**	**18.8**	**20.1**

Table 11: Revenue needs for groundwater for the period 2010/11 to 2012/13 ($09/10)

	2010/11 $m	2011/12 $m	2012/13 $m
Operating costs			
Users' share	11.8	12.2	12.7
Government share	1.2	1.5	1.6
Total operating costs	**13.0**	**13.7**	**14.3**
Depreciation			
Users' share	1.6	1.6	1.6
Government share			
Total depreciation	**1.6**	**1.6**	**1.6**
Return on assets			
Users' share	2.1	1.7	1.5
Government share			
Total return on assets	**2.1**	**1.7**	**1.5**
MDBA & BRC costs			
Users' share	1.2	1.0	1.0
Government share	0.6	0.8	0.7

	2010/11 $m	2011/12 $m	2012/13 $m
Total MDBA & BRC costs	1.8	1.8	1.7
Total Users' share of revenue needs	**16.7**	**16.5**	**16.8**
Total Government share of revenue needs	**1.8**	**2.3**	**2.3**
Total revenue needs	**18.5**	**18.8**	**19.1**

Table 12: The NSW Office of Water's total revenue needs for the period 2010/11 to 2012/13 ($09/10)

	2010/11 $m	2011/12 $m	2012/13 $m
User share of revenue needs	49.6	51.4	53.4
Government share of revenue needs	23.5	24.3	23.7
Revenue needs	73.1	75.7	77.1

Costs associated with the operation and maintenance of the meters are not included in the above tables as they have been included in the monitoring service charge.

In addition to the total revenue need of $73.1m in 2010/11, the Office requires in the order of an additional $10m per year to meet the additional Commonwealth requirements set out in Chapter 9.

9. Additional costs associated with Commonwealth reform requirements

Over and above the additional core activities, there are further activities that will need to be undertaken by the Office as a result of the requirements to implement the *Commonwealth Water Act 2007* and to accelerate the national water reform agenda. It is estimated that these will require an additional 57 staff (in addition to those included in Chapter 9) at a cost of around $10.5m per year from 2010.

Table 13: Additional activities arising from Commonwealth reforms

Additional activities	2010/11	
	FTE	Total cost $m
Water Monitoring to National Standards	6.1	1.1
National Water Database	0.7	0.1
Research Strategy – National Water Knowledge and Research Plan	1.0	0.2
Guidelines for Sustainable Extraction	1.8	0.3
Enhancing Water Markets	2.1	0.4
National Water Market Systems	1.0	0.2
National Hydrologic Modelling Strategy	1.0	0.2
Structural Adjustment	3.0	0.5
National Water Accounts	2.5	0.4
Environmental Water Management – Shepherding	5.0	0.9
Basin Plan - Planning	18.5	3.4
Compliance to national standards	2.0	0.4
ACCC – Development and implementation	9.4	1.7
Legislative Amendments	0.3	0.1
Systems for urban water consumption reporting	1.0	0.2
Assessment of Water Purchase	2.0	0.4
Total	**57.4**	**10.5**

The ability to service NSW's entire hydrometric and bore monitoring network to the national standards will require a further six staff than that incorporated in the core additional staff requirements in Chapter 5 as these provide for only the expanded component of the network.

The Office's input to the MDBA's Basin planning process is and will continue to be significant. Discussions have already been held with MDBA on environmental water assets, environmental requirements, estimating extraction limits, hydrological modelling, etc. The Office will also be required before 2014 to revise its 14 inland water sharing plans gazetted in 2004 to conform with the new extraction limits and trading and environmental rules in the Basin Plan and have these plans accredited by the Murray-Darling Basin Authority as well as all subsequent plans

The Office will also be responsible for the implementation of the ACCC's new water trade, charge and market rules and their adoption. An example is the requirement of the water charge (termination fee) and water market rules recently developed by the ACCC. The rules will apply from 1 September 2009 and 1 January 2010 respectively. Both have transition

periods to allow affected parties time to adjust. However, the water market rules could require the Office to individually license all extractors within irrigation corporations, private irrigation districts and trusts. While individuals can now apply to the Office for a separate licence, this is done on an as-required basis (typically to allow the sale of all or part of their water right). Converting all shares would be a major task for the Office requiring additional staff to verify licence rights and shares and issue individual licences. Furthermore, there will be additional metering and compliance obligations for the transformed licences.

To date, one trial of water shepherding has been carried out by the Office at the request of the Commonwealth involving the transfer of water from Toorale Station on the junction of Warrego and Darling Rivers over 1300 km through the Menindee Lakes on the Lower Darling River and released downstream for extraction from the Murray River. However, more formalised water shepherding arrangements for the movement and use of environmental holdings within NSW, (which will amount to around 890 GL by 2013 – almost 15 per cent of the State's general security entitlement) and as a result of water purchased from Queensland, will require substantial policy, accounting and delivery arrangements to be developed and implemented.

In the absence to date of any positive response, the Office has included the estimated costs associated with these activities in this submission, but itemised them separately. Failure to deliver on reforms could put at risk the progress payments under the $708m State Priority Projects to be funded by the Commonwealth.

Based on the activities and cost sharing ratios, these costs would be split 81 per cent users and 19 per cent government if they are included in the determination.

10. Future water metering costs

This chapter foreshadows the need for recovery of operation and maintenance costs associated with the installation of two significant metering programs with the capital costs to be funded by the Commonwealth.

10.1 Metering projects

On 20 May 2009, the Commonwealth Government announced that it would provide $28.6m to install some 2000 telemetry enabled meters in the Hawkesbury-Nepean River as part of a $77.4m funding package to help restore the health of the river. In addition, as part of its $12.9b Water for the Future Program, the Commonwealth Government has agreed in principle to fund up to $221m for NSW to install new or upgraded meters across the NSW Murray-Darling Basin. Of the Murray-Darling Basin funds, $131m will be directed to the Office to install around 9,000 meters for groundwater and unregulated rivers and the remaining $90m for around 5,500 meters for the regulated rivers to State Water.

Generally under these schemes, metering will apply to the holder of an approval for a pump, bore or other water extraction work. It will not apply to:

- water supplied by town water supply schemes, irrigation corporations, or other rural water supply schemes to their customers downstream of bulk offtakes
- extraction under Basic Landholder Rights
- extraction by small diameter pumps (minimum size to be determined)
- extraction by small volume licence holders (minimum size to be determined)
- farm dams not on rivers
- works approvals that are not of an extractive nature.

State Water will be responsible for meters on the regulated rivers, and the Office of Water for meters on unregulated rivers and groundwater. However, the two agencies will work together to coordinate purchasing, installation, operation and maintenance so that the most effective service delivery arrangements will be used.

The metering system will be latest technology, tamper proof and low maintenance, meeting the requirements of the new national metering standards and providing immediate real-time information on water use. The expansion and improved quality of water metering will:

- improve water resource management
- improve the ability to detect any non-compliance of approval holders with the conditions of their licence
- enable flow event sharing to be established where appropriate
- enable the protection of environmental flows passing down rivers
- improve river operation by enabling more precise management of flows
- improve public and investor confidence in the management of water and the integrity of the water entitlements systems
- enable the implementation of two-part tariffs, including a usage-based fee component, thereby providing greater equity in cost sharing
- support on-farm investment and operational enhancements to achieve more water and energy-efficient water extraction and distribution
- improve the capacity to identify and obtain river system water savings
- support water plan development and review
- open up water allocation trading in unregulated river and groundwater systems
- reduce meter downtime, thereby reducing costs of estimating missing information and the associated errors.

The services to be provided include:

- upgrading of existing meters to meters compliant with national water meter standards (where needed)
- installation of meters where none currently present
- installation of telemetry equipment onto meters
- certification of meters to the national water meter standards by qualified validators
- meter reading including on-site visits or remote meter reading where the meter is telemetered
- information management and use, including information storage, triggering of response to likely faults, linkage to water system operations, billing, reporting, and water user information access.

Work will begin on installing the new meters in the Hawkesbury-Nepean in early 2010 and could commence in the Murray-Darling Basin by the second half of 2010, subject to development of a detailed business case, due diligence assessment and final funding approval by the Commonwealth. Irrespective of the Commonwealth funding, new meters will have to be installed to meet the national standards which will be applied from 2010. On average, the new installations will cost around $15,000 per site, including the telemetry. Therefore, the capital funding currently being considered for provision by the Commonwealth Government represents a very significant saving for water users.

The Commonwealth Government funding will cover the capital cost of the initial meter purchase and installation. However, both State Water and the Office will need to recover on-going operation and maintenance costs of the meters from water users. The benefits of the Government undertaking the operation and maintenance and then recovering this from users are:

- efficiency of large scale operation
- minimisation of the type and range of meters, in order to minimise operation and maintenance cost
- confidence of all stakeholders with the accuracy and transparency of the collected data
- more-efficient contracts with suppliers for operation and maintenance activities
- consistency with other utility providers which in general operate and maintain meters.

10.2 Ongoing activities

The procurement process for these projects will seek a three-year meter warranty period at least. During this period it will be the responsibility of the meter supplier and/or installer to repair any faults that arise as a result of component failure. After that, this will become part of the maintenance contract. Meter maintenance will involve:

- annual maintenance visits, including routine replacement of consumables such as batteries
- two-yearly validation inspections to certify compliance with national water metering standards
- repair of faults, detected via telemetry, site visit or water user report.

This maintenance work will be undertaken by qualified persons selected by competitive tender. Meter readings will be collected via telemetry systems where available or by site visits. Where telemetry equipment is in place, no site visits solely for meter reading will occur. Remote monitoring will, to the extent feasible, report information on instrument status (e.g. battery levels) in addition to water usage to enable rapid detection of faults. A single annual reading will be taken in conjunction with the maintenance visit. In addition, contractors will take site meter readings during annual meter validation inspections and maintenance visits. Information will be supplied to the Office with visit reports.

The Government will manage and store meter readings and meter performance information for the purposes of water systems operation, trading transactions, water user compliance with allocations, billing, reporting and asset management of metering equipment. New metering information systems will be needed to manage the continuous time-series information that will be available from the new meters being installed, and for the purposes of asset management. The cost of developing such information systems will be included in the capital project costs funded by the Commonwealth, but the on-going cost of entry of metering data, and management of the systems, will need to be recovered from users.

Under the Commonwealth programs, it is expected that most meters will be equipped with telemetry in order to promptly and efficiently collect meter readings. However, if telemetry is not an economic or feasible option for collecting water usage readings, the Office will put other processes in place to record and collect the readings.

10.3 Estimated costs

The Office commissioned a study to determine the expected costs associated with meter operation and maintenance. This study determined unit costs based on benchmarking of costs incurred by metering authorities and detailed analysis of the work required. Based on this study the Office estimates that for the meters proposed to be installed, the likely annual operating and maintenance costs range from $262 to $835 per meter per year, the higher costs usually being associated with sites where an electromagnetic meter and logger is installed, with telemetry capability being obtained through satellite technology. Based on the expected range of meters expected to be installed in the field, it is estimated that the average cost will be $426 per meter per year.

Not all approval holders in an area will have a meter installed. Examples include where the approval holder has no effective works in place for the extraction of water, where the technical arrangement for pumps or pipelines mean that installation of a meter is not economically feasible, or where the amount of water taken via the approval is minor. As previously stated, it is not planned to meter extractions under basic landholder rights.

The decision on the type and nature of meter to be installed at a site will be determined by the Office based on site conditions (such as location, exposure, communications strength), as well as extraction conditions (such as pumping rate). In general, the Office estimates that some 35 per cent of groundwater and unregulated approvals and will not be metered.

Under existing arrangements, meter readings are taken by State Water at many sites on regulated rivers, some unregulated rivers (including the Barwon-Darling) and some inland aquifers. The cost of this work is currently built into existing water management charges.

10.4 Foreshadowed charges

The rollout of the meters will be progressive and to equitably recover the costs the Office is proposing that these costs be recovered from users as meters and the associated support systems are implemented. No recovery from water users of the capital costs incurred by the Commonwealth is proposed in those areas where there is no capital injection to replace/upgrade meters, nor is there proposed to be recovery of asset depreciation. However, when the meters reach the end of their normal life cycle, it is proposed to recover the cost of asset replacement commencing at the time of replacement. Meters are expected to have a life of 10 years or more (25 years for electromagnetic meters), and telemetry equipment a life of 10 years.

The Office proposes to fully recover the costs relating to the maintenance and operation of new government-installed meters (including telemetry) and the additional costs of collecting and managing meter readings. These costs could be recovered through a monitoring service charge fixed at an annual fee. Under this approach the fee could be calculated based on the number of government meters on approved works, regardless of how much water is taken, as metering costs are dependent on the meters installed, not water usage. Such a charge should be set on a State-wide basis, as regional differences are expected to be small. The size of the charge to be included in the next determination depends on how it is calculated. There are three main options for charging via a monitoring service charge:

Charge only where a meter is installed. Under this scenario the charge would be $426 per year for each installed meter, and the full cost of meter operation would be recovered from these approval holders. If no meter is installed there would be no charge. This option would mean that non-metered approval holders would not pay for any of the benefits that they receive from metering of neighbouring approvals.

Charge all approval holders a common fee. This would see all approval holders within a metered area paying a monitoring service charge, whether a meter is installed on the works or not. Under this scenario, the charge would be $276 per year.

Charge a lesser amount to non-metered approval holders. For example, a charge of half the rate of a metered approval holder could be applied. Based on the assumption of 9,000 metered approval holders and 5,000 non-metered approval holders in the Murray-Darling Basin, this means non-metered approval holders would be charged $166 per year, while metered approval holders would be charged $333 per year. Non-metered approval holders would hence pay (at a reduced rate) for the benefits of metering.

Alternatively, these meter operation and maintenance costs could be built into water management costs and recovered through water prices on a per ML basis in the same way as all other water management costs.

In either case these costs need only be recovered once meters are rolled out in an area. As the large Murray-Darling Basin metering project is not yet approved and not likely to be until the second half of 2010, and it will then take some time to implement, it is not expected that the costs of meter operation and maintenance from that project will arise within the proposed three-year life of this determination. The much smaller Hawkesbury-Nepean metering project has been approved and commenced but the warranty should be sufficient to cover any maintenance costs within a three-year determination period.

Due to the timing of these projects it is not proposed to include these metering costs in this determination, but rather foreshadow that they will need to be included in the next determination. However these costs will need to be provided for if a longer determination period than three years is set by IPART.

11. Consumption forecasts and entitlement basis for water management charges

The Office's costs are essentially fixed from year to year and not related to water availability. In fact, the Office's activities increase during periods of low water availability as greater focus has to be placed on managing, prioritising, and sharing limited water supplies to meet critical needs and to provide information to water users and environmental interests and in developing extraordinary cross-border water sharing arrangements.

However, water management charges for metered water users include both fixed (based on entitlement) and variable (based on actual water use) components. While two-part tariffs currently apply mainly to regulated river users and to groundwater users in the major inland aquifers, with the rollout of metering more water users will be subject to two-part tariffs if this pricing structure continues.

IPART has previously taken into account forecasts of water consumption to set the $ per megalitre rates for the fixed and variable components for water management charges. To date, IPART has based the charges on long-term modelled extraction data. However, in the past nine years, ongoing dry or drought conditions have meant that revenue from the variable or usage component of the water management charge has been at very low levels. Over the last three years, for example, the Office's revenue from the users' share has been below that forecast in the 2006 Determination by an average of $4.9m per year, and the 2009/10 shortfall is expected to be $5.18m. The Office received supplementation to its budget from the NSW Treasury for these revenue shortfalls in 2007/08 of $5m, but this has still resulted in a cumulative shortfall of $14.5m over the determination period.

This chapter discusses the Office's preference for all or a greater proportion of fixed charges. However if two-part tariffs are to continue for water management charges, then the basis for setting these in the regulated rivers needs to consider more recent climate conditions rather than historical long-term averages. In addition, it is important that all licensed entitlement be included in the base for revenue setting.

11.1 Rationale for fixed pricing regime

The Office is currently reliant on a part-fixed, part-variable pricing regime for bulk water. This means that in times of water scarcity, such as has consistently been the case over the past six years, its revenue base diminishes due to reduced water allocations. The cumulative loss in revenue over the four years of the current determination is $19.49m.

However, the Office's costs do not vary with the volume of water consumed by users and many activities increase dramatically when water is scarce. For example, the implementation of critical water strategies and measures in the Murray, Murrumbidgee and Lachlan Valleys, consultation with water use groups to determine best approach to sharing limited water supplies, and increased blue-green algae monitoring.

A survey by Australian Bureau of Agricultural and Resource Economics found that water charges are small in relation to the total budget of a viable farm business. In previous determinations, IPART has split the Office's charges with a portion being fixed and a portion varying with use where this is metered. IPART has taken this approach partly on the basis that it sends a price signal to reduce consumption. However, this approach is now considered unnecessary as in the order of 90 per cent of commercial water extraction in NSW is covered by water sharing plans and therefore open to trading of allocation water. Recent prices in the regulated rivers for trade of allocation water has been around $200 per ML and despite limited water availability water trading has been at record levels over recent years. Trading is a much more significant incentive for efficiency than the prices imposed by the Office.

A key function of the Office is to determine water allocation percentages and authorise water releases. Fixed pricing prevents any actual or perceived conflict of interest arising through a link between revenue and the amount of water made available to users. For these reasons the the Office proposes that there should be 100 per cent fixed charges.

11.2 Regulated rivers

11.2.1 Consumption forecasts

While the Office considers that fixed pricing is the more appropriate pricing basis, if a continuation of fixed and variable charges is to be adopted then as a minimum 70 per cent of revenues should be recovered from fixed charges and the variable component should incorporate a method of better predicting water availability.

As a result, the Office, in conjunction with State Water, commissioned the Centre for International Economics (CIE) to review IPART's approach to consumption forecasts. The CIE recommended that consumption forecasts for regulated rivers should be based on an average of the extractions from the past 15 years because:

- actual extractions for the last 15 years for each valley can be more accurately identified and verified
- using a 15-year period of data (rather than over 100 years as previously used) accounts for climate change
- water users will be better able to assess the future price impacts of consumption forecasts
- using a 15-year period is sufficiently long to reduce price volatility within and between determination periods
- using a 15-year period provides some financial stability for the Office and State Water as low recent consumption will be better reflected in prices.

The table below shows average consumption in each regulated river over the last 15 years and it is recommended that these figures be used as the basis for IPART's consumption forecasts for setting water management charges.

Table 14: Proposed consumption forecasts for 2010 Determination

Regulated river valley	Average consumption (ML/pa) over 1993/4 to 2008/09
Border	148,923
Gwydir	275,597
Namoi	170,193
Peel	11,422
Lachlan	226,554
Macquarie	269,989
Murray/Lower Darling	1,391,796
Murrumbidgee	1,736,020
North Coast	906
Hunter	129,581
South Coast	5,804
Total	**4,366,785**

Source: The CIE

This approach, as it takes into account dry sequences, provides better protection for the Office's revenue stream in the face of sustained drought and will enable bulk water users to benefit more fully from increased profitability in higher water availability periods.

The next best alternative, directly adjusting long-run averages for climate change and current low storage levels, while forward looking, is a more complex approach. In addition, estimates of the impacts of climate change currently have a fairly broad range reflecting the uncertainty with these predictions. CSIRO for example has predicted that climate change could in some areas increase water availability while in others reduce water availability by up to 33 per cent, with an average reduction in water availability of around 9 per cent.

11.2.2 Entitlement volumes

Another factor that impacts on price setting is the type and total of entitlements. Different types of entitlements have different reliability of supply which impacts on how much water can be extracted in any year. Table 15 summarises the entitlement volumes currently in each regulated river valley. Total entitlement volumes under each category and valley can vary from time to time depending on licence conversions from one type to another or permanent trade between valleys.

Table 15: Current entitlement volumes for regulated rivers

River valley	High security entitlement ML	General security entitlement ML	Supplementary water ML
Border	3,125	263,085	120,001
Gwydir	21,458	509,665	177,347
Namoi	8,527	255,780	115,469
Peel	17,381	30,911	988*
Lachlan	60,778	632,946	–
Macquarie	42,594	631,716	50,043
Murray/Lower Darling	257,438	2,076,223	502,368
Murrumbidgee	436,928	2,264,065	198,780
North Coast	137	10,193	–
Hunter	70,738	138,109	49,276
South Coast	967	14,197	–
Total	**920,071**	**6,826,889**	**1,214,289**

*Note: This is the volume estimated in the draft water sharing plan for the Peel River.

Total entitlement volumes across categories can vary as a result of permanent water trading and conversion of entitlements.

High security entitlements mean that an irrigator should receive their full entitlement in every year except in extreme drought events. However in recent times because of the severity of the drought, high security allocations in a number of valleys have been below full allocations.

The reliability of supply on general security licences differs between the valleys. The volume of water that can be extracted using a general security licence also depends on the water available in a given year. In the last few years allocations to general security users have been at record low levels. Both high security and general security licence holders pay entitlement and usage charges.

The water available to supplementary licences holders is very variable as it is made available from uncontrolled tributary inflows or dam spills after other needs (including environmental flows and maintaining reserves) have been met. Under the current determination, supplementary water licences pay a usage charge only because water availability is extremely opportunistic.

Conveyance licences have been issued to a number of the large Irrigation Corporations in NSW in the Murray, Murrumbidgee and Lachlan Valleys. Conveyance licences include an entitlement volume that was based on the previous allowance made for transporting water to the Corporation. These licences are also subject to annual allocations and include both entitlement and usage charges.

As the total entitlement pool impacts on the spread of costs across users and water planning and management activities benefit all water users, it is important that all licensed users are included in the cost base. As a result, environmental licences whether from the direct purchase of a commercial licence or arising as a result of water savings infrastructure projects, will be required to pay water management charges as per the category of their licence. By 2013, some 1,300 GL of water entitlement will be directly purchased from licence holders and possibly another 500 GL dedicated through water savings projects in the regulated rivers in NSW, meaning environmental licences will comprise a substantial proportion of total entitlements and the effort required in managing these licences will be no less than that required for consumptive purposes.

A further issue for the Office in recent years has been the impact on water management revenue of interstate trade. Normally, with the interstate trade that occurs in the southern NSW portion of the Murray-Darling Basin (the Murray, Murrumbidgee and Lower Darling Rivers) it is expected that water licences and allocations would move both from and to NSW. However, in recent years the reality has been that the vast majority of water allocations have been transferred out of NSW into South Australia (SA) and Victoria. This is because the drought has severely limited water availability – entitlement in SA and Victoria is predominantly permanent plantings and must receive water every year in order for the trees and vines to survive. The SA Government has intervened in the market to purchase water on behalf of its irrigators. The Victorian Government has reduced its water charges and does not apply a usage charge, and SA does not apply bulk water charges at all.

As a result of the one-way traffic of interstate water trades, NSW is losing the revenue that it normally obtains via the water use component of its water management charges. This has amounted to some $200,000 in 2008/09. Consequently, the Office will seek to recover its water use component of the water charges from the purchaser of the water when an interstate trade occurs, an approach that is also being adopted by State Water.

11.3 Unregulated rivers

Unregulated rivers are defined as those with flows not controlled by the major rural water storages. Therefore even though Sydney Water has major storages such as Warragamba Dam, the river below is still classified as an unregulated river because water is not specifically ‘regulated’, that is, captured and then released for users to extract downstream.

With the exception of the major and local water utilities for town water supply, water users along the Barwon-Darling River and some small localised areas, overall across the State very little of the extraction from unregulated rivers is metered. Over the last few years, individual users who have installed a meter could elect to be charged a two-part tariff, but very few have taken up this option.

Therefore, the majority of unregulated river users have paid the one-part entitlement charges. The following table shows entitlement volumes in the unregulated river valleys. The entitlement volume shown for the one-part tariff represents the total entitlement of licence holders charged on a fixed (entitlement basis) only. The entitlement volume for the two-part tariff represents the total entitlement of those licence holders that are charged on a two-part tariff basis, that is entitlement (fixed) and usage (variable) charges. The major water utilities are Sydney Catchment Authority in the Sydney/South Coast region and Hunter Water Corporation in the Hunter region. Usage in unregulated rivers varies substantially from year to year depending on water availability.

Table 16: Entitlement volumes for unregulated rivers

River valley	Entitlement one-part tariff ML	Two-part tariff ML	Major water utilities Two-part tariff ML	Total entitlement ML
Border	28,034	870		28,904
Gwydir	46,147	-		46,147
Namoi	143,500	1,023		144,523
Peel	13,984	5,784		19,768
Lachlan	42,877	338		43,215
Macquarie	82,565	5,635		88,200
Far west	199,571	12,811		212,382
Murray	51,636	771		52,407
Murrumbidgee	58,357	6,381		64,738
North Coast	174,032	90,364		264,396
Hunter	157,747	62,702	376,700	597,149
Sydney/South Coast	171,996	103,794	980,000	1,255,790
Total	**1,170,444**	**290,472**	**1,356,700**	**2,817,616**

There are some high-flow licences in the unregulated rivers which are charged on a usage basis only and these licences need to be provided for in the determination. In addition, there are still some remaining licence holders which need to continue to be charged on an area basis until the water sharing plans are implemented – these are mostly in the Barwon-Darling River and some in the South Coast.

With the rollout of meters across the Hawkesbury-Nepean over the next few years and potentially the Murray-Darling Basin there will be a substantial increase in metered extractions. However, for the time being the Office's water managements costs need to be determined for the most part on an entitlement basis.

An issue that will prove significant for Sydney Catchment Authority and Hunter Water Corporation is their fixed water management charges. As they have sought an increase in their overall entitlement to provide greater drought security since the last determination, their fixed component of their water management charges will increase because of this, although the overall regional charge will reduce for other users because of the spreading of costs across the higher entitlement level.

11.4 Groundwater

In the groundwater systems, the larger users in the major inland alluvial aquifers are metered. However, across the smaller groundwater systems there is very little metering of use. The following table shows entitlements across the groundwater regions split into total licensed entitlement which is subject to one-part tariffs only and licensed entitlement that is metered and subject to two-part tariffs.

Table 17: Entitlement volumes `for groundwater sources

River valley	One-part tariff ML	Two-part tariff ML	Vol utility special Two- part tariff ML	Total entitlement ML
Border	3,461	17,580		21,041
Gwydir	14,299	28,147		42,446
Namoi	61,107	174,106		235,213
Peel	9,358	50,978		60,336
Lachlan	54,675	302,100		356,775
Macquarie	14,975	138,966		153,941
Far west	5,423	66,088		71,511
Murray	82,104	157,135		239,239
Murrumbidgee	80,753	312,501		393,254
North Coast	52,418	–		52,418
Hunter	180,892	13,573	29,000	223,465
South Coast	74,793	–	45,000	119,793
Total	**634,258**	**1,261,174**	**74,000**	**1,969,432**

With the implementation of the groundwater plans in the six major inland alluvial aquifers, entitlements have and will continue to be decreased progressively. To allow groundwater users time to adjust to their reduced entitlements, supplementary groundwater entitlement has been temporarily granted in these systems. These will be progressively phased out to be zero by the end of the plan term which is June 2017 for the Gwydir, Macquarie, Murrumbidgee, Murray and Namoi and June 2018 for the Lachlan. Supplementary groundwater is charged at the same rate as other entitlements held by the licence holder for the groundwater source.

There will be around 126,000 ML of supplementary entitlement in the inland groundwater systems in 2010/11 and this will be reduced over the three years.

Table 18: Reductions in supplementary groundwater entitlements

	Lower Gwydir ML	Lower Macquarie ML	Lower Lachlan ML	Lower Murrumbidgee ML	Lower Murray ML	Upper & Lower Namoi ML
2010/11	9,946	1,198	14,867	20,598	48,454	31,518
2011/12	5,962	719	10,619	12,359	29,072	19,516
2012/13	3,970	479	8,495	8,239	19,382	13,513

About 3,000 m are installed on groundwater bores in the major inland aquifers. Subject to Commonwealth funding, this number is expected to double over the next few years. The new category of GAB conveyance licences will also bring some additional entitlement into the cost base for the GAB areas. It is estimated that there could be about 225 bores with conveyance licences with a total entitlement of around 28,000 ML.

12. Water management charges

This chapter sets out the Office's proposed tariffs for the next determination period.

IPART sets prices by first making decisions on the Office's user-revenue requirements and forecast consumption over the determination period, then determining water management charges across water source types and valleys or regions and setting fixed and variable charges where these apply.

In the 2006 Determination, IPART made a number of changes to the Office's tariff structure including:

- removing the high security premium on the fixed entitlement charges for regulated rivers
- phasing out the 'wholesale discount' on the entitlement charge for the Irrigation Corporations and Districts
- phasing-in the entitlement charge on the conveyance licences for Murrumbidgee Irrigation and Coleambally Irrigation
- introducing a minimum water management charge of $60 per annum for all water access licence holders
- applying a cap on average real annual price increases of 13 per cent for regulated rivers and 15 per cent for unregulated rivers and groundwater. IPART also applied a cap of 20 per cent in real terms (for a constant volume) on annual bill increases on customers in unregulated rivers and groundwater.

12.1 Price structure

Other than a lifting of the cap on price increases, the Office is not proposing any amendment to the above aspects. However the Office is proposing changes to the following tariffs and tariff structures for the water management charges:

- For groundwater, the amalgamation of valleys into two areas, inland and coastal. This is in recognition of the fact that the groundwater aquifers overlap a number of valleys and that the cost drivers are not valley based but more closely aligned to the inland and coastal division. This change will cause price shifts leading to noticeable variability in price rises between valleys in the first year.
- A 100 per cent fixed cost regime, but with consideration of a 70/30 fixed/variable pricing structure using dry sequence forecasting in the regulated rivers.
- Movement along the price path from the IPART planned 90 per cent recovery of user share costs in the last determination to an increase in prices which would cover 100 per cent of user costs.
- Providing for the first time a charge for return on capital.
- Including an increase in the MDBA costs due to the increased focus of water resource management activities.
- Providing for the new types of licences in the pricing structure.

Two separate pricing scenarios for water management charges are provided:

1. Scenario 1 – prices reflecting cost increases related to core activities only.
2. Scenario 2 – prices including cost increases of core activities and cost increases due to Commonwealth reform requirements. This pricing structure is proposed in the event that the Commonwealth do not fund the Office for the full cost of their reform requirements.

12.2 Scenario 1 – Proposed prices reflecting cost increases in core activities

12.2.1 Regulated river pricing

12.2.1.1 Fixed price only basis

The overall planned cost recovery rate of the user share for the regulated rivers in the 2006 Determination was 89 per cent in 2008-09 rising to 97 per cent in 2009-10. The rate was significantly under achieved due to drought and the fixed/variable price regime.

To improve revenue security, the Office is proposing to move to a fully fixed-pricing regime based on a 100 per cent cost recovery of the user share. To recover 100 per cent of costs on a 100 per cent fixed basis, the price increase for regulated rivers will be as indicated in Table 19 (2009/10 prices have been recalculated to a fixed price basis for comparison purposes). These include the costs of additional core activities and the additional FTEs required, return on capital and the change to the user share of NSW's contribution to the Murray-Darling Basin Authority and Border Rivers Commission.

Table 19: Tariffs on regulated rivers 100 per cent fixed and 100 per cent cost recovery, scenario 1

TARIFFS ON REGULATED RIVERS 100% FIXED 100% COST RECOVERY									
		2010	2011	Y o Y	2012	Y o Y	2013	Y o Y	TOTAL
		09/10$	09/10$	% Inc	09/10$	% Inc	09/10$	% Inc	% Inc
Minimum bill	$ pa	60.0	60.0	0%	60.0	0%	60.0	0%	0%
High Security and General Security Entitlement Charge ($/ML)									
Border	$/ML	2.62	3.46	32%	3.59	4%	3.66	2%	39%
Gwydir	$/ML	1.29	2.20	71%	2.52	15%	2.61	4%	103%
Namoi	$/ML	2.45	4.07	66%	4.55	12%	4.68	3%	91%
Peel	$/ML	1.80	4.93	175%	6.04	22%	6.14	2%	242%
Lachlan	$/ML	1.39	2.88	108%	3.08	7%	3.23	5%	132%
Macquarie	$/ML	1.70	2.81	65%	2.97	6%	3.11	5%	83%
Murray	$/ML	1.67	2.55	52%	2.59	2%	2.69	4%	61%
Murrumbidgee	$/ML	1.21	2.16	79%	2.20	2%	2.30	4%	90%
North Coast	$/ML	2.99	7.50	151%	9.92	32%	10.51	6%	251%
Hunter	$/ML	1.94	6.37	228%	6.88	8%	7.14	4%	267%
South Coast	$/ML	5.43	7.83	44%	9.98	27%	10.36	4%	91%

Proposed price increases result in varied increases ranging from 39 per cent for the Border Rivers to 267 per cent in the Hunter. Generally prices will increase the most from 2009-10 to 2010-11 due to the increase in costs being recovered, with increases much smaller after that, especially in the third year.

If fixed price charging is accepted then entitlement charges will need to be imposed for supplementary water and floodplain harvesting access in the regulated rivers – currently supplementary access is charged at the usage rate only and it is considered that charges for floodplain harvesting access should be on the similar basis as supplementary access.

12.2.1.2 Fixed and variable pricing

To recover 100 per cent of costs under Scenario 1 but on a 70/30 fixed/variable structure rather than a 100 per cent fixed basis, the price increase for regulated rivers will be as indicated in Table 20.

Table 20: Tariffs on regulated rivers 70/30 fixed/variable and 100 per cent cost recovery

TARIFFS ON REGULATED RIVERS 70/30 FIXED/VARIABLE 100% COST RECOVERY									
		2010	2011	Y o Y	2012	Y o Y	2013	Y o Y	TOTAL
		09/10$	09/10$	% Inc	09/10$	% Inc	09/10$	% Inc	% Inc
Minimum bill	$ pa	60.0	60.0	0%	60.0	0%	60.0	0%	0%
High Security and General Security Entitlement Charge ($/ML)									
Border	$/ML	1.40	2.43	73%	2.51	4%	2.56	2%	82%
Gwydir	$/ML	0.78	1.54	96%	1.76	14%	1.83	4%	133%
Namoi	$/ML	1.21	2.85	135%	3.18	12%	3.28	3%	170%
Peel	$/ML	1.17	3.45	194%	4.22	22%	4.29	2%	266%
Lachlan	$/ML	0.97	2.02	108%	2.16	7%	2.26	5%	132%
Macquarie	$/ML	0.97	1.96	102%	2.08	6%	2.18	5%	124%
Murray	$/ML	1.38	2.07	50%	2.10	2%	2.18	4%	58%
Murrumbidgee	$/ML	1.04	1.84	77%	1.87	2%	1.95	4%	88%
North Coast	$/ML	2.99	7.01	134%	9.21	31%	9.85	7%	229%
Hunter	$/ML	1.23	4.47	265%	4.81	8%	4.99	4%	307%
South Coast	$/ML	2.97	6.24	110%	7.96	28%	8.26	4%	178%
Usage charge									
Border	$/ML	1.63	1.86	14%	1.92	3%	1.96	2%	20%
Gwydir	$/ML	0.92	1.27	38%	1.45	14%	1.51	4%	65%
Namoi	$/ML	1.46	1.89	30%	2.12	12%	2.18	3%	50%
Peel	$/ML	2.12	6.29	197%	7.69	22%	7.84	2%	270%
Lachlan	$/ML	1.12	2.64	137%	2.84	7%	2.97	5%	167%
Macquarie	$/ML	1.31	2.10	60%	2.23	6%	2.34	5%	78%
Murray	$/ML	0.38	0.82	117%	0.83	2%	0.86	3%	129%
Murrumbidgee	$/ML	0.27	0.50	89%	0.51	2%	0.54	5%	104%
North Coast	$/ML	2.01	5.54	176%	8.07	46%	7.47	-7%	271%
Hunter	$/ML	1.21	3.06	152%	3.34	9%	3.46	4%	185%
South Coast	$/ML	1.99	4.14	108%	5.26	27%	5.47	4%	175%

This results in entitlement charge increases ranging from 58 per cent for the Murray to 307 per cent for the Hunter and usage charge increases ranging from 20 per cent for the Border region to 271 per cent in the North Coast. Generally, prices increase the most from 2009-10 to 2010-11 due to the one-off increases to the cost base, with increases much smaller after that, especially in the third year. The large increases on the North Coast are due to low numbers of users and low levels of cost recovery in the 2006 Determination.

12.2.2 Unregulated river pricing

12.2.2.1 Fixed price only basis

Recovery of 100 per cent of costs under Scenario 1 on a 100 per cent fixed-price structure will result in the price increase for unregulated rivers as shown in Table 21. Currently, water users on unregulated areas are billed under one of two different fee structures, being an entitlement plus usage charge for town water, industry and recreation and a solely entitlement-based structure for irrigators. Irrigators may opt to use a two-part tariff structure

provided they have a satisfactory meter installed, but currently there has been almost no take-up of this option. A small number of irrigators are still billed on a per hectare basis, a fee structure which is being phased out.

Table 21: Tariffs on unregulated rivers 100 per cent fixed and 100 per cent cost recovery, scenario 1

TARIFFS ON UNREGULATED RIVERS 100% FIXED 100% COST RECOVERY									
		2010	2011	Y o Y	2012	Y o Y	2013	Y o Y	TOTAL
		09/10$	09/10$	% Inc	09/10$	% Inc	09/10$	% Inc	% Inc
Minimum Bill	$ pa	60.00	60.00	0%	60.00	0%	60.00	0%	0%
Entitlement charge replacing two-part tariff									
Border	$/ML	1.68	5.09	203%	5.49	8%	5.96	9%	255%
Gwydir	$/ML	1.68	5.09	203%	5.49	8%	5.96	9%	255%
Namoi	$/ML	1.68	5.09	203%	5.49	8%	5.96	9%	255%
Peel	$/ML	1.68	5.09	203%	5.49	8%	5.96	9%	255%
Lachlan	$/ML	2.98	7.90	165%	8.31	5%	8.77	6%	194%
Macquarie	$/ML	2.98	7.90	165%	8.31	5%	8.77	6%	194%
Far West	$/ML	3.51	5.39	53%	5.92	10%	6.23	5%	77%
Murray	$/ML	3.08	8.01	160%	8.78	10%	9.65	10%	213%
Murrumbidgee	$/ML	3.71	13.74	270%	15.25	11%	17.05	12%	359%
North Coast	$/ML	4.14	8.24	99%	9.03	10%	9.95	10%	140%
Hunter	$/ML	2.75	2.69	-2%	2.88	7%	3.06	7%	11%
South Coast	$/ML	2.15	2.91	35%	3.16	9%	3.32	5%	54%
Irrigation tariffs for licences based on entitlement									
Border	$/ML	2.78	5.09	83%	5.49	8%	5.96	9%	114%
Gwydir	$/ML	2.78	5.09	83%	5.49	8%	5.96	9%	114%
Namoi	$/ML	2.78	5.09	83%	5.49	8%	5.96	9%	114%
Peel	$/ML	2.78	5.09	83%	5.49	8%	5.96	9%	114%
Lachlan	$/ML	4.95	7.90	60%	8.31	5%	8.77	6%	77%
Macquarie	$/ML	4.95	7.90	60%	8.31	5%	8.77	6%	77%
Far West	$/ML	5.78	5.39	-7%	5.92	10%	6.23	5%	8%
Murray	$/ML	5.12	8.01	56%	8.78	10%	9.65	10%	88%
Murrumbidgee	$/ML	6.18	13.74	122%	15.25	11%	17.05	12%	176%
North Coast	$/ML	6.87	8.24	20%	9.03	10%	9.95	10%	45%
Hunter	$/ML	4.57	2.69	-41%	2.88	7%	3.06	7%	-33%
South Coast	$/ML	3.59	2.91	-19%	3.16	9%	3.32	5%	-7%
Irrigation tariffs for licences based on area ($/ha)									
Far West	$/ML	27.07	51.99	92%	56.07	8%	58.62	5%	117%

Except for the Hunter where there is a two per cent reduction in the first year, the proposed prices have increased between 35 per cent and 270 per cent where the fixed charge replaces the two-part tariff, however the overall bill will vary less as there is no usage charge. Price changes vary less for irrigation tariffs based on entitlement, as the increases are generally in the 60 per cent to 83 per cent range in the first year and then much smaller in subsequent years. The Hunter and South Coast water users experience reduced prices because of the impact of the significant entitlement increases by the Hunter Water Corporation and the Sydney Catchment Authority which results in a greater entitlement base across which to spread the costs. However, Hunter Water Corporation and the Sydney Catchment Authority

will receive significantly higher water bills because of their increased entitlement. Water users in the tidal pools will be subject to water management charges.

12.2.3 Groundwater pricing

For groundwater, the Office is proposing a move away from area charges to just two categories – inland and coastal. This is because many groundwater aquifers overlap a number of valleys and that the cost drivers are not valley based but more closely aligned to the inland and coastal division. This change will cause price shifts leading to noticeable variability in price rises between valleys in the first year.

12.2.3.1 Groundwater Pricing – fixed charges only

A 100 per cent fixed, 100 per cent cost recovery under Scenario 1 approach would result in the price increases shown in Table 22. The 2009-10 prices quoted are the current prices, after taking into account the entitlement reductions that have occurred in the major inland aquifers in recent years due to the implementation of the water sharing plans.

Table 22: Groundwater tariff 100 per cent fixed and 100 per cent cost recovery, scenario 1

GROUNDWATER TARIFF 100% FIXED 100% COST RECOVERY									
		2010	**2011**	**Y o Y**	**2012**	**Y o Y**	**2013**	**Y o Y**	**TOTAL**
		09/10$	09/10$	**% Inc**	09/10$	**% Inc**	09/10$	**% Inc**	**% Inc**
Minimum bill	$ pa	60.00	60.00	0%	60.00	0%	60.00	0%	0%
Entitlement Charge									
Border	$/ML	2.47	8.73	253%	8.57	-2%	9.03	5%	265%
Gwydir	$/ML	3.71	8.73	135%	8.57	-2%	9.03	5%	144%
Namoi	$/ML	4.52	8.73	93%	8.57	-2%	9.03	5%	100%
Peel	$/ML	2.47	8.73	253%	8.57	-2%	9.03	5%	265%
Lachlan	$/ML	5.11	8.73	71%	8.57	-2%	9.03	5%	77%
Macquarie	$/ML	5.96	8.73	46%	8.57	-2%	9.03	5%	52%
Far West	$/ML	4.55	8.73	92%	8.57	-2%	9.03	5%	98%
Murray	$/ML	5.32	8.73	64%	8.57	-2%	9.03	5%	70%
Murrumbidgee	$/ML	2.11	8.73	314%	8.57	-2%	9.03	5%	329%
North Coast	$/ML	4.55	8.00	76%	7.93	-1%	8.13	2%	79%
Hunter	$/ML	4.55	8.00	76%	7.93	-1%	8.13	2%	79%
South Coast	$/ML	4.55	8.00	76%	7.93	-1%	8.13	2%	79%

A 100 per cent fixed, 100 per cent cost recovery approach results in large increases being required in the first year due to the increased cost base and 100 per cent recovery, reductions in the second year and very small increases in the third year.

12.3.4 Minimum charges

The 2006 Determination provided for an annual minimum charge of $60. These minimum charges should continue. Analysis of the bills for 2008/09 indicated that more than half of water users on the regulated rivers were charged only the minimum amount because of the substantial number of small users holding stock and domestic licences.

12.3 Scenario 2 – Proposed prices reflecting cost increases in core activities and the additional costs of Commonwealth reform activities

Over and above the additional core activities, there are further activities that will need to be undertaken by the Office to implement the *Commonwealth Water Act 2007* and to accelerate the national water reform agenda. As set out in Chapter 9, it is estimated that these activities will require an additional 57 staff at a cost of around $10.5m per year from 2010.

Although funding for these activities has been sought from the Commonwealth under the 'No net additional costs' agreement, there is a concern that the Commonwealth will require a substantial contribution from the States for these activities. The Office has written to the Commonwealth requesting confirmation of the agreement, detailing the costs and requesting the funding. The Office has included the estimated costs associated with these activities in this submission, but itemised them separately. Based on the activities and cost-sharing ratios, these costs would be split 81 per cent users and 19 per cent government if they are included in the determination. The following tables show the impact on prices if the user share of the additional Commonwealth requirements is recovered from water users.

12.3.1 Regulated river pricing

12.3.1.1 Fixed price

The pricing regime for full cost recovery in regulated rivers on a fixed-price basis under Scenario 2 is shown below.

Table 23: Tariffs on regulated rivers 100 per cent fixed 100 per cent cost recovery

TARIFFS ON REGULATED RIVERS 100% FIXED 100% COST RECOVERY INCLUDING COST OF COMMONWEALTH REFORMS									
		2010	2011	Y o Y	2012	Y o Y	2013	Y o Y	TOTAL
		09/10$	09/10$	% Inc	09/10$	% Inc	09/10$	% Inc	% Inc
Minimum bill	$ pa	60.0	60.0	0%	60.0	0%	60.0	0%	0%
High Security and General Security Entitlement Charge ($/ML)									
Border	$/ML	2.62	4.21	61%	4.35	3%	4.41	1%	68%
Gwydir	$/ML	1.29	2.66	107%	2.98	12%	3.07	3%	139%
Namoi	$/ML	2.45	5.14	110%	5.62	9%	5.76	2%	135%
Peel	$/ML	1.80	6.56	266%	7.68	17%	7.79	1%	334%
Lachlan	$/ML	1.39	3.61	160%	3.81	5%	3.96	4%	185%
Macquarie	$/ML	1.70	3.50	106%	3.67	5%	3.81	4%	124%
Murray	$/ML	1.67	3.05	82%	3.09	1%	3.19	3%	91%
Murrumbidgee	$/ML	1.21	2.52	108%	2.55	1%	2.65	4%	120%
North Coast	$/ML	2.99	9.00	201%	11.42	27%	12.00	5%	301%
Hunter	$/ML	1.94	8.42	333%	8.93	6%	9.19	3%	373%
South Coast	$/ML	5.43	9.93	83%	12.12	22%	12.49	3%	130%

As these prices reflect an $8.5m increase in the total user share cost base and hence the revenue target, price rises are larger than for Scenario 1. Price increases for the first year on regulated rivers for 100 per cent cost recovery as shown above range from 61 per cent in the Border region increasing to 333 per cent for the Hunter. This compares to 32 per cent for the Border and 228 per cent for the Hunter under Scenario 1. Generally prices increase by a

further 30-40 per cent under this recovery structure. The same pattern of large increases in the first year dropping to minor increases by the third year occurs.

12.3.1.2 Fixed and variable pricing

To recover 100 per cent of costs but on a 70/30 fixed/variable structure rather than a 100 per cent fixed basis, the price increase for regulated rivers will be as indicated in Table 24.

Table 24: Regulated river tariffs, 70/30 fixed/variable, scenario 2

TARIFFS ON REGULATED RIVERS 70/30 FIXED/VARIABLE 100% COST RECOVERY INCLUDING COST OF COMMONWEALTH REFORMS									
		2010	2011	Y o Y	2012	Y o Y	2013	Y o Y	TOTAL
		09/10$	09/10$	% Inc	09/10$	% Inc	09/10$	% Inc	% Inc
Minimum bill	$ pa	60.0	60.0	0%	60.0	0%	60.0	0%	0%
High Security and General Security Entitlement Charge ($/ML)									
Border	$/ML	1.40	2.97	112%	3.06	3%	3.11	1%	121%
Gwydir	$/ML	0.78	1.87	139%	2.10	12%	2.16	3%	176%
Namoi	$/ML	1.21	3.63	199%	3.96	9%	4.06	2%	234%
Peel	$/ML	1.17	4.65	297%	5.42	17%	5.49	1%	369%
Lachlan	$/ML	0.97	2.55	162%	2.68	5%	2.79	4%	187%
Macquarie	$/ML	0.97	2.47	154%	2.59	5%	2.68	4%	176%
Murray	$/ML	1.38	2.49	80%	2.52	1%	2.60	3%	88%
Murrumbidgee	$/ML	1.04	2.15	107%	2.18	2%	2.27	4%	118%
North Coast	$/ML	2.99	8.42	181%	10.67	27%	11.21	5%	275%
Hunter	$/ML	1.23	5.95	385%	6.30	6%	6.48	3%	429%
South Coast	$/ML	2.97	8.02	170%	9.73	21%	10.04	3%	238%
Usage charge									
Border	$/ML	1.63	1.87	14%	1.92	3%	1.95	2%	19%
Gwydir	$/ML	0.92	1.27	39%	1.45	14%	1.50	4%	64%
Namoi	$/ML	1.46	1.91	31%	2.12	11%	2.18	3%	50%
Peel	$/ML	2.12	6.39	201%	7.70	21%	7.80	1%	268%
Lachlan	$/ML	1.12	2.65	137%	2.82	7%	2.97	5%	166%
Macquarie	$/ML	1.31	2.11	61%	2.23	5%	2.33	5%	77%
Murray	$/ML	0.38	0.82	118%	0.82	0%	0.85	4%	127%
Murrumbidgee	$/ML	0.27	0.51	91%	0.51	0%	0.53	4%	100%
North Coast	$/ML	2.01	3.59	79%	7.36	105%	10.03	36%	399%
Hunter	$/ML	1.21	3.08	153%	3.35	9%	3.47	4%	186%
South Coast	$/ML	1.99	4.17	110%	5.26	26%	5.49	4%	176%

12.3.2 Unregulated river pricing

12.3.2.1 Fixed price only

The pricing regime for full cost recovery in unregulated rivers on a fixed-price basis under Scenario 2 is shown below.

Table 25: Tariffs on unregulated rivers 100 per cent fixed 100 per cent cost recovery

TARIFFS ON UNREGULATED RIVERS 100% FIXED 100% COST RECOVERY INCLUDING COST OF COMMONWEALTH REFORMS									
		2010	2011	Y o Y	2012	Y o Y	2013	Y o Y	TOTAL
		09/10$	09/10$	% Inc	09/10$	% Inc	09/10$	% Inc	% Inc
Minimum Bill	$ pa	60.00	60.00	0%	60.00	0%	60.00	0%	0%
Entitlement charge replacing two-part tariff									
Border	$/ML	1.68	5.79	245%	6.19	7%	6.66	8%	297%
Gwydir	$/ML	1.68	5.79	245%	6.19	7%	6.66	8%	297%
Namoi	$/ML	1.68	5.79	245%	6.19	7%	6.66	8%	297%
Peel	$/ML	1.68	5.79	245%	6.19	7%	6.66	8%	297%
Lachlan	$/ML	2.98	9.00	202%	9.42	5%	9.89	5%	232%
Macquarie	$/ML	2.98	9.00	202%	9.42	5%	9.89	5%	232%
Far West	$/ML	3.51	6.75	92%	7.28	8%	7.61	5%	117%
Murray	$/ML	3.08	9.12	196%	9.89	8%	10.78	9%	250%
Murrumbidgee	$/ML	3.71	15.62	321%	17.14	10%	18.93	10%	410%
North Coast	$/ML	4.14	9.51	130%	10.28	8%	11.21	9%	171%
Hunter	$/ML	2.75	3.14	14%	3.32	6%	3.50	6%	27%
South Coast	$/ML	2.15	3.73	73%	3.98	7%	4.14	4%	92%
Irrigation tariffs for licences based on entitlement									
Border	$/ML	2.78	5.79	108%	6.19	7%	6.66	8%	139%
Gwydir	$/ML	2.78	5.79	108%	6.19	7%	6.66	8%	139%
Namoi	$/ML	2.78	5.79	108%	6.19	7%	6.66	8%	139%
Peel	$/ML	2.78	5.79	108%	6.19	7%	6.66	8%	139%
Lachlan	$/ML	4.95	9.00	82%	9.42	5%	9.89	5%	100%
Macquarie	$/ML	4.95	9.00	82%	9.42	5%	9.89	5%	100%
Far West	$/ML	5.78	6.75	17%	7.28	8%	7.61	5%	32%
Murray	$/ML	5.12	9.12	78%	9.89	8%	10.78	9%	110%
Murrumbidgee	$/ML	6.18	15.62	153%	17.14	10%	18.93	10%	206%
North Coast	$/ML	6.87	9.51	38%	10.28	8%	11.21	9%	63%
Hunter	$/ML	4.57	3.14	-31%	3.32	6%	3.50	6%	-23%
South Coast	$/ML	3.59	3.73	4%	3.98	7%	4.14	4%	15%

For unregulated rivers the effect of Scenario 2 in the first year is less than that for regulated rivers and price increases vary from four per cent in the South Coast to 245 per cent in the Border, Gwydir, Namoi and Peel. Price increases over Scenario 1 are about 14 per cent.

12.3.3 Groundwater pricing

12.3.3.1 Fixed charges only

A 100 per cent fixed, 100 per cent cost recovery approach for groundwater under Scenario 2 would result in the price increases shown in Table 26. The 2009-10 prices quoted are the current prices, after taking into account the entitlement reductions that have occurred in the major inland aquifers in recent years due to the implementation of the water sharing plans.

Table 26: Groundwater tariffs 100 per cent fixed 100 per cent cost recovery, scenario 2

GROUNDWATER TARIFF 100% FIXED 100% COST RECOVERY INCLUDING COST OF COMMONWEALTH REFORMS									
		2010	2011	Y o Y	2012	Y o Y	2013	Y o Y	TOTAL
		09/10$	09/10$	% Inc	09/10$	% Inc	09/10$	% Inc	% Inc
Minimum bill	$ pa	60.00	60.00	0%	60.00	0%	60.00	0%	0%
Entitlement Charge									
Border	$/ML	2.47	9.57	287%	9.40	-2%	9.88	5%	300%
Gwydir	$/ML	3.71	9.57	158%	9.40	-2%	9.88	5%	167%
Namoi	$/ML	4.52	9.57	112%	9.40	-2%	9.88	5%	119%
Peel	$/ML	2.47	9.57	287%	9.40	-2%	9.88	5%	300%
Lachlan	$/ML	5.11	9.57	87%	9.40	-2%	9.88	5%	93%
Macquarie	$/ML	5.96	9.57	61%	9.40	-2%	9.88	5%	66%
Far West	$/ML	4.55	9.57	110%	9.40	-2%	9.88	5%	117%
Murray	$/ML	5.32	9.57	80%	9.40	-2%	9.88	5%	86%
Murrumbidgee	$/ML	2.11	9.57	354%	9.40	-2%	9.88	5%	369%
North Coast	$/ML	4.55	8.98	97%	8.91	-1%	9.11	2%	100%
Hunter	$/ML	4.55	8.98	97%	8.91	-1%	9.11	2%	100%
South Coast	$/ML	4.55	8.98	97%	8.91	-1%	9.11	2%	100%

Price increases range in the first year from 61 per cent in Macquarie Valley to 354 per cent in the Murrumbidgee compared to a range of 46 to 314 per cent under Scenario 1. Decreases are experienced in the second year, due to work activity shifts. Small rises occur in the third year.

13. Impacts of pricing

13.1 Implications for customers

Bulk water costs as a percentage of total farm costs are relatively small, representing between 0.8 to 4.7 per cent of total farm costs. IPART has previously concluded that bulk water costs are not a significant factor in determining farm profitability, which is more significantly influenced by factors such as commodity prices, interest rates, fuel prices and climatic conditions.

The following table shows the relatively small size of the majority of water bills under the 2006 Determination:

Table 27: Analysis of range of typical water management bills in 2007/08

NSW OFFICE OF WATER			
ANALYSIS OF TYPICAL BILL SIZE			
	Regulated	**Unregulated**	**Ground Water**
Average	$813	$524	$568
Median	$60	$117	$165
Maximum	$1,232,083	$1,540,297	$36,991
Total Licences	9,833	11,851	9,453
Bills < $500	8,219	10,494	7,138
% Bills < $500	84%	89%	76%
Bills < $1000	8,999	11,258	8,151
% Bills < $1000	92%	95%	86%

While the move to 100 per cent cost recovery and preference for 100 per cent fixed tariffs will result in large percentage increases in most areas, in general the charges will still be small in relation to the overall farm budget. The average bills are likely to be in the order of $100 to $1,500 for regulated rivers, $200 to $1,000 for unregulated rivers and $300 to $1,000 for groundwater.

Typically, the price rises being sought in the major regulated river valleys are in the order of 100 per cent over the determination period from 2010 to 2013 for the core activities. In many cases this is equivalent to a rise of approximately $1–2/ML. For example, for an irrigation enterprise using 500 ML to irrigate 100 ha these prices rises will be equivalent to $500–1000.

In the unregulated rivers the increase per ML also varies significantly, but again on average around 100 per cent, equating to around $3 to $4 per ML, with groundwater increases around a similar level. There are, however, significant variations between areas because of the amalgamation of groundwater regions.

Most of this rise occurs in the first year of the determination and is due to increases in the cost base and to the requested recovery of the full costs of water management activities. Previous determinations have not resulted in full cost recovery.

The proposed price rises per ML should also be considered in the light of the value of water to irrigation businesses. On the water market, the price per ML of allocation water typically varies in the range $200–2,000/ML depending on location, security and climatic conditions.

In terms of returns generated per ML, Industry & Investment NSW has found that typical returns are $155/ML for cotton, $121/ML for other summer crops, $205/ML for canola, $66/ML for other winter crops and depending on which cropping system and which region of the State, $39–181/ML for lucerne, $181–329/ML for rice, and $66–429/ML for wheat.

13.2 Impact on bills of price Increases due to core activities

The following tables show the impact on typical bills using selected entitlement volumes for a range of licence types.

13.2.1 Regulated Rivers

Table 28 below shows the impact on bills of cost increases from core activities for general security users on regulated rivers with a 500 ML entitlement on a fully fixed-price basis.

Table 28: Typical bills for general security customers with 500 ML entitlement

Bills for GS customers on regulated rivers - real 2009-2010$						
		2010	2011	2012	2013	Total real increase 2010-2014
GS Entitlement						
Border	500	701	1,732	1,797	1,828	161%
Gwydir	500	392	1,099	1,259	1,305	233%
Namoi	500	607	2,034	2,275	2,342	286%
Peel	500	585	2,466	3,019	3,071	425%
Lachlan	500	486	1,442	1,540	1,614	232%
Macquarie	500	486	1,403	1,487	1,556	220%
Murray	500	690	1,276	1,297	1,345	95%
Murrumbidgee	500	519	1,080	1,100	1,149	121%
North Coast	500	1,496	3,752	4,961	5,253	251%
Hunter	500	613	3,185	3,441	3,570	483%
South Coast	500	1,485	3,916	4,988	5,180	249%

Bills increase on average by approximately $1,300 in the first year with increases tapering off after that. On a percentage basis the smallest increases will be in the Murray Valley with the largest being in the Hunter.

Table 29 shows the impact on bills of cost increases from core activities for smaller general security users on regulated rivers with 100 ML entitlement on a fully fixed-price basis.

Table 29: Bills for general security customers, 100 ML entitlement

Bills for small volume GS customers on regulated rivers - real $09-10									
			2008	2009	2010	2011	2012	2013	Total real increase 2010-2013
GS Entitlement		Usage							
Border	100	20%	171	171	140	346	359	366	161%
Gwydir	100	20%	96	95	97	220	252	261	170%
Namoi	100	20%	149	149	151	407	455	468	211%
Peel	100	20%	158	157	159	493	604	614	285%
Lachlan	100	20%	118	118	119	288	308	323	170%
Macquarie	100	20%	111	116	123	281	297	311	152%
Murray	100	20%	148	145	146	255	259	269	85%
Murrumbidgee	100	20%	111	109	109	216	220	230	111%
North Coast	100	20%	263	297	339	750	992	1,051	210%
Hunter	100	20%	146	145	147	637	688	714	386%
South Coast	100	20%	262	294	337	783	998	1,036	208%

Total typical bill increases for smaller volume users range from $146 to $269 for the Murray Valley and from $147 to $714 in the Hunter from 2010 to 2013.

13.2.2 Unregulated Rivers

Table 30 below shows the impact on bills of cost increases from core activities for users on unregulated rivers with a 100 ML entitlement, using a fully fixed price basis.

Table 30: Bills for unregulated river customers, 100 ML entitlement

Bills for irrigators on unregulated rivers, licences converted at a low conversion rate - real 2009-2010$						
		2010	2011	2012	2013	Total Real % Increase
	ML					
Barwon	100	278	509	549	596	114%
Lachlan	100	495	790	831	877	77%
Macquarie	100	495	790	831	877	77%
Far West	100	578	539	592	623	8%
Murray	100	512	801	878	965	88%
Murrumbidgee	100	618	1,374	1,525	1,705	176%
North Coast	100	687	824	903	995	45%
Hunter	100	457	269	288	306	-33%
South Coast	100	359	291	316	332	-7%

Total typical bill increases for small volume users over the determination period range from $578 to $623 for the Far West region to $618 to $1,705 in the Murrumbidgee.

13.2.3 Groundwater

Table 31 below shows the impact on bills of cost increases from core activities for general security users on regulated rivers with a 100 ML entitlement fully fixed price.

Table 31: Groundwater bills for customers with 100 ML entitlement

Groundwater bills for entitlement volumes of 100ML - real 2009-2010$						
		2010	2011	2012	2013	Total real increase 2010-2014
Bills in unmanaged areas	ML					
Barwon	100	247	873	857	903	265%
Lachlan	100	306	873	857	903	195%
Macquarie	100	306	873	857	903	195%
Far West	100	455	873	857	903	98%
Murray	100	263	873	857	903	243%
Murrumbidgee	100	124	873	857	903	630%
North Coast	100	455	800	793	813	79%
Hunter	100	455	800	793	813	79%
South Coast	100	455	800	793	813	79%

Bill increase on average by approximately $500 in the first year with increases tapering off after that. On a percentage basis the smallest increases will be in the coastal regions with the largest being in the Murrumbidgee.

14. Transactions fees for water consents

Transaction fees for the assessing and issuing of new water licences and works and use approvals or for those created through dealings such as water trading under the Water Management Act are set by IPART on a State-wide basis. It is intended to repeal the Water Act in 2010, so that for the 2010 Determination it is expected that all licences and approvals will be administered under the *Water Management Act 2000.*

Water access licences under the Water Management Act incorporate an ongoing right to a share of the available water in a specified water source. Those issued for commercial purposes can be sold, transferred, subdivided, and mortgaged and their annual allocation water temporarily sold. Water access licences are also perpetual, meaning they do not need to be renewed. The value of commercial water licences has substantially increased since the introduction of the Water Management Act placing increased pressure on the Office's procedures, databases and decisions.

Under the Water Management Act, separate water approvals are required for the construction and use of water supply works such as pumps, dams and bores; and for the application of water to land. The approvals are attached to land, and are held by the owner or lawful occupier of that land. The holder changes with alterations to land ownership or occupation.

There are embargoes on the issuing of any additional water licences for commercial purposes across almost all of the State. Therefore, applications for additional licences can only be made for domestic and stock purposes and town water supply or when the Office makes a special controlled allocation order. During droughts, applications for bores for domestic and stock and town water supply purposes increase dramatically.

Licences for commercial purposes can still be obtained through water trading, either through the purchase of whole or part of a licence entitlement. Applicants can also apply to move the licence to another location subject to operational constraints and the rules in the water sharing plans. In 2008/09 there were around 1,250 permanent trades involving 1,197,300 ML of entitlement.

Applications for the trade in annual allocation water in the regulated rivers are processed by State Water as it operates the delivery of water in these systems. Applications for groundwater annual allocation trade are processed by State Water, but with the Office undertaking the hydrogeological assessment.

To date, allocation trade has been limited to the regulated rivers and the major inland aquifers (accounting for some 1,147,000 ML in 2008/09). However, with the completion of the water sharing plans across the State, the introduction of a new trading policy for groundwater that covers areas outside of the water sharing plans and rollout of metering (which is requisite for annual allocation trade), allocation trade is expected to substantially increase in all water sources.

While processing of annual allocation trades in regulated river systems is relatively straightforward and these are administered entirely by State Water according to the rules in the water sharing plans, groundwater applications generally are referred to the Office as they require impact assessment. This service by the Office has not been incorporated into the fee for annual allocation trades for groundwater to date and as a result these costs are not being recovered from the applicant. The Office's administration and basic assessment fee for groundwater should be included in the application fee by State Water and that proportion credited to the Office. Similarly, these costs should be included in the application fee for future unregulated river allocation trades.

In determining applications for new water licences and approvals and for permanent trades, the Office assesses the impacts on existing water users and the environment. No fees are charged by the Office for applicants where there is only a straight change of ownership of the licence (which accounts for about half the total number of permanent trades) – these are simply directed to the Land and Property Management Authority (LPMA) for registering on the Water Access Licence register (a registration fees is applied by the LPMA). The recent exception to this is the purchase of licences for the environment by the Commonwealth that are required to be considered by the Office to determine that they are within the agreed cap limits set by the Memorandum of Understanding. Administrative and assessment processes are undertaken by the Office if the applicant wants to move the licence to another extraction point, split or consolidate entitlements, lease or obtain a zero share entitlement.

The Office is also responsible for issuing and assessing applications for controlled activity, aquifer interference, drainage works and flood works (i.e. those for property protection not for the harvesting of floodplain water) approvals. However, it has been determined that these approvals are not directly related to water use and therefore these fees are independently set by the Minister and not covered in this submission.

The Office proposes a revision to this fee schedule set by IPART in the 2006 Determination to better reflect actual costs that are incurred in assessing the water consent transactions. Access licence and works approval fees for the new licence types for floodplain harvesting, GAB conveyance, and tidal pool (discussed in Chapter 4) have been incorporated in the proposed fee schedule. No change is proposed to fees for transactions on *Water Act 1912* licences as these are intended to be phased out in 2010.

14.1 Service delivery

The Office has 52 staff (FTEs) whose main function is handling applications for consent transactions on water licences and water approvals. These staff, located at 25 offices around NSW, are supported by specialist hydrologists, hydrogeologists, and ecologists to assess applications. Customers are able to make enquiries and lodge applications at local offices.

Comprehensive information, application forms and instructions are available for download from the website, or from offices. In addition, the Office recently initiated on-line lodgement of some types of applications and this service will be expanded over the next two years to incorporate most transactions. The Office has committed to reducing processing times as required by the national water reforms. Information on processing times is provided on the website along with registers on allocation and permanent trading showing the number, types and volumes involved.

The number of applications processed compared to the number forecast in the Office's last pricing submission are shown in Table 32. Those forecast in the 2006 submission are shown in blue and italics. The last column provides an estimate of the future level of water transaction consents. Note that the forecast number of transactions over the next three years for the Water Act is zero as the Water Act is expected to be repealed and all transactions processed under the Water Management Act from 2010.

Table 32: Table 32: Water consents transactions processed by the Office – actual and as forecast in 2006

	2005/06	2006/07	2007/08	2008/09	Forecast 09/10 onwards
New licences and approvals					
Water Act 1912					
Surface water licences – actual	691	446	197	248	0
• 2006 forecast	615	615	527	322	
Groundwater licences (renewable) – actual	604	722	600	384	0
• 2006 forecast	616	494	373	219	
Groundwater licences – stock and domestic (non renewable) – actual	3,934	5,881	2,904	2,372	0
• 2006 forecast	6,776	4,436	1,109	0	
Water Management Act 2000					
Water licences – actual	77	176	265	197	685
• 2006 forecast	46	46	267	489	
Works Approvals (excluding basic rights bores) – actual	69	129	225	131	613
• 2006 forecast	34	34	233	433	
Water use approvals – actual	18	9	13	19	104
• 2006 forecast	10	10	16	22	
Works and Use Approvals – actual	114	90	74	83	443
• 2006 forecast	31	153	407	661	
Works approvals (basic rights bores) – actual	69	453	571	374	4,185
• 2006 forecast	72	1,109	4,436	5,545	
Renewals and extensions					
Water Act 1912					
Renewals – actual	4,558	3,859	3,874	4,029	0
• 2006 forecast	3,283	2,814	2,345	625	
Water Management Act 2000					
WMA Approval Extensions – actual	0	3,975	2,174	1,690	3,300
• 2006 forecast	0	3,956	1,978	3,182	
Dealings					
Water Act 1912					
Permanent Transfers – actual	80	49	68	43	0
• 2006 forecast	17	10	0	0	
Water Management Act 2000					
Permanent Dealings – regulated rivers – actual	306	261	345	565	626
• 2006 forecast	201	219	227	236	
Permanent Dealings* – unregulated rivers & groundwater – actual	7	10	53	84	150
• 2006 forecast	11	83	117	151	
Total for all transactions					
Actual	10,527	16,060	11,363	10,177	10,142
2006 forecast	11,712	13,979	12,035	11,885	

* To date temporary dealings in the groundwater systems have been dealt with by State Water. However the volume of temporary dealings in the groundwater systems and unregulated rivers will increase and involve greater assessment by the Office.

The forecast numbers in the 2006 submission were generally of the right order given that it is impossible to predict accurately the number of applications which will be lodged, as this is a decision of water users and may be influenced by external factors such as drought, floods and government incentives such as the Commonwealth's water purchase program. The transaction numbers under the Water Management Act have not increased as forecast given the delay in finalising the water sharing plans and converting licences from the *Water Act 1912*. This is particularly evident in the number of Water Act licence renewals and applications for stock and domestic bores.

Forecast numbers have been based on the averages for the last three years, with the assumption that the *Water Act 1912* will be repealed in 2010. The long term number of extensions is based on a calculation of the number of renewable approvals that will exist once conversion is completed, divided by 10 (representing the 10-year term of the Water Management Act approvals). Some other adjustments have been made where future trends are known.

The dealings transaction projections are based on the ratio of existing dealings per number of water access licences for regulated, unregulated and groundwater systems.

14.2 Costs Involved

The activities involved in the basic administration of applications include:

- receipt and register of application and application fee
- checking applications for completeness and verifying applicant's right to apply (e.g. landholder for approvals)
- checking against water sharing plan rules, embargo orders, controlled allocation orders, etc. (as appropriate) as to whether application should be accepted
- placing information on file and entering data into the information system
- requesting further information where required
- referral to the Native Titles Office
- signoff of decision and posting notice of determination and conditions to applicant.

Administration costs apply to all water consent transactions. Where required by regulation, the application is also advertised in the local paper, a paper circulating to the Aboriginal community and the Office's website. Objections that are lodged are receipted.

Assessment applies to applications of types where there could potentially be environmental or third-party impacts. Assessment must consider benefits and impacts in accordance with the requirements of the *Water Management Act 2000* and the *Environmental Planning and Assessment Act 1979* and includes:

- identifying and addressing impacts on Aboriginal heritage sites, adjoining pumps or bores
- identifying and addressing impacts on native vegetation, threatened species, wetlands, land degradation, salinity, soil compaction, geomorphic instability, hydrology, water logging, acidity, contamination and water quality
- consideration and resolution of lodged objections.

Generally, the cost of assessment increases with the extent of the proposed activity. Assessment usually requires input from specialists such as hydrogeologists and ecologists and requires a site inspection. Addressing lodged objections by third parties can create very

high costs where resolution between objectors and the applicant is difficult to achieve or the Office's decision is taken to the Land and Environment Court.

The direct costs incurred by the Office in processing water transaction consents and the relevant revenue collected for the 2006 Determination period is as follows:

Table 33: Summary of water consents costs and revenue for the 2006 Determination period

	06/07 $m	07/08 $m	08/09 $m	09/10 budget $m	Total $m
Costs incurred	4.7	6.7	7.1	5.8	24.3
Revenue	2.0*	2.8	2.0	2.4	9.2
Shortfall	-3.6	-3.9	-5.1	-3.4	-15.1

* Estimated

The direct costs forecast to provide these services over the next three years are:

Table 34: Water consents transaction costs to 2012/13

	2010/11	2011/12	2012/13
Costs	$5.8M	$5.8M	$5.8M
FTEs	52	52	52

14.3 Proposed fees

14.3.1 Principles for recovering costs and structuring fees

The Office considers that water transaction consent fees should be set so as to:

- reflect the actual staff costs incurred in processing particular transactions and properly recover the Office's assessment costs
- be standardised so that they can be easily understood and provide consistency between similar transactions incurring similar costs to process
- be able to being calculated by the applicant from the information provided in the application forms
- be understandable and administratively simple to determine.

Transaction fees should be based on the amount and type of administration, advertising and assessment required.

Table 35: Procedures involved in processing by the Office of various types of water consent transactions

Transaction	Administration	Advertising	Assessment
New water access licence	X		
• **zero share**			
• specific purpose	X		X
• other	X		X
Permanent water dealings in regulated rivers – change of ownership only	X		
Permanent water dealings in regulated rivers – all others	X		X
Temporary and permanent water dealings- unregulated rivers and groundwater	X		X
Water approvals	X	X	X
• water supply works and/or use			
• basic rights works	X		X
• floodplain works	X	X	X
• extension of term	X		

Consistent with the approach in the 2006 Determination, the assessment component of fees is split into the following elements:

- A basic assessment fee – designed to cover small or standard applications where assessment is generally straightforward.
- Special assessment fees – where the application is of a type that requires assessment or exceeds a threshold such that more complex assessment is required including a site inspection. A summary of criteria for special assessment fees is set out in Table 36.

The Office proposes the continuation of a sliding scale of fees based on the level of assessment and the size of the entitlement involved for licences and the works and use for approvals.

Table 36: Extent of assessment for water consent transactions and basis for proposed fee

Special assessment fee type	Basis for approach
For new water licences, and water access licence dealings, a sliding scale fee linked to entitlement size above a threshold.	Dealings in groundwater and unregulated river water sources require local impact assessment in addition to consideration of rules in the water sharing plans. It is generally cost reflective to adopt a sliding scale, as the larger the unit share the greater the risk of local impact and the greater the assessment effort.
For water supply work approvals, fees are proposed as follows: • for pumps, a sliding scale fee linked to pump capacity greater than a threshold level • for each dam or weir a flat additional fee • for any water supply works (e.g. channels, water storages) on a floodplain, a flat additional fee.	Adopting a sliding scale for pumps is reasonable given that the larger the works the greater the risk of impacts. Dams and weirs require substantial additional assessment to limit third party and ecological impacts. Works on floodplains require special consideration of impacts on flood flows.
For water use approvals, a sliding scale fee linked to area for land where irrigation is proposed, in excess of a threshold.	Larger areas of land naturally incur larger assessment costs in relation to potential impacts on such things as groundwater, native vegetation, soils etc.

14.3.2 Proposed water consent fees

The water consent fees are premised on all licensing being undertaken under the Water Management Act from 2010. Based on full recovery of marginal costs, the following fee scales are proposed:

Table 37: Proposed fee scales for water transaction consents

Type of transaction	Administration and basic assessment fee	Additional Advertising fee	Additional Special assessment fees
New water access licences			
Zero Share	$292.60		
Specific Purpose	$585.20		$23.41 per ML or units over 20, to a maximum of $2,340.80
Other	$585.20		$23.41 per ML or units over 20, to a maximum of $2,340.80
Water access licence dealings			
Permanent Dealings – regulated rivers	$409.64		
Temporary Dealings – unregulated rivers and groundwater	$760.76		
Permanent Dealings – unregulated rivers and groundwater	$760.76		$23.41 per ML or units over 20, to a maximum of $2,340.80
New or amended approvals			
Works only	$877.80	$475.56	$9.95 per L/s of pump capacity over 50, to a maximum of $2,636.33 + $585.20 per dam
Use only	$877.80	$475.56	$20.48 per ha over 10, to a maximum of $4,096.40
Works and use	$877.80	$475.56	$20.48 per ha over 10, to a maximum of $4,096.40, + $9.95 per L/s of pump capacity over 50, to a maximum of $2,636.33, + $585.20 per dam
Basic rights work approval	$263.34		
Approval extensions			
Extension	$234.08		

The special assessment fee is capped to ensure fees are in line with resources required and are not excessive. Temporary dealings for unregulated rivers and groundwater will attract the administration and basic assessment fee.

The above fee structure will apply to the new floodplain harvesting, Great Artesian Basin conveyance and tidal pools access licences and approvals.

The following table shows how these proposed fees compare to current fees for a range of sample transactions.

Table 38: Proposed water consents fees for sample transactions

Transaction	Current fees	Proposed fees	Increase
New zero share licence	$116.68	$292.60	151%
New specific purpose licence 20 ML	$487.37	$585.20	20%
New other licence 50 ML	$999.17	$1,287.44	29%
Groundwater Dealing 20 ML	$487.37	$760.76	56%
Groundwater Dealing 100 ML	$1,852.17	$2,633.40	42%
Approval 100 mm pump (19 L/s)	$1,018.13	$1,353.36	33%
Approval 150 mm pump (60 L/s)	$1,047.13	$1,452.84	39%
Approval 300 mm pump (265 L/s)	$1,641.63	$3,492.27	113%
Approval 10 ha	$1,018.13	$1,353.36	33%
Approval 40 ha	$1,283.03	$1,967.82	53%
Approval 100 ha	$1,812.83	$3,196.74	76%
Approval farm dam	$1,470.25	$1,938.56	32%
Approval 100 mm pump + 10 ha	$1,018.13	$1,353.36	33%
Approval 150 mm pump + 40 ha	$1,312.03	$2,067.30	58%
Approval 300 mm pump + 100 ha	$2,436.33	$5,335.65	119%
Approval BLR bore	$116.68	$263.34	126%
Approval production bore	$1,018.13	$1,353.36	33%
Approval extension	$116.68	$234.08	101%

Application of these new fees is expected to return an average of $5,650,000 per year which is close to recovering predicted costs.

Acronyms

ACCC	Australian Competition & Consumer Commission
AEW	Adaptive Environmental Water
BGA	Blue Green Algae
BOM	Bureau of Meteorology
BRC	Border Rivers Commission
CMA	Catchment Management Authority
CoAG	Council of Australian Governments
CRC	Cooperative Research Centre
CWP	Cold Water Pollution
Cwth	Commonwealth
DEWHA	Australian Government Department of the Environment, Water, Heritage and the Arts.
G	Groundwater
GL	gigalitre
GWMA	Groundwater Management Area
IAG	Independent Audit Group
IMEF	Integrated Monitoring of Environmental Flows
IP	Implementation Programs
IQQM	Integrated Quantity and Quality Model
LAS	Licensing Administration System
MDB	Murray Darling Basin
MDBA	Murray Darling Basin Authority
MDBMC	Murray Darling Basin Ministerial Council
MER	Monitoring, Evaluation and Reporting Strategy
ML	megalitre
MOU	Memorandum of Understanding
NWI	National Water Initiative
R	Regulated
RACCs	Regional Algal Coordinating Committee
REF	Review of Environmental Factors
SLA	Service Level Agreement
SES	State Emergency Service
SWC	State Water Corporation
The Office	NSW Office of Water
U	Unregulated
WA 1912	*Water Act 1912*
WIX	Water Information Exchange
WMA 2000	*Water Management Act 2000*
WMMIS	Water Management Monitoring and Information System
WSP	Water Sharing Plan

Appendix 1 – Activity description

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C01 **Surface water monitoring**	**Collection and provision of information for ongoing assessment and management of quantity, quality, allocation and use of the State's surface water**			
C01-01 Surface water quantity monitoring	Surface water quantity monitoring, data collection (including river and estuarine flows and levels, storage levels, climate data, etc), data processing, data quality control, data archiving, data analysis and knowledge transfer. Includes monitoring of flows required for operation of WSPs.	Collection of data from hydrometric network.	**1. Output measure** Number of the Office-funded sites: Current: 385 Target: 480* **2. Performance indicator** No of gaugings per site: Current: 3.5 Target: 6	Surface water quantity status known.
C01-02 Surface water quantity data management and reporting	Surface water including estuarine data, State-wide coordination and administration of water data, intra and interstate liaison, data archive management, data archive reporting, systems development/maintenance/ upgrades, data quality reporting, quality accreditation (including procedure development, best practice committees, internal quality audits, external quality accreditation), network design and review, system and application training, corporate data access, provision of real-time data to SWC, SES, BOM Flood Forecasting Section, MDBA and general public. Maintenance and operation of specialist Internet tools for real-time data provision, Water Info web site, interactive voice recording and SMS. Information .dissemination, including Pinneena.	Surface water quantity information compiled, securely stored, managed and reported to stakeholders and general public.	**1. Output measure** Number of sites subject to data management: Current: 1832 Target: 1947 **2. Performance indicator** Percentage telemetered sites with data available on Internet at 9am each day: Current: 93% Target: 95%	Surface water quantity knowledge that supports the ability to share and manage water resources and monitor performance against plans. Source of data for river operations, flood warning, disaster management.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C01-03 Surface water quality monitoring	Surface water quality monitoring – system design, data collection/monitoring, data archiving, data analysis, information provision and knowledge transfer. Covers water quality sampling and assessment of ambient condition and trend for salinity, temperature, turbidity, nutrients, pH.	Collection of water quality data from monitoring network .	**1. Output measure** • Number of the NSW Office of Water-funded sites. • Water quality condition with reference to NWQMS Guidelines. • Data for water quality trend assessment (2008, 2012, 2015). Current: 114 sites sampled monthly Target: 114 sites sampled monthly, to Quality Standards **2. Performance indicator** • NSW State Plan, Priority E4, Target 5. (MER Riverine Ecosystem Theme). • State of Environment reporting. Current: WQ condition and trend assessment (three-yearly analysis and reporting to SoC) (five-yearly analysis and reporting to SOE). Target: As for current.	State-wide water quality behaviour known and described.
C01-04 Surface water ecology, biology and algal monitoring	Surface water including estuarine ecosystem monitoring on ecological/biological attributes of rivers, flood plains and wetlands - system design, data collection, data archiving, data analysis, information provision and knowledge transfer. Covers programs/projects where information is gathered primarily via specific studies and investigations for non-WSP activities (see C07-01) or NRC/CMAs (see C06-03 and C06-05). Includes blue-green algal monitoring activities.	Ecology/ biology data collected for stakeholder use.	**1. Output measure** Blue-green algal taxa cell count and biovolume referenced to NHMRC (2004), NHMRC (2005) and ANZECC/ARMCANZ (2000) under the NWQMS Guidelines. Current: 69 sites monitored weekly to monthly depending on alert level and sample regime in accordance with guidelines	Water ecology and river health status known.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
			Target: 73 sites Weekly sampling sites above red alert level. The number will vary depending upon the incidence of blooms. Weekly reporting. **2. Performance indicator** BGA blooms monitored: Current: All red alert sites monitored at least weekly Target: Same as current	
C01-05 Surface water quality and biological database management	Administration, coordination and custodianship activities, State-wide coordination and administration, intra and interstate liaison, data archive management, data archive reporting, systems development/maintenance/ upgrades, data quality reporting, quality accreditation (including procedure development, best practice committees, internal quality audits, external quality accreditation), system and application training, corporate data access, provision of real-time data to Internet. Maintenance and operation of specialist Internet tools for Internet data provision. Development of enhanced biological database.	Historical water quality and biological data and information securely stored and shared with stakeholders. Data will be easily extracted for large-scale analyses, such as catchment, region, State-wide studies.	**1. Output measure** Operational Biological Database containing data for IMEF, unregulated, algae and Snowy River monitoring programs: Current: no central database Target: one central database **2. Performance indicator** Percentage of current projects with data stored on central database. Current: 0% Target: 80%of current project data stored on central database.	Knowledge supporting ability to share and manage water resources and monitor performance against WSPs. Enhanced security of biological data.
C01-06 Surface water monitoring assets management	Maintenance and operation of structures, vehicles and equipment installed at gauging stations and other fixed monitoring sites (sensors, loggers, batteries, solar panels, etc), associated safety equipment (including boats, life vests, wet weather gear), laptops field/mobile sensors. Research and development of new sensor technology, testing, calibration and configuration of	A monitoring network that is systematically updated and adequately maintained.	**1. Output measure** Number of the Office-funded sites: Current: 385 Target: 480	A monitoring network capable of providing the necessary data as the primary source of data for surface resource management information.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
	monitoring and database hardware and software, sensor and instrument calibration and operation of technical workshops.		**2. Performance indicator** % of sites upgraded each year: Current: 0% Target: 5%	
C02 Groundwater monitoring	**Collection and provision of information for ongoing assessment and management of quantity, quality, allocation and usage of the State's groundwater**			
C02-01 Groundwater quantity monitoring	Groundwater monitoring - systems design, data collection, data archiving, data analysis, information provision and knowledge transfer.	Collection of quantity data from groundwater monitoring bores. Information compiled, managed and shared.	**1. Output measure** Number of the Office-funded sites: Current: 3448 Target: 3500 **2. Performance indicator** Percentage sites generating SWL data: Current: 70% Target: 80%	Groundwater quantity status known for effective resource management.
C02-02 Groundwater quality monitoring	Groundwater quality monitoring systems design, data collection, data archiving, data analysis and information provision and knowledge transfer. Includes salinity and temperature by data loggers and spot sampling from bores.	Collection of groundwater quality status data. Information compiled, managed and shared.	**1. Output measure** Number of the Office-funded sites: Current: 0 Target: 350 **2. Performance indicator** Percentage bores sampled for water quality: Current: 0% Target: 10%	Groundwater quality status known for effective resource management.
C02-03 Groundwater database management	Corporate database administration, systems maintenance/upgrades, quality control/assurance (GDS).	Historical groundwater quality and quantity information securely stored and shared with stakeholders.	**1. Output measure** Number of sites subject to data management: Current: 3770	Groundwater data that supports the ability to share and manage water resources and monitor performance against

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
			Target : 3800 **2. Performance indicator** Percentage of sites subject to data management: Current: 98% Target: 100%	plans.
C02-04 Groundwater monitoring assets management	Maintenance and operation of structures, vehicles and equipment installed at bore monitoring sites (sensors, loggers, batteries, solar panels, etc), laptops field/mobile sensors. Testing and calibration of hardware and software, sensor and instrument calibration and operation of technical workshops.	Operational groundwater monitoring bore network.	**1. Output measure** Percentage of sites upgraded each year: Current: 0% Target: 3% **2. Performance indicator** Percentage new site undergoing maintenance. Percentage new sites on telemetry. Current: 1% Target: 10%	A monitoring network capable of providing the necessary data as the primary source of data for groundwater resource management information.
C03 **Surface and groundwater metering**	**Metering extractive use in all water sources**			
C03-01 Metering operations – user owned	Operation and maintenance of existing licence-holder-owned meters, meter reading and compliance, undertaken by SWC under SLA with DECCW.	Meters read.	**1. Output measure** No. of licences with water meters: Current: 2719 Target: 5000 **2. Performance indicator** % of licences metered: Current: 14% Target: 26%	Water extraction known.
C03-02	Metering data custodianship activities, State-wide	Historical surface water	**1. Output measure**	Surface water quantity

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
Metering data management	coordination and administration, intra and interstate liaison, data archive management, data archive reporting, systems development/maintenance/ upgrades, data quality reporting, quality accreditation (including procedure development, best practice committees, internal quality audits, external quality accreditation), network design and review, system and application training, corporate data access and dissemination.	quantity information compiled, securely stored, managed and shared with stakeholders.	Issued entitlement metered: Current: 1 733 000 ML Target: 2 600 000 ML **2. Performance indicator** % of issued entitlement metered: Current: 38% Target: 58%	knowledge that supports the ability to share and manage water resources and monitor performance against plans.
C03-03 Metering operations – government owned	Operation and maintenance of government-owned meters under meter rollout program, meter reading and compliance, either undertaken by DECCW or by contractual arrangements.	Meters read.	**1. Output measure** Metered licences under government management: Current: 0 Target: 4000 **2. Performance indicator** % of meters under government management: Current: 0% Target: 25%	Water extraction known.
C04 **Surface water and groundwater analysis**	**Analytical services for water quality programs**			
C04-01 Water quality analysis	Laboratory analytical services for water quality programs C01-03, C01-04 and C02-02, and outsourcing of analysis as required.	Water samples tested.	**1. Output measure** Chemical tests Algal tests Current: 3478 algal tests Target: 3500 algal tests Current: 24 435 water chemistry tests Target 2009/10: 32 100 water chemistry tests	Quality of water known.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
			2. Performance indicator Standard of testing satisfied: Current and target: maintain NATA accreditation on required tests pass NATA audits.	
C05 Water modelling and impact assessment	**Development and operation of tools and models to undertake assessments and predictions to ensure resource sustainability**			
C05-01 Water sharing/water management modelling	Surface water modelling for water sharing including: • Water Sharing Plan development and implementation • Murray-Darling Basin Plan • climate variability and climate change • catchment change • implementation of cap management strategy • sustainable development projects • threats to shared MDB resources • environmental flow response modelling • surface water – groundwater interaction.	Surface water models developed and ready for scenarios modelling of water sharing options. Output from models to include: • long-term extraction limits • reliability of entitlements • details of access conditions • impacts of licence conversion and trading • environmental flow outcomes • on farm water user details for social and economic assessment.	**1. Output measure** Models providing information required for water sharing and water resource management: Current: IQQM Target: River Manager Current: Climate and Runoff projections (~2030) for NSW Target: Climate and runoff predictions to specific valleys Contribution to the Murray Darling Basin **2. Performance indicator** Model applicability for WSPs and basin monitoring and reporting commitments: Current: Models applicable to WSPs. Target: Surface water models capable of being used in the 2014 round of water sharing plan reviews and consistent with Basin Plan.	Surface water resource behaviour forecast for use in water sharing planning.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C05-02 Resource assessments	Surface water modelling for water resource assessment of projects/schemes: • Programs of works performance in meeting salinity targets. • Impacts of water trade on salinity and reliability. • MDBC salinity register compliance. • River, storage management for SWC. • Water recovery options/ projects – TLM, NWI, Water for Rivers (Snowy) and other clients.	Assessment of specific surface water impacts from the projects proposed or changed management/operation of the system. Outputs include: • hydrologic feasibility of projects • impacts of project on third parties.	**1. Output measure** Models providing information required on demand for water resource assessments: Current: IQQM Target: River Manager Contribution to the Murray-Darling Basin **2. Performance indicator** Model applicability: Target: Surface water models robust enough to test the range of scenarios that might be investigated.	Assessment of surface water impacts from works/programs .
C05-03 Water balances and accounting	Surface water modelling associated with development and administration of surface water balances and accounting systems for State, Murray-Darling Basin and National Strategies including: • NWI requirements • hydrologic model maintenance • MDBMC cap auditing including model accreditation • Water Sharing Plan auditing • Cross-border water trade - assessment of trading rules • development of water modelling software and application to valley models • eWater CRC (model development).	Updated surface water models and surface water accounting details. Model outputs include: • hydrologic detail for water accounting • long-term extraction limits • reliability of entitlements • details of access conditions • impacts of licence conversion and trading • environmental flow outcomes • on-farm water user details for social and economic assessment.	**1. Output measure** Models providing information required on demand for water resource assessments: Current: IQQM Target: River Manager Contribution to the Murray-Darling Basin **2. Performance indicator** Model applicability: Current: Applicable to current plans Target: Surface water models capable of being used in the 2014 round of water sharing plan reviews.	Assessment of surface water operations.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C05-04 Groundwater modelling	Groundwater modelling associated with development and administration of groundwater water balances and accounting for: • development of groundwater models • water accounting – groundwater interaction assessment of groundwater trading impacts and protocols • groundwater modelling for structural adjustment process • groundwater modelling for review of current WSP's • groundwater models for development of new water sharing plans • MDB Basin Plans.	Groundwater models for groundwater management units Model outputs include: • long-term sustainable extraction limits • details of aquifer interference • local water table details • water balance details.	**1. Output measure** Models providing information required for groundwater water sharing and resource management: Current: Regional groundwater models for major GWMAs Target: Groundwater models for all groundwater WSPs Contribution to the Murray-Darling Basin **2. Performance indicator** Model applicability for WSPs and basin monitoring and reporting commitments Current: Applicable to current plans Target: Groundwater models capable of being used in the 2016 round of water sharing plan reviews .	Groundwater resource behaviour forecast.
C06 **Water management implementation**	**Implementation of water management planning processes**			
C06-01 Systems operation and water availability management	Systems operation for water planning includes: • preparation and maintenance of implementation manuals specifying procedures to be undertaken to deliver provisions of WSPs, including reporting and auditing requirements • review and amendment of implementation programs for each WSP, detailing deliverables and associated timetable • oversight of system operation by SWC and ensuring	• Implementation manuals. • Up-to-date implemen-tation programs. • Water availability determinations. • SWC operations compliance	**1. Output measure** No. of IPs: Current: IP for all WSPs. Target: IP for all WSPs (note, more coming on line each year). **2. Performance indicator** IPs reviewed:	Sustainable use of water resources.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
	compliance with requirements specified in WSP rules • operational monitoring, announcements, etc. on unregulated rivers and groundwater. Water availability management for water planning includes: • Assessment of compliance with long-term extraction limit and development of growth in use response strategies. • Available water determinations. • Supplementary water announcements • Groundwater recharge review model development. • GDE studies, investigations and identification required during plan life.	monitoring and reporting.	Current: Once in 4 years Target: All annually AWDs: Current: All licence categories for all water sources (WMA and WA 1912) Target: Same Timeliness of AWDs: Current: At 1 July and within five days of revised assessment Target: Same	
C06-02 Trading and accounts management	Trading (dealings) rules to ensure integrity of trading, including: • administration of constraints within the water source • administration of changes to water source • determination of conversion factors • implementation of controlled allocation processes. Management of water accounts to comply with plan rules, including: • oversight of water allocation account management • management of extraction conditions and audit of extractions • general groundwater advice • application of spill and carryover rules to water accounts.	• Water accounting rules maintenance. • Water account management. • Controlled allocation auctions.	**1. Output measure** Level of annual water account disputations: Current: 2% Target: 1% **2. Performance indicator** The number of account holders letters of complaint regarding water account transactions: Current: 100 p.a. Target: 50 p.a.	• Market-based systems increases value of water and incentives for water use efficiency. • Water extraction management.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C06-03 Plan performance monitoring and reporting	Plan monitoring and reporting includes: • monitoring of planned environmental water outcomes • reporting on WSP performance indicators for annual reviews, for five-year review by State Interagency Panel and 10-year review by NRC • ecological evaluation of plan performance including monitoring activities (e.g. IMEF recurrent) • field verification of CtP • program evaluation of WSPs and WMA 2000 • compiling information reports to support NRC reviews of WSPs • socio-economic assessment of impacts of WSPs • monitoring of structural adjustment impacts • activities associated with any amendments in WSPs.	• Water flow and extraction performance reporting against plans. • Flow Rules and Sharing with environment evaluated and reported. • Socio-economic impacts of WSPs determined. • WSP amendments. • NRC reviews.	**1. Output measure** All regulated water sources have a monitoring plan to evaluate the key environmental water provisions of their WSPs: Current: 8 Target: 9 **2. Performance indicators** Percentage of regulated WSPs with a ecological monitoring program in place: Current: 88% Target: 100% All high priority Water Sharing Plan areas have ecological performance monitoring implemented and reported Current: 10% Target: 100% All high priority unregulated river WSPs have low flow field verification implemented and reported. Current: 10% Target: 100% .	Operational compliance with WSPs and NSW targets.
C06-04 Blue-green algae management	Mitigating effects of water stored in major storages (i.e. reduced flushing flows), involving coordination of regional algal responses. Functions provided by regional algal coordinating committees (RACCs) and technical support to them, including: • weekly, fortnightly or monthly algal alerts for freshwater events (blue-green algae) • alerts for marine and estuarine events as required • development of contingency plans	Blue-green algae management.	**1. Output measure** Risk Management Plans: Current: 9 Regional risk management plans Target: All risk management plans updated **2. Performance indicator** Reporting and management of algal blooms: Current: Percentage of reports meeting weekly timeframe to RACC and State Algal Coordinator of	Healthy rivers.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
	• maintenance of an algal information line and website • training and awareness of management authorities (including councils) • coordination of media response to algal events • coordination of scientific advice for each event. RACCs also provide linkage with State Disaster Plan (DISPLAN) via contingency plans (in emergencies DISPLAN would override contingency plans and provide for significant resources and State-wide coordination).		Alert levels based on algal data. Actions implemented in accordance with Algal Risk management Plan and Guidelines. Target: Algal bloom risk mitigated and managed through RACC process and implementation of Algal risk management plan (warnings issued and communicated).	
C06-05 Environmental water management	Environmental water management includes: • implementation of environmental water provisions, flow advisory committees, flow reference panels and management and monitoring of AEW outcomes • implementation and revision of water savings strategies • activities required for protecting and passing environmental water through systems • monitoring adequacy of Environmental Assessment processes • environmental assessment information dissemination • providing information and reports to support CMA programs for environmental water programs • advice on actions required to address regulated river quality health issues e.g. temperature fluctuations resulting from storage releases (cold water pollution) for inclusion in State Water's works approvals • bacterial, chemical and other operational water quality investigations and management	Management of AEW. CMA support. Assessment of river health issues. Water contamination responses.	**1. Output measure** Cold-Water Pollution (CWP) monitoring: Current: Conditions on all priority stage 1 (of CWP strategy) works Approvals to reduce CWP impacts. Target: Conditions on Works approvals for all priority CWP dams to reduce CWP impacts. **2. Performance indicator** Dams with CWP conditions in place: Current: Percentage of priority dams with conditions to mitigate CWP on works approvals. Target: Percentage of all dams with conditions to mitigate CWP on Works Approvals. First stage of environmental flow releases reported to public: Current: 90% Target: 100% .	Healthy water environment.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
	• Snowy River environmental flow response monitoring.		Second stage of environmental flow releases reported to public Current: 10% Target: 100% Snowy Montane Rivers Flow Response Monitoring program designed and implemented and measures the response of Montane releases: Current: 10% Target: 100% .	
C07 Water management planning	**Development of requirements for the water planning framework**			
C07-01 Water sharing plan development	WSP development includes: • interagency and stakeholder negotiations relating to development of water sharing provisions • policies specifically related to development of water sharing provisions • estuary licensing rules • preparation of statutory documentation • preparation of initial implementation programs for each WSP, detailing deliverables and associated timetable post commencement • scientific and socio-economic studies required to support WSP development • spatial data layer compilations and cartography.	• Background guide to plan report cards. • Policy papers supporting plan positions. • Public exhibition completed. • Plan concurrence from Minister for Environment. • Achieved initial plan implementation programs.	**1. Output measure** Water Sharing Plans gazetted: Current: 45 Target: 83 **2. Performance indicator** Current: 43% of Basin WSP Target: 100% of Basin WSP	Meet State Plan commitments. Improved riverine ecosystems. Improved groundwater systems' ability to support GDEs. Security and certainty for industry and environment. Consistent policy-based plans across NSW.
C07-02 Operational	Operational planning includes development of: • floodplain harvesting planning and rules for issuing	• Water use plans. Floodplain	**1. Output measure** Sets of rules and guidelines published:	• Requirements for issuing new water

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
planning	licences • delivery capacity rights (extraction component of licence to share channel capacity) • water use planning • return flow crediting for extractive users • develop rules and processes for controlled allocation of unassigned water to licensed users • reasonable use guidelines and proliferation of basic landholder rights to ensure water is shared equitably with licensed users • aquifer interference rules and guidelines to inform and manage licensed extractive industries • planning rules for surface and groundwater interception and extraction • planning rules for stormwater harvesting • planning rules for groundwater trading in embargoed water sources.	harvesting rules incorporated into WSPs. • Floodplain harvesting licensing rules. • Delivery capacity rights shares on licences. • Return flow rules. Controlled allocation rules. • Reasonable use guidelines for aquifer interference licensing rules and guidelines for industry. • Stormwater harvesting rules. • Groundwater trading rules.	Current: 1 Target: 10 **2. Performance indicator** Proportion of sets of guidelines published: Current: 10% published Target: 90% published	licences clearly defined and understood by users. • Requirements for equitable water extraction defined and improved.
C07-03 Environmental water planning	Planning processes directed at addressing specific hydrological environmental impacts, including: • development of drainage provisions in management plans for protection against irrigation-induced salinity • development of floodplain development plans to limit or mitigate potential social, economic or environmental impact of flood inundation • development of environmental protection provisions in management plans for controlling development in environmentally sensitive zones	• Drainage plans. • Floodplain development plans. • Environmental protection zones established where appropriate. • Relationships between river flows and environmental	**1. Output measure** Environmental management measures: Current: Environmental measures being investigated Target: Initial environmental measures **2. Performance indicator** Environmental measures agreed: Current: None agreed	Environmentally sustainable water environment.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
	• developing links between ecosystems and environmental flows to assist WSP development • development of water savings strategies • wetland recovery plans - water recovered for environment via improved efficiencies in delivery system • wetland policy implementation - to assist in protection of wetlands in good condition, rehabilitate degraded wetlands where feasible & support appreciation of wetlands by implementing various principles and actions • GDE studies, investigations and identification for development of WSP provisions • river health and water quality plans - provision of advice to water users and other stakeholders to assist and influence their management of surface water quality to achieve outcomes sought under management plans and policies • development and maintenance of internal hydrological environmental assessment procedures required for project assessments under EP&A Act and for water licensing	response developed. • AEW water use plans. Water savings plans. Wetland recovery plans. • Implemen-tation of NSW wetlands policy. River health and water quality plans. • Efficient and transparent hydrological environmental assessment procedures developed.	Target: Initial measures agreed	
C07-04 Cross-border and national commitments	Activities to support operation of water management framework, including: • development and implementation of operational programs to meet NWI commitments • participation in relevant interstate committees progressing NWI commitments, including National Water Accounting Development Committee, NWI Metering Expert Group, National Water Knowledge and Research Strategy group, national water quality management group, national river health negotiations and national assessment • development and implementation of NSW	• Inter-governmental agreements. • COAG agreements. Biennial assessments on progress with implementing NWI agreements on water reform agenda. • Bilateral agreements between jurisdictions.	**1. Output measure** Reports for national commitments (e.g. NWI, MDB): Current: Cap audit report to report to Independent Audit Group (IAG) for all Basin valleys Target: Same SRA - meet contractual obligations with MDBA Current: Representation on SRA Joint Venture Committee	• Interstate commitments met. • New interstate agreements negotiated successfully. • Maximised NSW compliance with cap.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
	commitment to Living Murray Initiative • development and implementation of programs for National Groundwater Committee support to Natural Resource Management Ministerial Council • NSW contribution to MDB sustainable rivers audit • MDBMC cap monitoring and reporting • participation in COAG water reform process • participation in interstate water trade negotiations • development of interstate water sharing arrangements through MDB and Border Rivers Agreement, Snowy and ACT arrangements • local water utilities – developing strategies to improve water supply and wastewater services in remote communities, as required by NWI.	Report on cap compliance provided to IAG.	Target: Satisfy SRA Joint Venture Committee Terms of Reference **2. Performance indicator** Percentage satisfaction of national commitments/deliverables: Current: % Valleys in compliance with MDB Cap Target: 100% valleys comply with Cap	
C07-05 Water industry regulation	Legal and regulatory support for water management planning, including litigation and legislative advice: • advice on compliance actions, litigation against licence holders and other water users • facilitating appeals by licence holders and other water users • advice on legal aspects and implication of draft and final WSPs • advice on the Office's documentation used for water management regulation (e.g. licence application forms) • advice to Government on regulatory and legislative proposals • review and drafting of water availability orders to support operational decisions (for C06) • review and drafting of water regulations & orders	• Enforceable licence conditions. • Enhanced water legislation and regulations. • Return flows regulation. • Modified harvestable rights. • Orders to incorporate stormwater harvesting. • Updated water management (general) regulations.	**1. Output measure** Legislation capable of meeting requirements of COAG Reform Agenda: Current: Water Management Act 2000 and Regulations Target: Legislation enhancements to satisfy Commonwealth and MDB requirements **2. Performance indicator** Current: 50% water entitlement covered by WMA Target: 100% water entitlement covered by WMA	Efficient and transparent governance framework for sustainable water management.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C08 River management works	**River management works planning and remediation**			
C08-01 River management works	Management and works plans for repair and stabilisation of river and channel banks and beds to maintain their integrity and flow capacity, and other watercourse works.	Riverine infrastructure maintenance.	**1. Output measure** Length of bank managed for erosion control: Current: 29 000 metres Target: 30 000 metres **2. Performance indicator** Highly impacted riverbank protected: Current: 95% of high priority areas stabilised/protected Target: 100% of high priority areas stabilised/protected	Waterways maintained for planned water flows.
C09 Licensing administration	**Administrative support for water consents regime**			
C09-01 Licence administration	Licence administration includes: • Licensing Administration System (LAS) administration, including maintenance of surface water and groundwater consents integrity consistent with the Office's statutory responsibilities in regulating water extraction. Excludes processing of transactions on consents • administration of access licence, approvals, trading and environmental water registers • systems development and maintenance of procedures and guidelines for access licence dealings, approvals transactions, monitoring of systems performance and information dissemination • LAS systems maintenance/upgrade	• Licensing system facility. • System development. • Licensing support services. • Licensing management.	**1. Output measure** Percentage of all licensing transactions administered through a single database: Current: 90% Target: 100% **2. Performance indicator** Improve the accuracy data and security of access to system: Current: Target: Implement by 1/1/2011	Documented entitlement and conditions for water use.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C09-02 Licence conversion and entitlement specification	Licence conversion includes: • cleansing of licences for conversion to WMA • volumetric conversions • transcribing water sharing provisions into licence conditions • Entitlements specification includes: • ongoing program of establishing entitlements allocations for town water licences and determination of new entitlements when requested by councils/ • S66 reviews.	• Licence conditions reflect water sharing provisions. • Access licences issued in WSP areas. • Licences meeting regulatory requirements.	**1. Output measure** Number of access licences recorded on the public registers. **2. Performance indicator** Current: 90% of the access licences to be recorded on the public registers within six months of the implementation of Water Sharing Plan. Target: 90% of the access licences to be recorded on the public registers within five months of the implementation of Water Sharing Plan.	Administrative compliance. Licence conditions understood by licensees.
C09-03 Compliance	Compliance includes: • administration of monitoring activities and surveillance to check compliance with consent conditions, including audits, fieldwork, inspections and compliance checking • enforcement, including prosecution for non-compliance with consent conditions for all licence holders • litigation against licence holders and other water users for non-compliance • dissemination of information on rights, responsibilities and consequences for non-compliance with consent conditions.	• Documented compliance policies and procedures. • Operational case management system. • Auditing and surveillance of reported breaches. • Information provided to stakeholders clarifying obligations and publicity of enforcement action. • Represen-tation during litigation action. • Successful prosecutions.	**1. Output measure** Compliance audits: Current: 0.5% Target: 1% Alleged breach reports actioned: Current: 50% Target: 100% **2. Performance indicator** Percentage of licences audited that are in compliance with licence requirements: Current: 70% Target: 100%	• Licence conditions implemented and enforceable. • Water user compliance. Deliver credible regulation to ensure equitable use of water resources.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C10 Water consents transactions	**Activities to enable transactions to be undertaken on water consents**			
C10-01 Water consents transactions	Dealings, assessments, change of conditions and new applications for water licences and approvals undertaken on a fee for service basis, including licensing of irrigation and other industry activities, controlled activities and aquifer interference activities.	• Water consents transactions processed. • Licences in compliance with regulatory requirements. • Floodplain harvesting licences issued consistent with licensing rules. • Estuary licences issued consistent with licensing rules.	**1. Output measure** Number of consents processed: Current: 12 000 Target: 12 000 **2. Performance indicator** Percentage of other consents for permanent transfer of access licences processed within 28 working days: Current: 78% Target: 90% Percengage of other consents processed within three mths: Current: 50% Target: 60%	Up-to-date documentation of licensed access and use of water.

Code activity	Description	Outputs	1. Output measure 2. Performance indicator Target = At the end of the determination period	Outcomes
C11 Business admin.	**Business activities to support water management function**			
C11-01 Financial administration	Water management reporting required by stakeholders, including IPART, ACCC and NWI. Billing administration, revenue collection, maintenance of metering and billing SLAs for unregulated rivers and groundwater. Maintenance of pricing database, and responding to queries, correspondence, briefings.	• Water billing and payment processing. • Customer account queries. • Annual compliance returns to IPART.	**1. Output measure** Licences billed: C urrent: 31 200 T arget: 31 200 **2. Performance indicator** Percentage of revenue collected within three months of billing period: C urrent: 0% T arget: 95%	Revenue collected for water management activities.
C11-02 Business development	Planning to support implementation of water management business function, including strategic, organisational, financial, human resource and corporate governance requirements. Preparation of pricing submissions to IPART.	• Industry consultation and business plans. • Annual budgets at branch level. • Pricing submissions to IPART. • Business reporting to Executive.	**1. Output measure** Business plans IPART Submission C urrent: Annual business plans 2 009 Submission T arget: As above **2. Performance indicator** Participation in valley Customer Service Committees Current: 75% Target: 100%	Water management activities developed to meet stakeholder needs.

Appendix 2 – Instruments for activities

The water management and planning activities of the NSW Office of Water are carried out to satisfy legal and other obligations on behalf of government. The instruments generally fall into the four categories of instrument:

- Statutory.
- Administrative.
- Contractual.
- Standards.

New Code	Activity name	Instruments defining the obligation
C01	**Surface water monitoring**	
C01-01	Surface water quantity monitoring	• State Plan: Priorities E1 and E4 • WSP requirements • *State Emergency and Rescue Management Act 1989* • NSW State Flood Sub Plan for NSW Disaster Plan • State Water SLA • MDBA SLA • BRC SLA • Hunter Salinity Trading Scheme • MDBA guidelines • World Meteorological Organisation Guidelines
C01-02	Surface water quantity data management and reporting	• *Commonwealth Water Act 2007* Section 7 • NWI • WSP • ISO 9001 Accreditation
C01-03	Surface water quality monitoring	• *Commonwealth Water Act 2007* • MDBA • BOM regulations. • Requirement for Water Quality in Salinity Plan • *WMA 2000* • WSP performance monitoring (as required by WMA 2000 s35) • *WMA 2000* s43A review • State Plan - report against progress against Riverine Health Target in Priority E4
C01-04	Surface water ecology, biology and algal monitoring	• *Commonwealth Water Act 2007* • MDBA • BOM Regulations • *WMA 2000* • WSP performance monitoring (as required by WMA 2000 s35) • *WMA 2000* s43A review • State Plan –Priorities E1 and E4 • NWI • NSW Algal Management Strategy
C01-05	Surface water quality and biological database management	• *Commonwealth Water Act 2007* • MDBA • BOM Regulations • *WMA 2000*

New Code	Activity name	Instruments defining the obligation
		• WSP performance monitoring (as required by WMA 2000 s35) • *WMA* s43A review • State Plan – Priorities E1 and E4 • NWI • NSW Algal Management Strategy
C01-06	Surface water monitoring assets management	• WSP requirements • BOM – Modernisation and Extension of Hydrological Monitoring Systems • DEWHA – Hydrometric Network Expansion
C02	**Groundwater monitoring**	
C02-01	Groundwater quantity monitoring	• *Commonwealth Water Act 2007* • MDBA • BOM regulations • *WMA 2000* • *Water Management General Regulations 2004* • *WA 1912* • WSPs
C02-02	Groundwater quality monitoring	• *Commonwealth Water Act 2007* • MDBA • BOM regulations • *WMA 2000* • *Water Management General Regulations 2004* • *WA 1912* • WSPs
C02-03	Groundwater database management	• *Commonwealth Water Act 2007* • MDBA • BOM regulations • *WMA 2000* • *Water Management General Regulations 2004* • *WA 1912* • WSP's
C02-04	Groundwater monitoring assets management	• DEHWA Hydrometric Network Expansion
C03	**Surface and groundwater metering**	
C03-01	Metering operations - user owned	• *WMA 2000* – Compliance with licence conditions • *WMA 2000* – Chapters 3 and 7 • WSPs • Land & Environment Court decisions in relation to WSP • NWI clauses 80 to 88 • Standards for Water Accounting • National Water Meter Standards • NSW Interim Water Meter Standards • MDB Cap Agreement

New Code	Activity name	Instruments defining the obligation
C03-02	Metering data management	• *Commonwealth Water Act 2007* • MDBA • BOM Standard for Data Management
C03-03	Metering operations - govt owned	• Commonwealth Water for the Future Program • Hawkesbury Nepean River Recovery Program
C04	**Surface water and groundwater analysis**	
C04-01	Water quality analysis	• *Commonwealth Water Act 2007* • MDBA • *BOM Regulations* • Develop next iteration of WSPs as required under Basin Plan • *WMA 2000* • Performance monitoring of WSPs (as required by WMA 2000 s35) • Input into review under *WMA 2000* s43A • Data used to inform plan development • State Plan – required for priority E1 to determine effect of allocation decisions on environmental assets • State Plan – report progress against Riverine Health Target in Priority E4 • NWI – ecological performance monitoring of WSPs and science to inform plan development • NSW Algal Management Strategy
C05	**Water modelling and impact assessment**	
C05-01	Water sharing/water management modelling	• WSPs • MDB Plan
C05-02	Resource assessments	• NWI • The Living Murray Program • Water for Rivers • State Water Savings Program • SWC River Operations SLA • NSW Salinity Strategy • Basin Salinity Management Strategy
C05-03	Water balances and accounting	• WSPs • MDB Cap • MDB Agreement • BRC Agreement
C05-04	Groundwater modelling	• NWI • WSPs • MDB Plan • NSW Salinity Strategy • Basin Salinity Management Strategy

New Code	Activity name	Instruments defining the obligation
C06	**Water management implementation**	
C06-01	Systems operation and water availability management	• *Commonwealth Water Act 2007* • MDBA • *WA 1912* • *WMA 2000* – availability of water (Parts 5 & 8), System operation rules (Part 12) • Water Management Regulations • WSPs • Implementation Programs (many water sources) • Implementation Manuals • Available Water Determinations (s59) • Water Licences and Statutory Notices • MOU with State Water Corporation
C06-02	Trading and accounts management	• *WMA 2000* – managing access licences (Parts 5 & 9), Access dealing rules (Parts 5 & 10) • WSPs for respective water sources • Available Water Determinations (s59) • MOU with State Water Corporation • Policies – Water Trading Rules
C06-03	Plan performance monitoring and reporting	• *WMA 2000* – monitoring and reporting (Parts 5 & 13), Plan amendments (Part 14), s51 Reviews, Independent s44 Audits • WSPs for respective water sources • Implementation Programs – reporting performance indicators that measure effectiveness of WSP implementation • *Commonwealth Water Act 2007* • MDBA • BOM Regulations • Develop next iteration of WSPs as required under Basin Plan - to be used as part of MER framework for Basin Plan • *WMA 2000* – Performance monitoring of WSPs (as required by s35) • Monitoring required to allow WSP review and Evaluation and input into review under WMA 2000 s43A • State Plan – required for priority E1 to determine effect of allocation decisions on environmental assets • NWI – required ecological performance monitoring of WSPs and science to inform plan development
C06-04	Blue-green algae management	• State Plan - Priorities E1 and E4 • NSW Algal Management Strategy – ensure Duty of Care is exercised in responding to blooms of potentially toxic blue-green algae
C06-05	Environmental water management	• *WMA 2000* – Environmental water provisions (Parts 3 & 5) • *WMA 2000* s8E AEW • Environmental Watering Plans • Access Licence Dealing principles (s71Z) • Contamination responses – not the Office • *Commonwealth Water Act 2007* • MDBA • BOM regulations • Develop next iteration of WSPs as required under Basin Plan - to be used as part of MER framework for Basin Plan

New Code	Activity name	Instruments defining the obligation
		• *WMA 2000* – Performance monitoring of WSPs (as required by s35) • Monitoring required to allow WSP review and evaluation and input into review under WMA 2000 s43A • State Plan – required for priority E1 to determine effect of allocation decisions environment assets • NWI – requires ecological performance monitoring of WSPs and science to inform plan development
C07	• **Water management planning**	
C07-01	Water sharing plan development	• *WMA 2000,* Chapters 2, 3, 5, 8-50 • State Plan – Priorities E1, E4 • NWI – as defined in implementation plan • MDB Plan
C07-02	Operational planning	• *WMA 2000* – Chapter 2 Part3 Div 3, WUP ss22-24, FPHR ss28-30 • Floodplain Harvesting Rules ss66(1)(a), (1A) & (2) • Capacity Rights Shares s56 • Return Flow Rules s75 • Controlled Allocation Regulations ss61 (1) & 65 • Reasonable Use Guidelines • Aquifer Interference guidelines ss56, 91F & 91G • Stormwater Harvesting policy • WA 1912 s117J – Groundwater Trading • State Plan – Priority E1, State Government Policy • NWI • COAG Intergovernmental Agreement on Murray-Darling Basin Water Reform • COAG Work Program on Water • MDB Plan
C07-03	Environmental water planning	• *WMA 2000* Chapters 2, 3 • *EP&A Act 1979* • State Plan – Priorities E1, E4 • NWI • COAG Intergovernmental Agreement on Murray-Darling Basin Water Reform • COAG Work Program on Water • MDB Plan • International wetlands agreements • WSPs • Threatened Species Conservation Act
C07-04	Cross-border and national commitments	• *Commonwealth Water Act 2007* • NWI • COAG Intergovernmental Agreement on Murray-Darling Basin Water Reform • COAG Work Program on Water • MDB Agreement, • Bilateral Agreements on Interstate Trade. • NWC Biennial Assessment

New Code	Activity name	Instruments defining the obligation
C07-05	Water industry regulation	• State Plan – Priorities E1, E4 • WMA 2000 – RF s75 HR s 54 • WA 1912 Eos 113A • Various State Government Policies • Ombudsman Report, Auditor General Report
C08	**River management works**	
C08-01	River management works	**Tumut River** • Tumut River Works Plan (and REF) • Snowy Hydro Limited • Tumut River Works Agreement 2009 – dated 31/5/02, document No NWEWG 33 (24% funded by Snowy Hydro Limited) **Upper Murray** • MDBA – river management/maintenance obligations to River Murray Water • Snowy Hydro Limited • Upper Murray River Works funding agreement 2009 (100% funding by Snowy Hydro) – dated 9/1/09, valid til 30/6/2010. **Murray Below Hume** • MDBA D-River Management/Maintenance obligations to River Murray Water
C09	**Water licensing administration**	
C09-01	Licence administration	• *WA 1912* • *WMA 2000* – Licences, Approvals and Permits
C09-02	Licence conversion and entitlement specification	• *WMA 2000*, Chapter 3, s71A, s71B, s71C, s71D, s71E, s71F, • *WMA 2000* Schedule 1A and Schedule 10
C09-03	Compliance	• *WMA 2000* s66, s100 and mandatory and discretionary conditions of WSPs.
C10	**Water consents transactions**	
C10-01	Water consents transactions	• *WMA Act 2000* • *Water Management General Regulations 2004* • *WA 1912* • *Water (Part 2-General) Regulation 1997* • *Water (Part 5-Bore Licences) Regulation 1995* • *Water (Part 5 – Driller's Licences) Regulation 1995* • *Native Titles Act 1993* • *EP&A 1979* • *Environmental Planning and Assessment Regulation 2000* • WSPs • *WMA 2000* • *WA 1912*

New Code	Activity name	Instruments defining the obligation
C11	**Business administration**	
C11-01	Financial administration	• Minister's Directive • Treasury Circulars • NSW Public Finance and Audit Act • Reporting performance in accordance to IPART Determination
C11-02	Business development	• IPART Bulk Water Pricing Determination • Corporate Plan and Correspondence • Results and Services Plan • IPART Determination

Appendix 3 – Cost drivers for the allocation of costs

Forecasting and recording of costs is on a water management activity specific basis. As the Office operates most of its activities on a State-wide basis, forecast costs have been allocated to water sources (meaning a combination of water type and valley/area) based on primary cost drivers associated with the water management activity. For example, the primary driver for cost allocation for C01-01 surface water quantity monitoring is the number and location of gauging stations. This distinguishes between those sites that are funded by the Office and those sites that are funded by MDBA, BRC or operated under contract for specific commercial customers. The use of cost drivers for allocation of costs to water sources has been validated against historical costs and has been adopted as a much more efficient method for allocating forecast costs to water sources.

The cost driver for each activity was determined by a process of activity analysis and consultation with relevant personnel to select the most appropriate driver for cost allocation. The cost driver determination process used a number of iterations to develop, review, refine and confirm the appropriateness of the allocation ratios produced by the raw data collected for each cost driver. The same cost drivers have been used for each year of the period of the determination, although it is recognised that resources may be focussed on specific water source issues from time to time as necessary. The cost drivers represent a consistent allocation of cost based on the involvement of the determined cost driver in each water source.

When these cost drivers are used for reporting historical costs, they can be updated if the activity associated with the cost driver changes significantly between water sources as water management requirements change.

The set of cost drivers used in the preparation of the forecasts are shown in the following table together with the rationale justifying the use of the driver for allocation the costs for the activity.

New Code	Activity name	Cost Driver R = regulated river, U = unregulated river, G = groundwater	Cost driver rationale
C01	**Surface water monitoring**		
C01-01	Surface water quantity monitoring	RU the Office-funded gauging sites	Activity cost relates to number of gauging stations for each water type in each valley. Gauging stations funded by State Water, MDBA, BRC and other organisations have been excluded from the the Office cost allocation. The cost of State Water-funded gauging stations is recovered from the State Water Corporation. It has been assumed there is a consistent mix of the types of hydrometric sites across the State. Gauging stations range from basic, intermediate to sophisticated monitoring sites. There is also a mix of automated and manual collection of data. This mix has been assumed to be consistent across the State, with the Office progressively moving to automated data collection.

New Code	Activity name	Cost Driver R = regulated river, U = unregulated river, G = groundwater	Cost driver rationale
			MDBA and BRC-funded gauging stations are charged to those entities and are included in the the Office water costing based on the charge-back to NSW for its share of MDBA and BRC costs.
C01-02	Surface water quantity data management and reporting	RU the Office-funded gauging sites	The number of gauging stations in each water source is a valid cost driver because the data to be managed relates to those sites. The Office will recover the associated data management cost for externally-funded sites in the charge for those sites. The Inter-active Voice Recognition information system will apply to gauging stations across the State where there is the automated real-time telemetry.
C01-03	Surface water quality monitoring	RU No the Office-funded sampling events at key sites	The predetermined water quality sampling regime at specified sites across the State and the number of sampling events at those sites is the appropriate cost driver. Water sharing plan implementation will require an increase in sampling events after the implementation of each plan.
C01-04	Surface water ecology, biology and algal monitoring	RU Nos. ecology, biology and algal sampling events	The driver is a combination of water ecology and algal sampling sites and events. The base duty of care sampling regime for blue-green alga has been used, but the actual activity each year varies depending on the incidence of alerts impacted by climatic and other circumstances. Analysis shows close correlation between available algal alert data and the base duty of care sampling regime.
C01-05	Surface water quality and biological database management	RU Entitlement	The need and use of water quality data relates directly to the consumption of water across all water sources. As accurate water consumption information is not available for all water sources, water entitlement has been used as a surrogate driver for cost allocation to water sources. Usage forecasts have been used as the driver for allocation across regulated river valleys.
C01-06	Surface water monitoring assets management	RU the Office-funded gauging sites	The maintenance and operation of water monitoring assets is a function of the number of gauging stations used for each water source. The cost driver used is the Office-funded gauging stations. the Office services for MDBA and BRC-funded gauging stations are charged to those entities and are included in the the Office water costing based on the charge-back to NSW of the State's share of those costs.
C02	**Groundwater monitoring**		
C02-01	Groundwater quantity monitoring	G Nos. active monitoring bores	Activity relates directly to number of active monitoring bores. Monitoring bores are tagged to the Groundwater Management Areas for their location and the areas have been mapped to Inland or Coastal regions. The driver used for allocation of costs to each area is the number of active monitoring bores in each area. A small proportion of monitoring bores are customer bores. These are included in the number of active bores where data collection is undertaken.

New Code	Activity name	Cost Driver R = regulated river, U = unregulated river, G = groundwater	Cost driver rationale
			The mix of automated and manual collection of data is assumed to be consistent across the State for the period of the forecasts, because the Office is moving towards automated data collection from all bores where this is feasible.
C02-02	Groundwater quality monitoring	G Entitlement	The need for quality monitoring will increase and is linked to the consumption of water. As the water consumption information is not complete across all groundwater management areas, the water entitlement has been used as the basis for cost allocation.
C02-03	Groundwater database management	G Nos. active monitoring bores	The data management requirement is related to the number of active monitoring bores requiring data to be recorded, disseminated, managed and archived.
C02-04	Groundwater monitoring assets management	G Nos. active monitoring bores	The maintenance and operation of monitoring bore assets directly relates to the number of monitoring bores for each Groundwater Management Area.
C03	**Surface and groundwater metering**		
C03-01	Metering operations - user owned	UG Meter readings	Activity relates directly to the number of meter readings per year for each water source. This takes into account the number of times each meter is read, for example a meter can be scheduled to be not read, read once, twice or four times per year.
C03-02	Metering data management	UG Meter readings	The cost of metering data management relates to the number of meter readings taken.
C03-03	Metering operations - government owned	UG Government owned Meter readings	This is a new activity that will be subject to separate costing and pricing.
C04	**Surface water and groundwater analysis**		
C04-01	Water quality analysis	RUG Nos. samples tested	The activity relates to the number of chemical and algal samples tested for each water source.
C05	**Water modelling and impact assessment**		
C05-01	Water sharing/water management modelling	RU Water modelling and impact assessment	Cost allocation to each surface water type is based on the FTE resources undertaking modelling and impact assessment for that water type and then entitlement has been used for cost allocation to valleys.
C05-02	Resource assessments	RU Water modelling and impact assessment	The cost of resource assessments relates to the modelling activity as per C05-01.
C05-03	Water balances and accounting	RU Extraction related entitlement	The activity cost for water balances and accounting relates to the consumption of water across water sources. As complete water consumption information is not available for unregulated water, entitlement has been used as a surrogate driver for cost allocation to water sources but usage forecasts have been used for allocation across regulated river valleys.

New Code	Activity name	Cost Driver R = regulated river, U = unregulated river, G = groundwater	Cost driver rationale
C05-04	Groundwater modelling	G Nos. active monitoring bores	Groundwater monitoring bores provide the data for the development and validation of groundwater models. The priority for groundwater modelling is stressed aquifers which are where a large proportion of groundwater monitoring bores are located. The driver selected for allocating the cost of groundwater modelling activity is therefore the number of active monitoring bores in each area.
C06	**Water management implementation**		
C06-01	Systems operation and water availability management	RUG Operations complexity	Planning time for each water type is assessed to be (1) in proportion to resources involved for each water type then (2) the cost allocation between valleys was determined to be a function of the operational complexity of the valley. The regulated river operational complexity was assessed in consideration of factors such as; number of dams, complexity of the river systems, and consideration of interaction with other systems such as Snowy and interstate trading. Unregulated complexity was determined by the resourcing allocated to the valley and groundwater by region.
C06-02	Trading and accounts management	RUG Entitlement and Nos. Licences	Water trading and accounts management activity is considered to be related to the volume of water entitlement and number of licences in each water source.
C06-03	Plan performance monitoring and reporting	RUG Water sharing plan activity	The plan performance monitoring and reporting is proportional to the complexity of each WSP. The same calculated planning complexity matrix determined for water sharing plan development (C07-01) was assessed to be the relevant cost driver for this activity.
C06-04	Blue-green algae management	RU BGA standard sampling profile	The Blue-Green Algae management requirement varies from year to year depending on the climate, water flows and the environmental conditions. Analysis shows close correlation between algal alerts over a period and the base duty-of-care sampling regime adopted by the Office. Consequently, the base duty-of-care sampling regime for BGA was chosen as the typical cost driver for this activity over the period of the Submission.
C06-05	Environmental water management	RUG Entitlement	Detailed cost driver characteristics appropriate to this activity are still being developed through the water sharing plans. Until this information is available and a scientifically-determined driver can be developed, the relative volume of extraction is considered to be the most appropriate basis for allocation cost. For this reason, licensed entitlement is considered the most appropriate reflection of extraction in each water source associated with environmental water requirements.

New Code	Activity name	Cost Driver R = regulated river, U = unregulated river, G = groundwater	Cost driver rationale
C07	**Water management planning**		
C07-01	Water sharing plan development	RUG Water Sharing Plan activity	Over the period of the determination the balance of water sharing plans will be implemented and the implemented plans will commence being reviewed for the development of the next plan. Therefore, it was assumed that planning work will be undertaken relating to all water sharing plans within the determination period. The cost allocation characteristic for this activity relates to the number of plans and the complexity of each plan. A cost allocation matrix based on these characteristics was developed. Where a water sharing plan refers to a water source involving more than one water type the cost was allocated in proportion to the entitlement for each water type.
C07-02	Operational planning	RUG Extraction related entitlement	Operational Planning is driven by determining the rights of licence holders to extract water. Water entitlement is thus used for allocation to water sources and valleys, except for regulated water where usage forecasts are used as the cost driver for this activity.
C07-03	Environmental water planning	RUG Entitlement	Environmental Water Planning relates to maximising the sustainable and safe volume of water for all stakeholders including, licence holders and the environment. The driver for cost allocation is considered to be the volume of water in each system. As water volumes are still being determined for many water sources, licensed entitlement for all water types is used as the driver for allocating the cost of this activity.
C07-04	Cross-border and national commitments	RUG Entitlement	Cross-border and national-commitment activities affect all water sources and relate to the total volume of water available to stakeholders in NSW. The driver for cost allocation is considered to be the volume of water in each system. As water volumes are still being determined for many water sources, licensed entitlement for all water types was used as the driver for allocating the cost of this activity.
C07-05	Water industry regulation	RUG Entitlement	Water industry regulation activities apply to all water sources. The driver for cost allocation is the volume of water entitlement in each system.
C08	**River management works**		
C08-01	River management works	R Water source specific projects	River management works apply to the Upper Murray and Tumut Rivers. Cost is allocated based on the value of works in each of Murray and Murrumbidgee Valleys, for regulated water.

New Code	Activity name	Cost Driver R = regulated river, U = unregulated river, G = groundwater	Cost driver rationale
C09	**Licensing administration**		
C09-01	Licence administration	RUG Nos. Licences	Licence administration, management and system development activities are driven by the number of licences for each water source.
C09-02	Licence conversion and entitlement specification	RUG Nos. Licences	Licence conversion and entitlement specification activity is proportional to the number of licences for each water source.
C09-03	Compliance	RUG Entitlement and Nos. Licences	Compliance activities are focussed on the volume of water extracted. A two-part driver is therefore used for this activity based on (1) water entitlement and (2) the number of licences for each water source.
C10	**Water consents transactions**		
C10-01	Water consents transactions	Consent transaction activity	The drivers for water consents transactions are the time and resources required for each transaction and the number of each type of transaction. The transactions are subject to a separate activity costing to determine the tariffs for each transaction.
C11	**Business administration**		
C11-01	Financial administration	RUG Water bills (nos. of billable licences)	The primary activity component is billing and collection of revenue which is currently undertaken via service level agreements by State Water on behalf of the Office. Water management charges for regulated rivers are billed quarterly on SWC invoices. Unregulated river and groundwater licence holders are charged annually. The cost of regulated water invoicing is shared with State Water but the Office carries the full cost of the unregulated and groundwater billing. The driver for this activity is the number of licences billed for each water source.
C11-02	Business development	RUG Extraction related entitlement	Business development and planning activities apply across all water sources in addressing the requirements of stakeholders. The driver used for cost allocation is licensed water entitlement for each water type and valley except for regulated rivers where usage forecasts are used for cost allocation.

Cost drivers for MDBA and BRC costs

As the Office does not have detailed cost driver information for each of the MDBA projects, the cost of each project has been allocated based on the Basin water source(s) impacts affecting each MDBA project. There are four categories of water source impact:

- Regulated water.
- Surface water (Regulated and Unregulated).
- Groundwater.
- All water types (Regulated, Unregulated, Groundwater).
- The cost allocation factor is based on the extractive entitlement for each valley or area in the Basin for the water category.

Activity	Activity impact	Cost Driver R = regulated river, U = unregulated river, G = groundwater	Cost driver rationale
MDBA	1. Regulated water benefit project	R Basin valleys forecast extraction	Impact caused by regulated water extraction Murray-Darling Basin.
MDBA	2. Surface water	RU Basin Entitlement, with Regulated water cost allocation on forecast extraction	Impact caused by Regulated and Unregulated water extraction Murray-Darling Basin.
MDBA	3. Groundwater	G Basin Entitlement	Impact caused by groundwater extraction in Murray-Darling Basin.
MDBA	4. All water sources	RUG Basin Entitlement with Regulated water cost allocation on forecast extraction	Impact caused by water extraction from all water sources in Murray-Darling Basin.

Allocation of BRC costs to water sources

BRC cost allocations have been done manually based on specific information provided by BRC for each component of their expenditure. The allocations went to:

- Border Regulated River.
- Border Groundwater.
- Far West Unregulated River.

Appendix 4 – Revised cost codes and users' shares

New code	Activity	Old code	User share % the Office proposed
C01	Surface water monitoring	C01	
C01-01	Surface water quantity monitoring	C01-01, part C03-01	70
C01-02	Surface water quantity data management and reporting	C01-02, part C03-01, new activity	70
C01-03	Surface water quality monitoring	C01-03, part C03-01	50
C01-04	Surface water ecology, biology and algal monitoring	C01-04	50
C01-05	Surface water quality database management	C01-05, part C03-01	50
C01-06	Surface water monitoring assets management	C01-06, part C03-02	50
C02	Groundwater monitoring	C02	
C02-01	Groundwater quantity monitoring	C02-01	100
C02-02	Groundwater quality monitoring	C02-02	100
C02-03	Groundwater database management	C02-03	100
C02-04	Groundwater monitoring assets management	C02-04	100
C03	Surface and groundwater metering	C03	
C03-01	Metering operations	New code, part C11-01	100
C03-02	Metering data management	New code	100
C03-03	Metering operations – govt owned	new code	100
C04	Surface water and groundwater analysis	C04	
C04-01	Water quality analysis	C04-01	50
C05	Water modelling and impact assessment	C05	
C05-01	Water sharing/water management modelling	C05-01	50
C05-02	Resource assessments	C05-02	30
C05-03	Water balances/accounting	C05-03	100
C05-04	Groundwater modelling	C05-04	100
C06	Water management implementation	C06	
C06-01	Systems operation and water availability management	C06-02, C06-05	100
C06-02	Trading and accounts management	C06-03, C06-04	100
C06-03	Plan performance monitoring and reporting	C06-06, C06-07, C07-11	50
C06-04	Blue-green algae management	C07-15	50
C06-05	Environmental water management	C06-01, C07-12, C07-14, part C07-16	0

C07	Water management planning	C07	
C07-01	Water sharing plan development	Part C07-01	70
C07-02	Operational planning	Part C07-01, C07-02, C07-05, C07-08	100
C07-03	Environmental water planning	C07-03, C07-04, C07-06, C07-07, C07-09, C07-10, C07-13, part C07-16	0
C07-04	Cross-border and national commitments	C07-17	50
C07-05	Water industry regulation	New code	30
C08	River management works	C08	
C08-01	River management works	C08-01, C08-02	50
C09	Licensing administration	C09	
C09-01	Licence administration	C09-01, C09-02, C09-03, C09-07	100
C09-02	Licence conversion & entitlement specification	C09-04, C09-05	100
C09-03	Compliance	C09-06	100
C10	Water consents transactions	C10	
C10-01	Water consents transactions	C10-01, C10-02	100
C11	Business administration	C11	
C11-01	Financial administration	Part C11-01, C11-03	100
C11-02	Business development	C11-02	70
C12	Capital program	C12	
C12-01	Surface water assets renewal	Part C01-06	70
C12-02	Groundwater assets renewal	Part C02-04, C12-03	100
C12-03	Water laboratory assets renewal	New code	50
C12-04	Metering water use systems on unregulated rivers and groundwater	C12-01	90
C12-05	Integrated corporate water and ecological databases	C12-04	50