WaterNSW Pricing Proposal to the Independent Pricing and Regulatory Tribunal

Water Licensing and Monitoring Services from 1 July 2021

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Chief Executive Officer Foreword

I am pleased to submit WaterNSW's proposal to the NSW Independent Pricing and Regulatory Tribunal ("**IPART**") for our customers' prices for services provided by WaterNSW on behalf of the Water Administration Ministerial Corporation ("**WAMC**" or "**Ministerial Corporation**") from 1 July 2021.

This proposal is aligned to our ongoing commitment to be recognised and valued by our customers for excellence in efficiently delivering their water needs to help make our communities healthy and prosperous.

WaterNSW is a State Owned Corporation ("**SOC**") that has been performing services that are the subject of this pricing proposal since 1 July 2016 as part of the NSW Government's water reform agenda. This pricing proposal and the forthcoming IPART determination are opportunities to provide our customers with clarity on the services that WaterNSW provides for the Ministerial Corporation and the cost of providing those services.

WaterNSW has been working closely with the NSW Department of Planning, Industry and Environment – Water ("**DPIE-W**") and the Natural Resources Access Regulator ("**NRAR**") to deliver the NSW Government's water reform agenda at lowest cost.

Our services for the Ministerial Corporation comprise:

- Licensing services consisting of:
  - Billing and account management on behalf of each licence holding;
  - Licensing approval, administration and management;
  - Fee for service transaction services, including consent transaction and metering maintenance and reading charges; and
- Water monitoring on behalf of DPIE-W.

WaterNSW is seeking a four-year pricing determination for the efficient costs of administering the WAMC services we provide.

The services provided by DPIE-W and NRAR, including the setting of water monitoring standards and long term water stewardship (DPIE-W) and licence compliance (NRAR), are the subject of a separate combined proposal from those agencies.

WaterNSW, DPIE-W and NRAR are proposing consolidated water management charges from 1 July 2021 that will increase by 5% per year.

These proposed increases reflect the efficient costs of administering the licensing regime combined with higher information technology costs arising out of the need to renew end of life systems and provide customers and stakeholders with more timely and valuable information.

Our proposal includes the costs of our WAVE program, which is designed to significantly enhance our ability to serve our customers, providing for improvements to our customer interfaces.

Fee for service charges have been calculated to ensure they are cost reflective resulting in increases outside of the 5% per annum cap for water management charges in most cases.

At the time of finalising this proposal, DPIE-W was in the process of finalising the Water Reform changes relating to non-urban metering. This pricing proposal excludes the costs of these reforms, which will be provided to IPART during the review process.

I am confident the IPART determination process will provide a robust outcome for NSW customers and contribute to the NSW Government's reform agenda. Importantly, we believe that the investment in information technology will greatly assist the information and services we provide to our customers.

WaterNSW looks forward to continuing our engagement with all stakeholders throughout the determination process and beyond.

Andrew George
Acting Chief Executive Officer

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1. Executive summary

WaterNSW is pleased to provide to the Independent Pricing and Regulatory Tribunal ("**IPART**"), and for the benefit of our customers, this inaugural pricing proposal for the services WaterNSW provides for the Water Administration Ministerial Corporation ("**WAMC**" or "**Ministerial Corporation**"). These services are account management, water monitoring undertaken on behalf of DPIE-W, meter maintenance and reading and billing and licensing services. WaterNSW sees this as an important milestone in the progress of water reform in New South Wales ("**NSW**").

WaterNSW is a State Owned Corporation ("**SOC**") that has been performing the account management, water monitoring, billing and licensing services the subject of this pricing proposal since 1 July 2016 as part of the NSW Government's water reform agenda. WaterNSW sees this pricing proposal and the forthcoming IPART determination as an opportunity to provide our customers with clarity on the services that WaterNSW provides for the Ministerial Corporation and the cost of providing those services. Other Ministerial Corporation services are provided by the NSW Department of Planning, Industry and Environment – Water ("**DPIE-W**") and the Natural Resources Access Regulator ("**NRAR**") and are the subject of a separate pricing proposal from those agencies.

While the costs of providing WAMC services undertaken by WaterNSW are outlined in this pricing proposal, the proposed water management charges reflect the single consolidated charges across WaterNSW, DPIE-W and NRAR (the "**three entities**"). Fee for service charges specific to WaterNSW and NRAR are contained in their respective submissions.

This pricing proposal has been structured to feature a plain English explanation of our services to our customers. Our services for the Ministerial Corporation comprise:

- Billing and account management on behalf of each licence holding;
- Licensing registrations, enquiries and management to support the complexity of the water licensing processes and regulations;
- Water monitoring services for DPIE-W to enable the Department to carry out its Ministerial Corporation functions related to long term water stewardship, flood mitigation and algal monitoring; and
- Fee for service transaction services, including consent transaction (licence advisory), water take assessment and metering charges (e.g. for the maintenance and upkeep of Government owned meters and ancillary charges).

A separate Fact Sheet that is common across the three entities and that summarises the key outcomes for NSW WAMC customers is provided as Attachment 1.

Industry structure

The objective of the 2016 restructure and conferral of functions from DPIE-W to WaterNSW was to enable DPIE-W to focus on policy and water market regulation and provide oversight on major government funded water infrastructure projects to reduce duplication and improve service delivery across the agencies.

WaterNSW now undertakes functions on behalf of the Ministerial Corporation that were previously provided by the Department. This includes water licensing, advisory services, water take assessments, and account management services provided directly to WAMC customers and water monitoring services provided directly to DPIE-W to support the Department in the discharge of its WAMC functions related to long term water stewardship. Incidental to these services is the need for WaterNSW to provide efficient and timely services in the provision of customer water transaction and water resource information, implement efficient asset management practices to ensure water monitoring assets are managed effectively, and provide ongoing support for the

implementation of the NSW Government's water reform agenda with respect to metering and compliance. WaterNSW has seen a significant increase in demand for water transaction and water resource information in response to an increase in NRAR's compliance capability, and as a result of the prolonged effects of drought. This is discussed in more detail in Section 3.

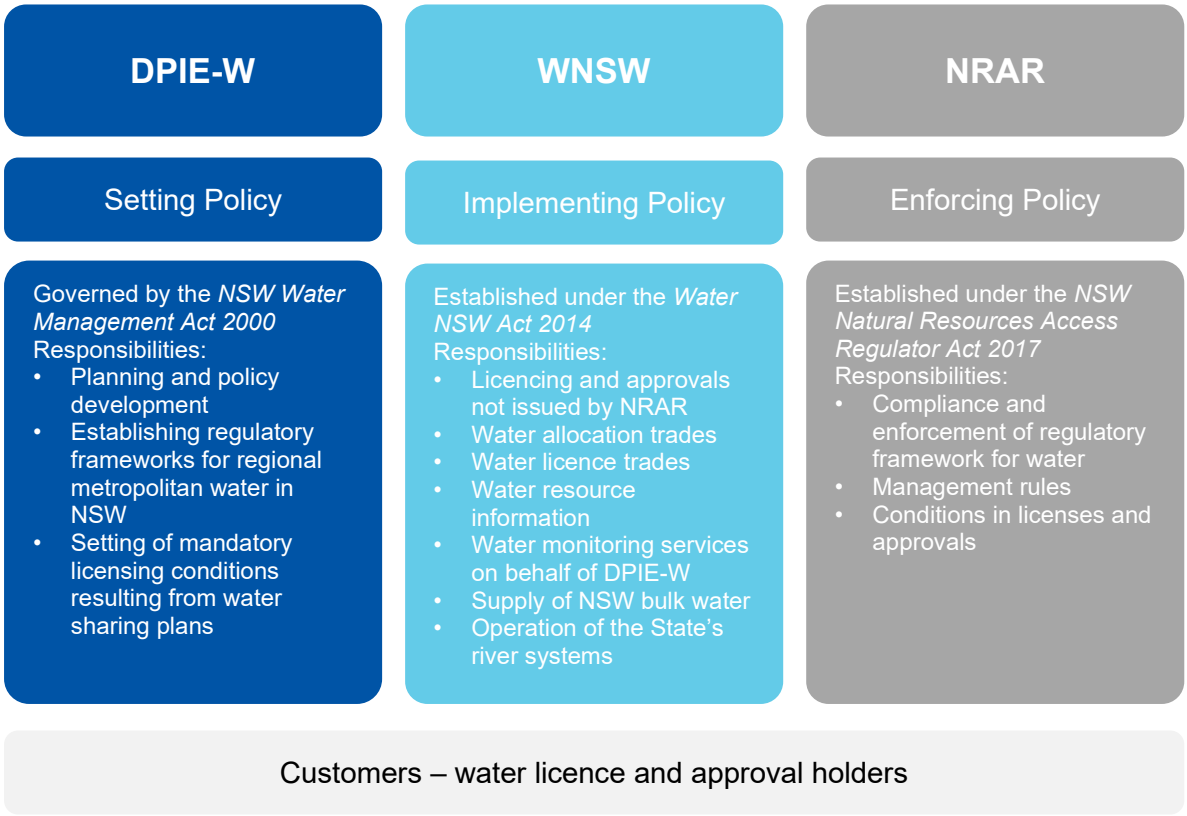
Compliance functions that were previously undertaken by DPIE-W, then conferred on WaterNSW, have been subsequently transferred to NRAR. While the organisations are clear on their respective legislative obligations arising from the reform, customers are largely unaware of the WAMC services they receive and from which agency.

The changes to our industry structure and legislative framework have led to increased responsibilities, greater transparency, enhanced regulation and more customer metering. These have increased our costs of providing for WAMC services.

Increased transparency of the costs for the three entities over time will provide customers with visibility of the services they receive to assess the overall benefits of reform. It will also drive additional efficiencies in the sector and maximise the overall benefits of economic regulation for the customer through transparent arrangements and the determination of efficiency targets that are relevant to each entity and hold each entity to account. The preparation of separate pricing proposals for WaterNSW and DPIE-W (including NRAR) for the 2021 Determination period is the first step towards greater transparency in the provision of WAMC services, while also providing simplicity and clarity through a single set of common charges.

The licensing and compliance services delivered by the three entities are illustrated below.

Figure 1 – Licensing and compliance services delivered by DPIE-W, WaterNSW and NRAR



WaterNSW is conscious of the need, through this pricing proposal, to **clearly and simply** explain to our customers and other interested stakeholders the WAMC services we provide, the cost to

provide the services and way those costs are recovered through prices.

Impact of external factors

External events, including a lower interest rate environment due to financial market uncertainty, weather events including drought and the recent COVID-19 pandemic and associated economic and employment impacts have all impacted on our (and our customers') activities. The potential impacts of COVID-19 on our pricing proposal are discussed in Appendix 2.

A lower interest rate environment and COVID-19

Due to financial market movements, lower interest rates continue to place downward pressure on water prices. This is a good outcome for customer prices in the short term. However, the onset of COVID-19 and the associated impacts on WaterNSW and our customers has led to unprecedented measures implemented by Governments and significant financial impacts for many businesses and customers due to higher unemployment rates and other economic impacts resulting from social distancing.

These impacts have reinforced the need for proposed WAMC charges in NSW to be as low as possible to put downward pressure on water prices for our customers.

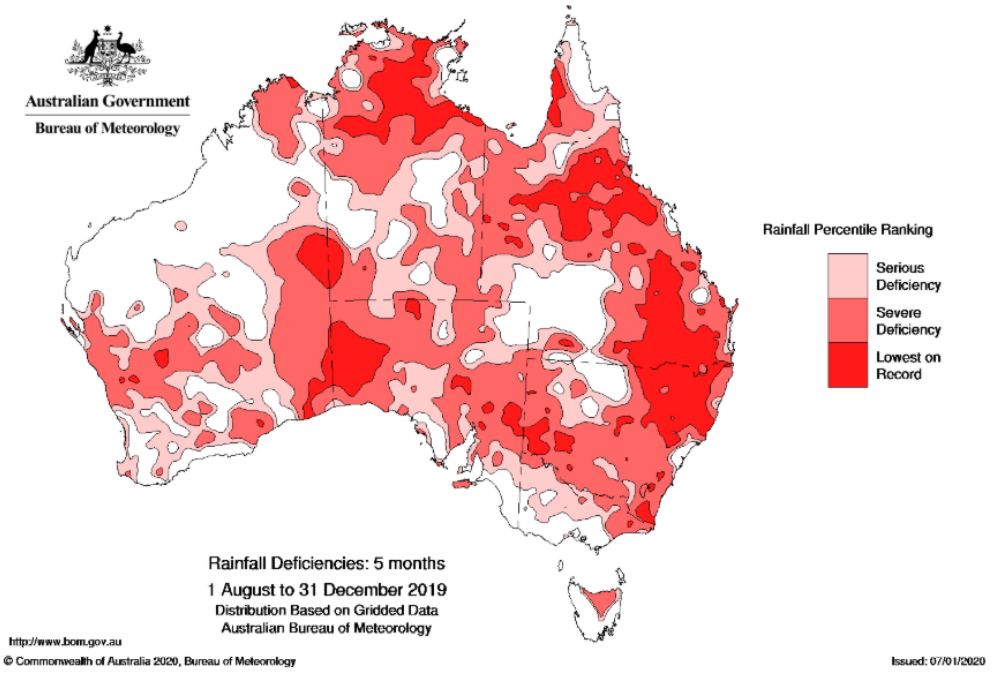
Drought

At the time of writing, parts of NSW are experiencing one of the worst droughts on record. Storage levels have been depleting over the past two years at rates not seen since the 1940s (World War II) and the Millennium droughts. Many rural areas are at critical levels of water supply, in large part due to the current climate, increasing population and higher than normal temperatures (leading to increased demand).

The three years from January 2017 to December 2019 was the driest on record for any 36-month period starting in January when averaged over the Murray–Darling Basin and NSW. Average rainfall for the Murray–Darling Basin was 918.0 mm over the last 36 months, which is more than 100 mm lower than the second-driest (1037.5 mm from January 1965 to December 1967), whilst NSW received around 170 mm less rainfall than the next driest period, the 36 months from January 1900 to December 1902 during the Federation Drought.[1] Figure 2 below illustrates that NSW has recently suffered its lowest rainfall on record.

[1] See http://www.bom.gov.au/climate/drought/

Figure 2 – NSW suffered its lowest rainfall in 2019



The prolonged drought has significantly impacted agricultural production and the surrounding regional communities across NSW. This has been exacerbated by COVID-19. The NSW valleys are some of the worst affected regions in Australia, with water storage at critically low levels causing significant social, economic and environmental impacts.

WaterNSW continues to devote considerable resources to secure the State's water in the light of the ongoing effects of drought. While the infrastructure needed to arrest the impacts of drought on rural customers is the subject of a separate Rural Valleys determination, WaterNSW nonetheless wishes to highlight the impact of drought on customers subject to the outcomes of this pricing proposal. We have sought to minimise the impact of drought on customers by providing least cost solutions to meeting our water monitoring and licensing obligations and to offer support where needed.

Changes in our operating environment

Over the 2016 Determination period, in addition to the external factors above, a number of events and internal initiatives have significantly impacted on the costs of providing WAMC services as illustrated in the figure below:

Figure 3 – Changes in our operating environment

The transition to a new industry structure has led to a new Enterprise Agreement, improved investment governance and procurement functions, and a review of labour sourcing models. These will all enhance the management of our assets and improve the efficiency and sustainability of our service delivery models going forward, but will increase our service delivery costs in the short term. Key contributing factors are identified below:

- **Organisational changes**

  WaterNSW undertakes functions previously provided by three legacy organisations (State Water Corporation (State Water), Sydney Catchment Authority (SCA) and DPIE-W). In early 2019, WaterNSW moved to a single Enterprise Agreement for our Award staff, leading to greater efficiency and consistency across our business.

- **Harmonising our Information and Communications Technology systems**

  WaterNSW is continuing to harmonise and update our Information and Communications Technology (ICT) systems to drive efficiency and provide improvements to customer interfaces

  Our Customer Information Management System (CIMS) (an ERP solution using Microsoft Dynamics D365 as the foundation) has been successfully launched, leading to a significant consolidation of our information and communications systems to replace the fragmented systems that supported processes within SCA, State Water and DPIE-W and the retirement of outdated legacy ICT systems.

  In addition, we are looking to further develop the timely provision of information, such as customer usage data and water availability, to make dealing with WaterNSW easier and given them useful information to assist them manage their operations.

- **Revenues impacts of industry reform**

  The 2016 Determination and our Deed of Business Transfer with DPIE-W resulted in an underfunding for water licensing services arising from industry reforms and the transfer of

functions between our business and DPIE-W and NRAR. Over the current determination period, WaterNSW has been under-funded by approximately $2.9 million. Aligning regulated charges to the efficient costs of providing regulated services moving forward would require a corresponding uplift in future operating expenditure allowances.

- **Improved investment governance**

  WaterNSW has reviewed and enhanced its investment governance, asset management and delivery strategies to ensure they are best practice and deliver targeted outcomes for customers at least cost.

- **Review of labour sourcing models**

  We have undertaken a comprehensive review of our labour sourcing with a view to 'insource' strategic water management activities to leverage our expertise while looking to 'outsource' non-strategic activities that can be provided at lower cost by the market. This is resulting in improved stewardship of our assets, including more targeted maintenance based on condition assessments and improved delivery models, while continuing to ensure value for money for our customers.

  For example, our water monitoring review considered the most optimal insource and outsource mix, resourcing levels and structure realignment opportunities to ensure the efficient delivery of water monitoring activities across the WaterNSW customer base encompassing Greater Sydney, Rural Valley and WAMC. This resulted in a greater share of insourcing, but a cost reduction at the whole-of-activity level.

- **Improved procurement functions**

  Our approach to procurement has undergone a fundamental shift to ensure we achieve value for money when procuring goods and services from the market. Our Authorisation to Spend (ATS) framework for expenditure and investment evaluation and governance ensures that WaterNSW makes prudent and efficient decisions that enable the effective delivery of customer and business objectives and represent value-for-money.

  The ATS framework ensures that appropriate consultation on major investment decisions occurs across the business, prior to proceeding. Examples of the benefits of our enhanced investment and procurement processes include our review of motor vehicle procurement. The review considered the most optimal asset vehicle types and configurations and resulted in improved standardisation and more efficient holding lives.

Non-urban metering reform

The NSW Government is implementing a new metering framework for non-urban water take in NSW. The key objectives of the metering framework are that:

- The vast majority of licensed water take is accurately metered;
- Meters are accurate, tamper proof and auditable;
- Undue costs on smaller water users are minimised; and
- Metering requirements are practical and can be implemented effectively.

The major element of this framework is the introduction of a mandatory metering condition in licences requiring metering equipment that meets specified standards plus telemetry (or 'telemetry ready' data loggers) to be installed, used and properly maintained on all water supply work approvals above a certain threshold.

Under the new framework, water users with works that meet one or more of the metering thresholds will be required to have a meter:

- Already required to have a meter or measure water take;
- Infrastructure size;

- Multiple works; and
- At-risk groundwater source.

The non-urban metering framework will have a significant impact on WaterNSW; including current services related to metering and integration of new systems, administration and data to carry out existing functions. A project has been in place to determine that impact, identify what needs to be undertaken for implementation and then managed on an ongoing basis.

As part of the reforms, it is proposed that existing metering functions conferred on WaterNSW are amended and some new functions are conferred. In addition, some new licence conditions are also proposed.

The additional costs non-urban metering reform may be material and WaterNSW will seek the recovery of the efficient costs of meeting the Government's reform agenda as part of the 2021 Determination process. Given the uncertainty around the policy and operational landscape and the associated costs of metering reform, other than the small project team we have in place to assist with the planning and implementation of the reform, WaterNSW has **excluded** the costs of non-urban metering reform from this pricing proposal until such time as we have better visibility of the required services and associated costs. WaterNSW will provide cost forecasts to IPART during the review process, by end October, for IPART's consideration and inclusion in the Final Determination.

For the avoidance of doubt, this submission has included funding for metering with respect to water take assessments, and the existing meter service charge and ancillary meter charges.

Revenue requirement and proposed prices

WaterNSW is proposing a **four-year determination period** that the three entities consider is a reasonable balance between providing longer-term certainty and minimising regulatory burden and administrative costs.

We propose to maintain IPART's demand volatility adjustment mechanism from the 2016 Determination.

Revenue requirement

For the 2021 Determination period, WaterNSW is proposing a total revenue requirement of **$154.2 million** ($2020-21) over the four-year determination period, averaging $38.6 million per year.

Our proposed revenue requirement seeks to recover, amongst other things, the prudent and efficient proposed operating expenditure program of $111.3 million over the four-year Determination period including fee for service, which is 73% of the total revenue requirement, to reflect the costs faced by WaterNSW in meeting its legislative obligations and customer service commitments to the Ministerial Corporation.

Our proposed revenue requirement over the four-year period includes operating costs of $47.5 million for water monitoring operating costs that is undertaken by WaterNSW at the request of DPIE-W as well as $34.9 million for fee for service transactions that are undertaken on a 'user pays' basis.

Proposed cost increases reflect the efficient costs of administering the licensing regime, including unfunded cost from the current determination period, combined with higher costs for the ongoing use and renewal of technology, partially offset by lower funding costs from the financial markets.

Our capital expenditure forecast reflects an equitable sharing of corporate support costs, primarily technology and fleet, in providing WAMC services and the capital costs of hydrometric stations used for water monitoring.

Figure 4 and Table 1 below illustrate our proposed total (unsmoothed) revenue requirement for the four years of the 2021 Determination period based on IPART's building block framework.

Figure 4 – WaterNSW total WAMC revenue requirement ($'000s, $2020-21)

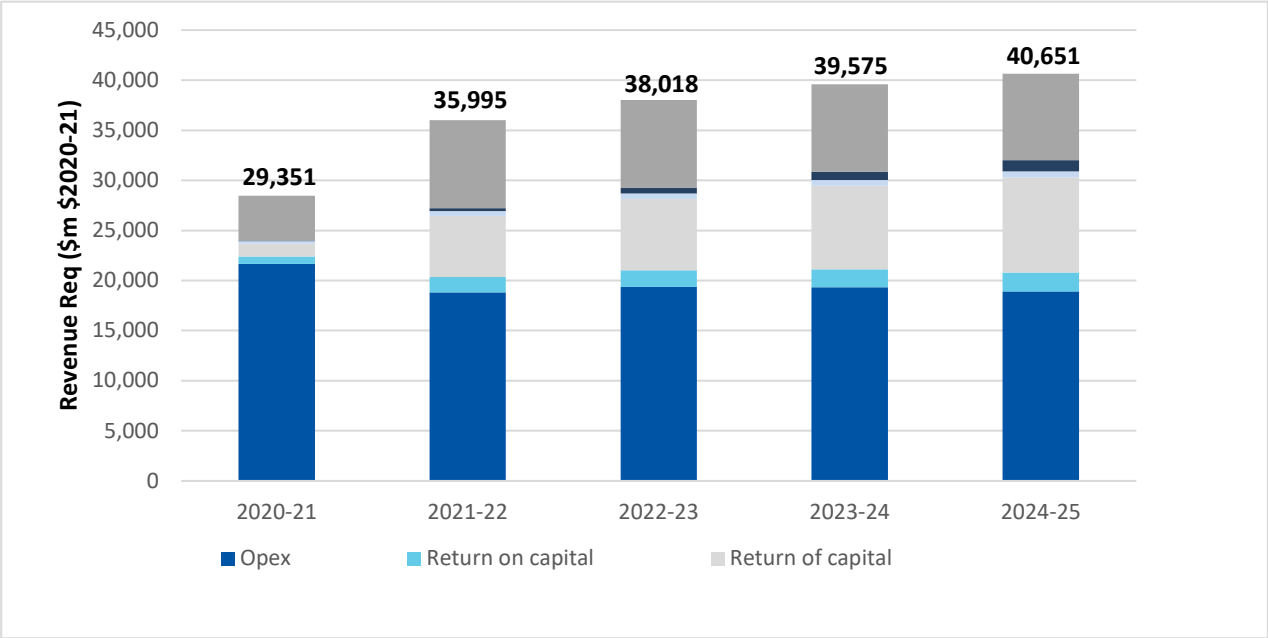


Table 1 – WaterNSW total revenue requirement for WAMC services ($000's, $2020-21)

	2020-21	2021-22	2022-23	2023-24	2024-25	FY22-25
Operating Expenditure	21,676	18,821	19,365	19,318	18,920	76,424
Operating Expenditure Fee for service costs	4,455	8,785	8,792	8,696	8,645	34,918
Return on Assets	727	1,540	1,664	1,797	1,870	6,871
Return of Assets	1,280	6,080	7,126	8,355	9,484	31,046
Return on Working Capital	231	497	539	566	608	2,210
Regulatory Tax Allowance	88	271	533	842	1,124	2,770
Contributions to MDBA & BRC	893	-	-	-	-	-
Total Revenue Requirement	**29,351**	**35,995**	**38,018**	**39,575**	**40,651**	**154,240**

Note: 2020-21 is the last year of IPART's 2016 Determination. The movement for fee for service costs from 2020-21 to 2021-22 reflects the proposal by WaterNSW to set charges for these services at cost reflective levels.

The user share (i.e. the amount recovered through IPART's approved customer charges) represents 94% of the total revenue requirement over the 2021 Determination period.

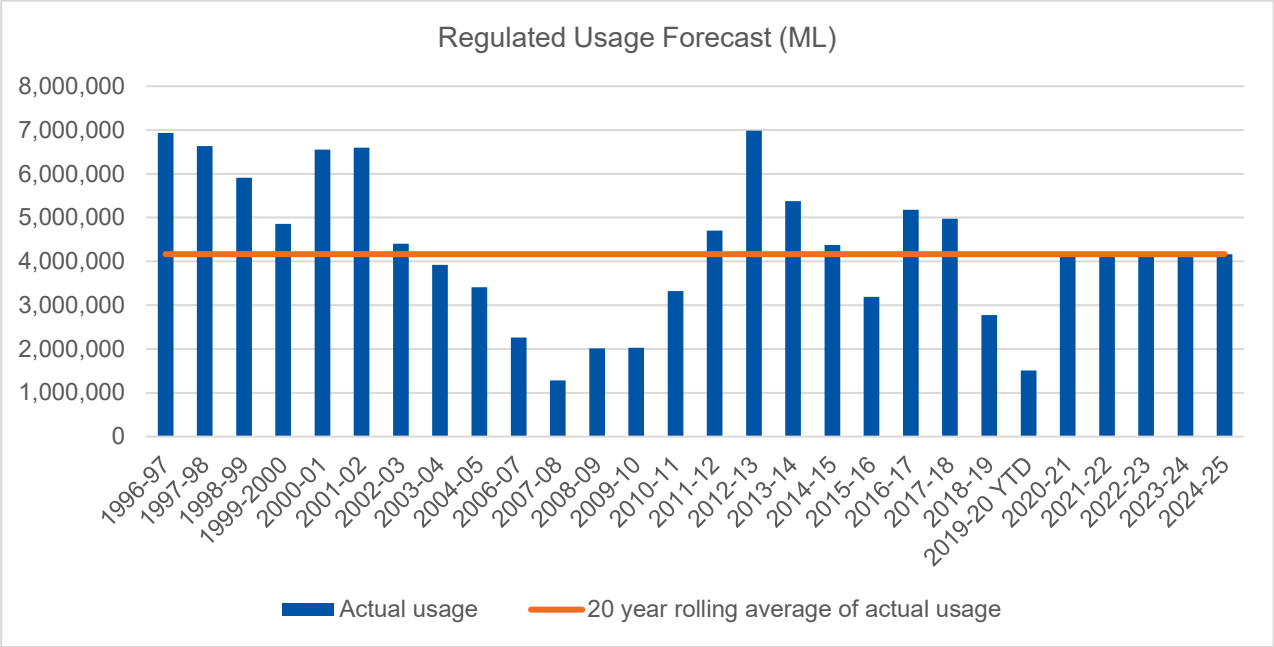
We note that the impact of the IPART Cost Share Decision of 2019 has been to increase the user share of water monitoring costs to 100% in W01-01 (surface water quantity monitoring and 60% in W01-03 (surface water quality monitoring) and to decrease the customer share to 40% for W01-04 (surface water algal monitoring). Other 'W codes' for water monitoring cost shares

remain unchanged with a user share at either 50% (surface water data management and reporting and surface water ecological condition monitoring) or 100% (Groundwater quantity and quality monitoring and groundwater data management and reporting).

Sales volume forecasts

The 20-year rolling average as previously adopted by IPART has been used for calculating usage-based charges for both the WaterNSW Rural Valleys and WAMC Determinations in regulated . The 20-year rolling average is shown below.

Figure 5 – 20-year rolling average of water sales



*Figures include interstate trade usage

Proposed prices

The costs for providing WAMC services across the three entities have increased moving into the 2021-25 Determination period.

In light of customer feedback and the impact that cost increases would have on customer prices, WaterNSW, DPIE-W and NRAR propose to cap annual WAMC water management charge increases at **5% per annum**. The proposed bill impacts are shown below.

Figure 6 – Indicative customer bills (regulated, unregulated, groundwater and minimum annual charge customers 2020-21 and 2021-22 for WaterNSW, DPIE-W and NRAR charges) (2020-21$)

Capped increase of 5% per annum

Regulated Customers (1)	2020-21	2021-22
Namoi - Small	$383	$403
Namoi - Medium	$1,917	$2,013
Lachlan - Small	$258	$271
Lachlan - Medium	$1,291	$1,356
Murray - Small	$220	$231
Murray - Medium	$1,100	$1,155
Murrumbidgee - Small	$197	$207
Murrumbidgee - Medium	$987	$1,036

Unregulated Customers (2)	2020-21	2021-22
North - Small	$478	$502
North - Medium	$2,390	$2,510
Central - Small	$560	$588
Central - Medium	$2,800	$2,940
North Coast - Small	$952	$1,000
North Coast - Medium	$4,760	$4,998

Groundwater Customers (3)	2020-21	2021-22
Inland - Small	$699	$734
Inland - Medium	$3,495	$3,670
Coastal - Small	$505	$530
Coastal - Medium	$2,525	$2,651

Minimum annual charge Customers (4)	2020-21	2021-22
Total MAC	$214	$224

Bill impact resulting from the proposed DPIE / NRAR charges to allow customers to work out the combined impact of the pricing proposals of all entities that provide services on behalf of WAMC:
1- Regulated river customers are subject to a 2-part fixed and variable tariff. This analysis is provided for small customers holding 100MLs of entitlements, medium customers holding 500MLs of entitlement.
2- Unregulated river customers in the unregulated valleys of North Coast, Central (Lachlan Macquarie) and North (Border, Gwydir, Namoi, Peel). For this analysis (1 part tariff) the average fixed bill for small customers holding 100MLs of entitlements, medium customers holding 500MLs .
3- For this analysis (1 part tariff) the average fixed bill for small customers holding 100MLs of entitlements, medium customers holding 500MLs
4- The charge applies irrespective of the size of the license holding as long as the indicative fixed and variable bill does not exceed the value of the MAC.

Capping WAMC water management charge increases at 5% per annum in real terms would provide an opportunity for the three entities to better understand the cost drivers for providing WAMC services and to provide sufficient time to consult effectively with customers in assessing how or if structural change is required to continue to place downward pressure on prices at subsequent determinations.

The shortfall between the proposed revenue from water management charges (capped at 5% per annum) and WAMC's user share of cost across the three entities of $97.3 million over the four-year 2021 Determination period is proposed to be funded under a Government CSO payment or Government contribution to the three entities.

There are a number of future planned activities to transfer the operational ownership of floodplain harvesting approvals, aquifer interference, and certain elements of the metering reform to WaterNSW, the costs of which are not contemplated in this pricing proposal. Current funding levels are not sufficient to ensure the efficient delivery of future activities.

We note that even with the proposed capped price increases by the three entities, it will be a challenge to sustain operational efficiencies for current activities with uncertain costs and funding arrangements. We note the conclusions of the NSW Ombudsman Water on the importance of ensuring the three entities are properly resourced as noted below:

> *"Good governance involves ensuring – or at the very least attempting to ensure – that agencies are properly resourced. Not doing so is a failure to meet acceptable standards of good public administration."*[2]

[2] See the conclusions of the NSW Ombudsman Water: compliance and enforcement – 17 August 2018 Page 4.

Detailed valley-by-valley water management charges are provided in Section 15. In our largest valleys and pricing regions the following bill impacts for the three entities are proposed below. These bill impacts exclude the impact of inflation and are shown in Figure 7 below:

Figure 7 - Bill impacts for water management charges by valley (2020-21$)

Capped increase of 5% per annum

Unregulated System	2020-21	2021-22
North - Medium	$2,390	$2,510

Unregulated System	2020-21	2021-22
Central - Medium	$2,800	$2,940

Unregulated System	2020-21	2021-22
North Coast - Medium	$4,760	$4,998

Groundwater System	2020-21	2021-22
Inland - Medium	$3,495	$3,670

Regulated System	2020-21	2021-22
Murray - Medium	$1,100	$1,155

Bill impacts exclude the impact of inflation.
Represents a medium sized customer (with 500MLs of entitlements) on a one-part tariff.

Minimum Annual Charge

A Minimum Annual Charge ("**MAC**") is levied when the total indicative customer bill for both fixed and variable WAMC charges is less than the value of the MAC. In this instance, the minimum annual charge is levied on the customer instead of the standard entitlement and water take charges. The MAC applies to all water access licences across unregulated, groundwater and regulated systems and is currently **$214**.

The MAC is designed to recover most of the cost associated with account management services for small-sized water holdings. Account management functions include compliance management, customer management, billing management, and regulation systems management carried out by WAMC. The MAC therefore applies to the activities undertaken by each of the three entities.

The three entities propose to increase the MAC by 5% per annum over the four-year determination period to reflect the need to keep water prices as low as practicable for customers while also transitioning to cost reflectivity over time.

Fee for service charges

Fee for service charges have been calculated to ensure they are cost reflective. This has resulted in increases above the 5% per annum water management charges as the current charges are well below cost reflective levels in most cases.

Our pricing proposal

Our pricing proposal comprises this main submission document including Appendices 1 to 6 and the attachments listed below as submitted by WaterNSW to IPART on 30 June 2020:

Reference no.	Supporting document
Attachment 1	Fact Sheet – WAMC Services in NSW
Attachment 2	Cost Allocation Manual
Attachment 3	CEG Report - *WACC, inflation compensation and financeability for WaterNSW* TBC
Attachment 4	Performance against output measures TBC
Attachment 5	Annual Information Return (AIR) / Special Information Return (SIR)
Attachment 6	Populated IPART Building Block Model
Attachment 7	WAVE Business Case

This pricing proposal sets out our forecast revenue requirements and prices for the services provided by WaterNSW to the Ministerial Corporation and other monopoly services as relevant from 1 July 2021 to 30 June 2025. All dollar values in this pricing proposal are expressed in 'real' $2020-21 dollars (i.e. exclude the impact of inflation) unless otherwise stated.[3]

For the avoidance of doubt, the proposed revenue requirements and expenditures provided in this pricing proposal relate to the functions provided by WaterNSW. The relevant costs associated with services provided by DPIE-W and NRAR are discussed in the separate DPIE-W / NRAR submission.

With the exception of fee for service charges, the proposed prices in this pricing proposal are for the combined activities of WaterNSW, DPIE-W and NRAR and represent the single consolidated charge for WAMC customers.

[3] Tables may not add due to rounding.

2. The Role and Functions of WaterNSW

The purpose of WaterNSW is to improve the availability of water resources that are essential for the people of NSW.

What we do

WaterNSW is Australia's largest water supplier. We own and operate 42 water supply dams across NSW, as well as hundreds of weirs, regulators and pipelines. We supply and deliver water through our infrastructure and the State's river systems to our customers, including Sydney Water, farmers, irrigators, regional towns and industry.

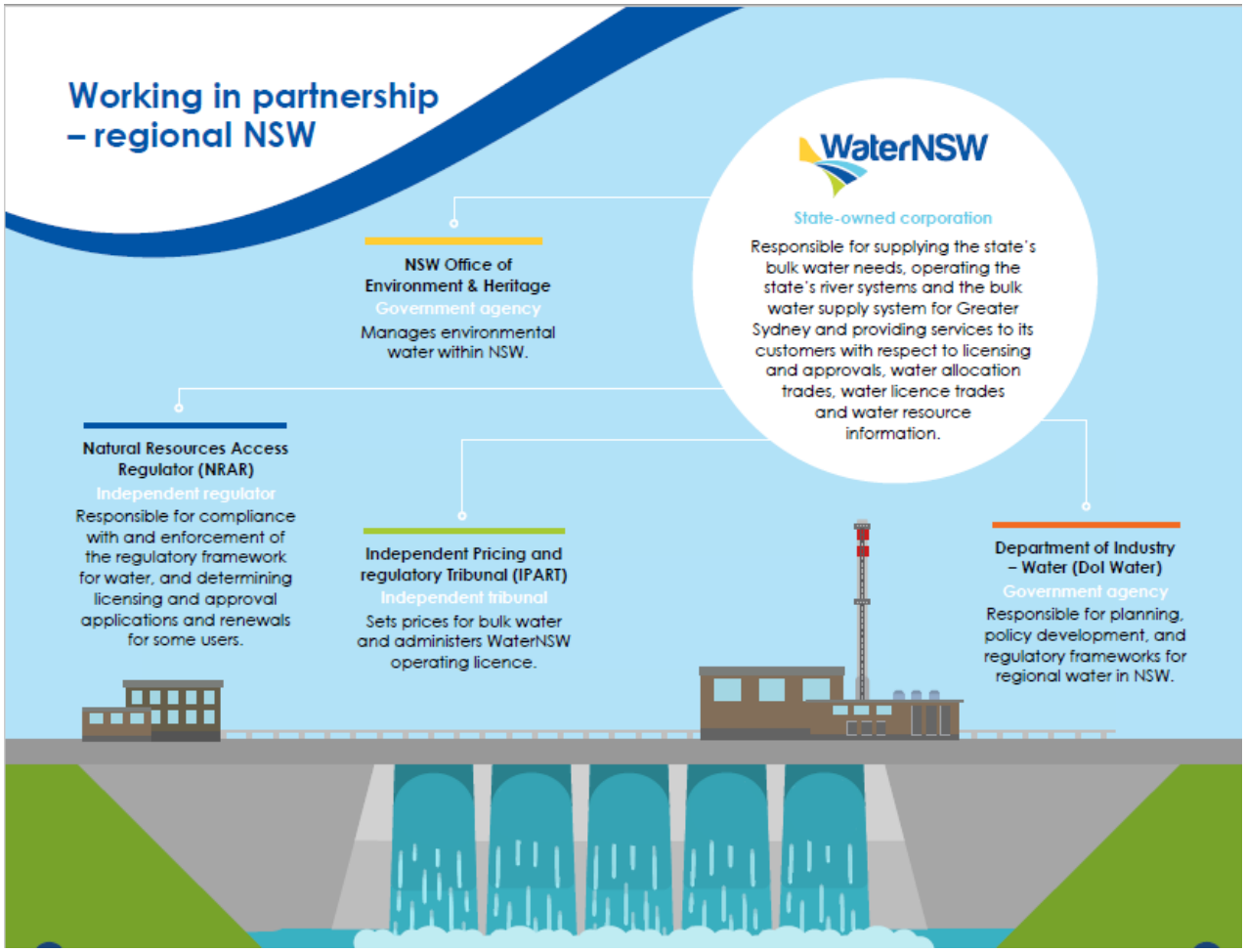
WaterNSW ensures that it supplies raw water in bulk for both domestic stock and irrigation, as well as for drinking water purposes. Paramount to this is water supply security and reliability, which we achieve through the development of infrastructure solutions. We plan, build, operate and maintain the infrastructure. WaterNSW also seeks improvements in achievable water quality standards and contributes to the protection of public health and the environment through enhanced catchment protection practices in declared catchments.

In the heavy regulated water management landscape in NSW our role is operator of the delivery system and for this pricing proposal to carry out those services conferred on WaterNSW on behalf of WAMC. The services we deliver include:

- **Source water protection**: protection of the Greater Sydney drinking water catchment to ensure safe water is supplied to Sydney Water, local councils and other distributors for treatment and distribution to their customers.
- **Bulk water supply**: supply water from our storages to customers in the Greater Sydney drinking water catchment and in the State's regulated surface water systems.
- **System operator**: efficient management of the State's surface and groundwater resources to maximise reliability for users through the operation of the State's river systems and bulk water supply systems, in collaboration with the Murray-Darling Basin Authority which directs operations of the River Murray system.
- **Infrastructure planning, delivery and operation**: meet customer-defined levels of service consistent with NSW Government policy and priorities to increase the security and reliability of water supplies to our customers and the communities of NSW.
- **Customer water transaction and information services**: provide efficient and timely services to our customers for water licensing and approvals, water trades, billing and meet their water resource information needs for surface and groundwater quantity and quality.

Figure 8 sets out the relationship between the main NSW Government entities involved in regional water supply.

Figure 8 - NSW Government entitles working in partnership in regional NSW



Relevant to this pricing proposal, WaterNSW provides water licensing services that relate to functions of the Ministerial Corporation which have been conferred on WaterNSW for some customers through fee for service transaction services and customer management and inquiry services. Also, to support DPIE-W in the discharge of its WAMC functions related to long term water stewardship, WaterNSW provides water monitoring services.

We are committed to be a modern, efficient and highly customer and stakeholder focused organisation.

2.1 Our regulated and non-regulated services

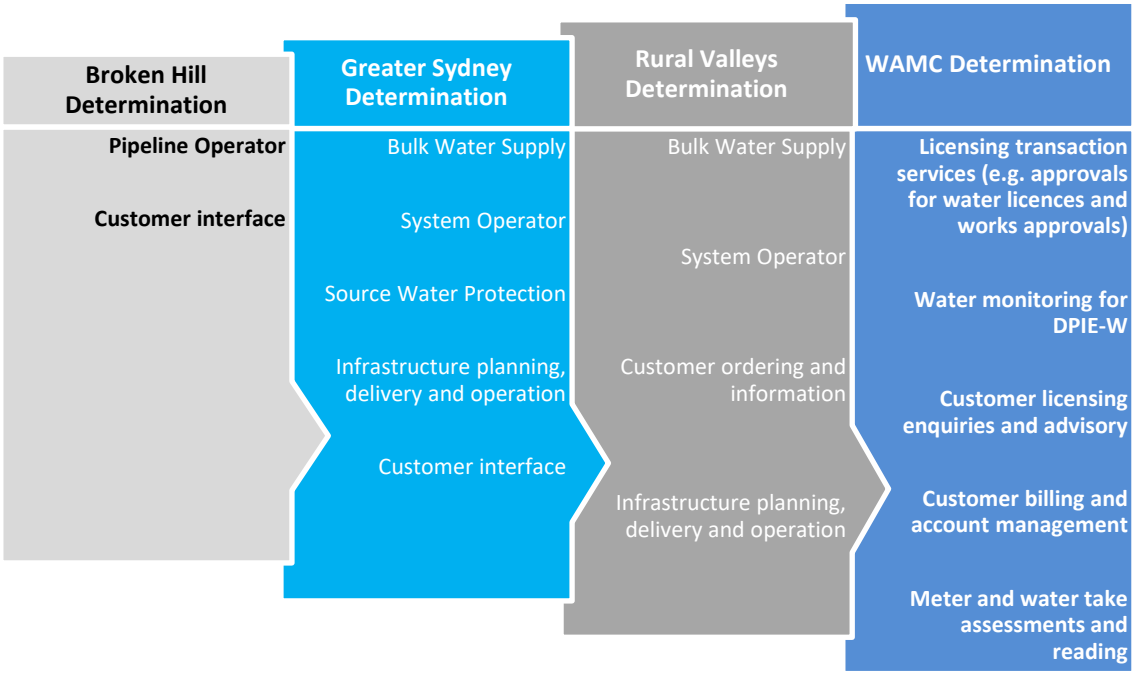
WaterNSW's monopoly services are the subject of four separate IPART price determinations that set out the efficient, and lowest, costs of providing relevant services:

- The services we supply to Sydney Water, some local councils and minor customers in the Greater Sydney area are subject to the IPART Determination – *WaterNSW, Maximum prices for water supply services from 1 July 2020 in relation to Sydney Catchment Functions, 16 June 2020* (the "Greater Sydney Determination");
- The services we supply to irrigators, regional local councils, mines, energy companies and environmental water holders in rural areas are subject to the IPART Determination – *WaterNSW, Prices for rural bulk water services from 1 July 2017, June 2017* (the "Rural Valleys Determination");

- The services we supply to Essential Energy and a small number of landholders near Broken Hill for the Murray River to Broken Hill pipeline are subject to the IPART Determination – *WaterNSW, Prices for water transportation services provided by the Murray River to Broken Hill Pipeline from 1 July 2019, May 2019* (the "Broken Hill Determination"); and
- The services we supply for the Ministerial Corporation are subject to the IPART Determination – Water Administration Ministerial Corporation, Maximum prices for Water Management services from 1 July 2016 (2016 Determination). We share responsibility for the delivery of the services the subject of that determination with DPIE-W and the Natural Resources Access Regulator (NRAR) (the "WAMC Determination").

Figure 9 sets out the regulated and unregulated functions carried out by WaterNSW, including those contained in the four determinations to which WaterNSW is subject.

Figure 9 – WaterNSW functions



The Ministerial Corporation is constituted as a corporation pursuant to the Water Management Act which sets out its principal functions. Historically, WAMC functions have been carried out by the relevant Department. WAMC functions (or activities) are declared monopoly services for the purposes of economic regulation. The current WAMC pricing determination, which runs to 2021, regulates prices charged by the WAMC in respect of all WAMC activities.

Following the creation of WaterNSW in 2015, and the implementation of the Water Transformation Project, endorsed by Cabinet in 2016, a number of staff, assets and functions were transferred from the then Department of Industry, Skills and Regional Development (now referred to as DPIE-W) to WaterNSW. As a result, a number of WAMC functions were conferred on WaterNSW, as set out in Schedule A of the WaterNSW operating licence.

WaterNSW is responsible for the discharge of a subset of the WAMC functions or activities that are covered in the current WAMC Determination. For the most part these relate to water licensing activities for WaterNSW's licensees (customers other than specific customers listed in Schedule A) and some metering functions. The remainder of the WAMC activities are carried out in a formal sense by the DPIE-W and, more recently, NRAR. These functions cover – water

licensing for some specific customers and related functions; water planning and management; and compliance.

This pricing proposal is in respect of the water licensing monopoly services supplied by WaterNSW for the Ministerial Corporation for the period after the expiry of the current determination (post 30 June 2021).

This pricing proposal contains the revenue requirement and costs relating to services supplied to customers by WaterNSW. The proposed prices are the aggregated 'single price' across WaterNSW, DPIE-W and NRAR in the case of water management charges and are WaterNSW-specific in the case of certain fee for service charges.

WaterNSW also supplies non-monopoly services such as leasing some of our facilities and certain commercial hydrometrics services. The commercial services involve the provision of data to external parties such as councils and the Bureau of Meteorology (BOM). It is understood that the cost of commercial hydrometric services was excluded from the regulated cost base by DPIE-W on the basis that they were not deemed to be a Government monopoly service in respect of water supply activities.

WaterNSW's statutory requirements and objectives and operating licence requirements are outlined in Appendix 5.

3. Services, standards of service and customer consultation

Increased transparency of pricing arrangements across water agencies will provide customers with visibility of the services they receive and drive additional sector efficiencies.

3.1 Background

The statutory basis of our service provision is set out in Section 2 above. An overview of the WaterNSW statutory framework, statutory objectives and operating licence requirements as they relate to WAMC services is provided in Appendix 5

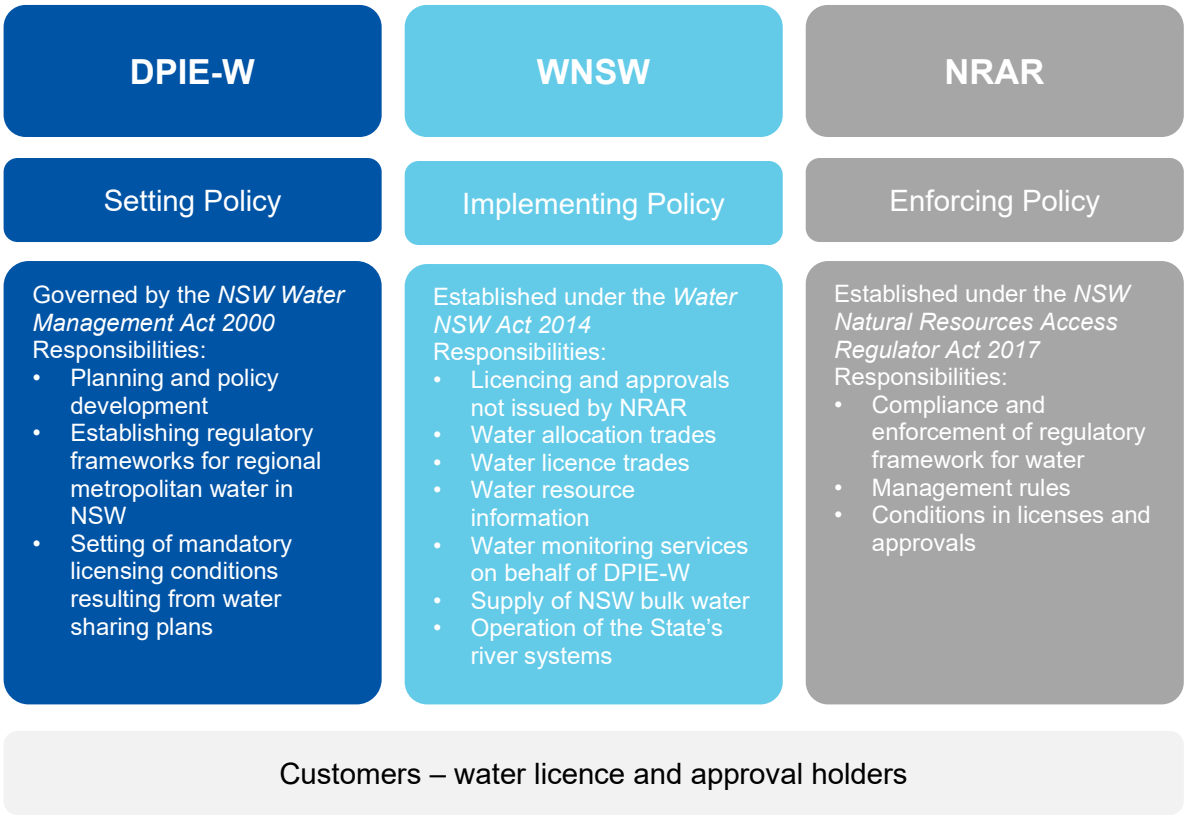
From 1 July 2016, a number of WAMC services and compliance functions were transferred to WaterNSW. Some of these functions and a small number of employees have subsequently been transferred to the NRAR.[4]

Nevertheless, WaterNSW continues to exercise some of these functions in relation to certain ongoing prosecutions under the *Water Management Act 2000 (NSW)* ("**WM Act**") that WaterNSW commenced prior to NRAR's establishment. Our proposal includes the forecast costs of managing these residual prosecutions. In addition, WaterNSW's operating licence has been amended twice since 1 July 2016 to accommodate the altered organisational arrangements[5].

A summary of the respective functions carried out by each agency is provided in the figure below.

[4] Under section 15 of the *Natural Resources Access Regulator Act (2017)(NSW)*.
[5] On 1 July 2017 and 13 February 2019.

Figure 10– Licensing and compliance services delivered by WaterNSW, DPIE-W and NRAR



Understandably, the movement of functions between organisations impacts our customer's understanding of organisational responsibilities. WaterNSW, with DPIE-W and NRAR have made efforts to keep customers abreast of the changes as they have been occurring. For example, WaterNSW directed customers to an outline of WAMC functions and responsibilities between WaterNSW, DPIE-W and NRAR in newsletters accompanying customer bills[6]. Nevertheless, we expect that a degree of uncertainty will remain for some customers.

WaterNSW now undertakes functions on behalf of the Ministerial Corporation that were previously provided by the Department. Compliance functions that were previously undertaken by DPIE-W, then conferred on WaterNSW, have been subsequently transferred to NRAR. While the organisations are clear on their respective legislative obligations arising from the reform, customers are largely unaware of the WAMC services they receive and from which agency. This lack of transparency makes it challenging for customers to assess the costs and benefits of the reform program.

Increased transparency for the costs of the three entities will not only provide customers with visibility of the services they receive to assess the overall benefits of reform, but will also drive additional efficiencies in the sector and maximise the overall benefits of economic regulation for the customer through transparent arrangements and the determination of efficiency targets that are relevant to each entity and hold each entity to account.

Feedback from Customer Advisory Groups have highlighted our customers desire to better understand the components of their bills and the services they are receiving.

[6] For regulated surface water customers in their billing run of October 2018, for groundwater customers in their billing run of November 2018 and for unregulated surface water customers in their billing run of January 2019.

This pricing proposal and the separation of WaterNSW's costs from those of DPIE-W and NRAR in providing WAMC services is the first step at providing greater transparency in charging arrangements.

WaterNSW is conscious of the need, through this pricing proposal, to **clearly and simply** explain to our customers and other interested stakeholders the services we provide for the Ministerial Corporation, the cost to provide the services and the way those costs are recovered through prices.

This pricing proposal sets out how we have built up our costs and the cost codes we have used in Appendix 3 and our proposed output measures for our services are set out in Appendix 7.

3.2 Water monitoring

3.2.1 Water monitoring services

The water monitoring services that WaterNSW carries out to support DPIE-W in its discharge of certain Ministerial Corporation functions comprise two main components:

- Surface and Groundwater quantity and quality monitoring through in-field hydrometric stations and sample taking; and
- Water quality monitoring through laboratory testing for both algal management and state-wide assessment purposes.

Incidental to these services, WaterNSW is required to operate and maintain the hydrometric network, and as a result incurs maintenance expenditure for the upkeep of the assets. Water monitoring data which is captured by the hydrometric network for the Ministerial Corporation is used by DPIE to support the administration of NSW water management legislation. Also incidental to these services is data management and custodianship, and administration of the algal alert and notification system.

WaterNSW owns and operates a fleet of approximately 6,400 active hydrometrics stations at specific locations across NSW. This fleet supports our Greater Sydney, Rural Valley and WAMC functions and provides community benefit and support for commercial and contracted purposes.

The costs of those sites (or proportion of sites) which are used for WaterNSW's provision of bulk water services in Greater Sydney and Rural Valleys are not within the scope of this pricing proposal.

WaterNSW also has a number of commercial arrangements with customers to provide monitoring data from a number of sites. These are also outside the scope of this pricing proposal.

Water quality and quantity monitoring is required by DPIE-W and NRAR to support their WAMC activities. DPIE-W and NRAR determine the service levels that they require to discharge their WAMC planning and compliance activities which are considered to be monopoly services and subject to economic regulation and the cost recovery framework.

If the levels of service as determined by DPIE-W and NRAR are amended, we would expect this to lead to changes in the costs of providing water monitoring services by WaterNSW. We anticipate that IPART will assess the service levels set by DPIE-W and NRAR for water quality and quantity monitoring as part of the 2021 Determination review.

WaterNSW has included the costs of providing water monitoring services in the water management charges assuming the following:

- The WaterNSW revenue requirement contains the costs of providing water monitoring;
- The charging arrangements for water monitoring are maintained from the 2016 Determination (i.e. the costs are included in the water management charges levied on all water users); and
- The existing levels of service as determined by DPIE-W and NRAR and as currently provided by WaterNSW remain unchanged.

Water monitoring through in-field hydrometric stations and sample taking

Water monitoring data which is captured by the hydrometric network for the Ministerial Corporation is used to support the administration of NSW water management legislation.

Those sites relevant to this pricing proposal are those used for:

- Long-term water stewardship for the Ministerial Corporation (comprising surface water, groundwater and water quality sites);
- Flood warning (BOM Category 1 sites);[7] and
- Algal monitoring

and represent the cost of approximately 5,400 sites in total. They cover sites in regulated and unregulated surface water sources and approximately 4,400 actively monitored groundwater pipes. A summary of their breakdown is set in Table 5.

Table 2 – Hydrometric station site breakdown between function/customer

Function / Customer	Long-term water stewardship / Ministerial Corporation – quantity data	Long-term water stewardship / Ministerial Corporation – water quality(3)	Flood warning / community & consumptive users	Algal monitoring / community & consumptive users
Regulated	139	71	14	36
Unregulated	298[2]	126	96*	29
Groundwater	4,384	163		
Total per function	4,821	346	110	65
Total	**5,356**			

Notes:
1: Totals include sites where WAMC has a primary or secondary funding role and sites with Community Benefit component
2: Includes 2 new quantity sites as required under Water Sharing Plans
3: Includes 14 new WQ sites for collection of Dissolved Oxygen data

The costs of those sites which are used for WaterNSW's system operation function in Greater Sydney and Rural Valleys are in addition to these numbers and not within the scope of this pricing proposal.

WaterNSW also has a number of commercial arrangements with customers to provide monitoring data from a number of sites. These are also outside the scope of this pricing proposal.

[7] Section 126 of the *Water Act 2007 (Cth)* provides for a person specified in the regulations, or included in a class of persons specified in the regulations, must give to the Bureau a copy of water information of a kind specified in the regulations that is in the person's possession, custody or control (whether held electronically or in any other form). The *Water Regulations 2008 (Cth)* specify at Part 7 water information for flood warning purposes: level of a watercourse expressed in meters, discharge of a watercourse expressed in cumecs, accumulated precipitation depth, including the water-equivalent precipitation.

The requirements cover several matters that influence the costs incurred by WaterNSW in providing the service and therefore should be reflected in prices charged to customers. This includes, but is not limited to:

1. The number and type of stations;
2. Frequency and the accuracy of level and or flow measurements
3. Frequency of sample collection
4. The visitation rate to ensure the stations function as required; and
5. The standard of information collected.

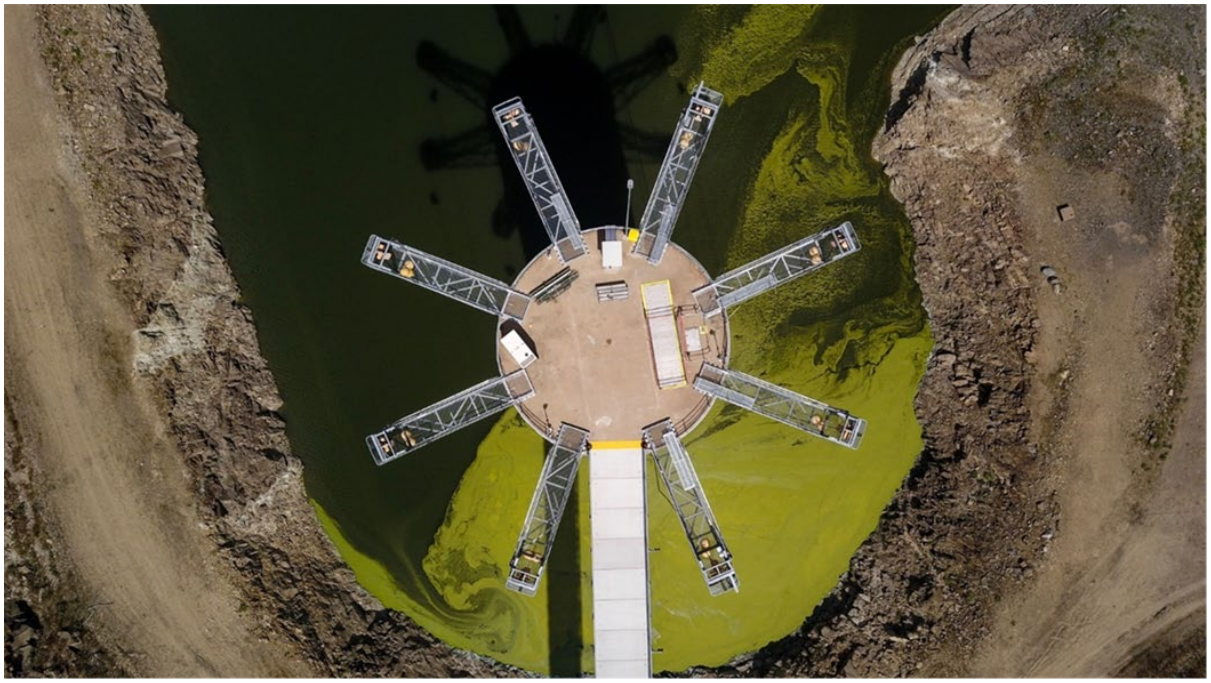
WaterNSW will be responsible for the operational efficiencies associated with providing water monitoring services for the Ministerial Corporation. WaterNSW expects IPART will review the prudency and efficiency of the way in which WaterNSW delivers to those requirements.

The flood warning and algal monitoring sites are for a community benefit purpose. WaterNSW understands that the hydrometric stations relating to flood warning and the BOM did not form part of the WAMC cost base in the 2016 WAMC Determination. Since 2016, WaterNSW has been responsible for maintaining these assets, including the stations that have a flood management driver.

These are relevant to surface water sources (regulated and unregulated). WaterNSW would see these costs being funded by NSW Government RAB and government share, paying on behalf of the communities who benefit from these services. However, in IPART's "*Rural Water Cost Shares – Final Report, February 2019*", pages 47-48, IPART allocated 40% of the cost of algal monitoring to customers. WaterNSW has adopted the IPART cost shares in the development of our revenue requirement and customer charges.

Greater details on the services provided by these hydrometric station sites is provided when describing the service levels below.

Figure 11 – Algal bloom in Burrendong dam March 2019



Water quality monitoring through lab testing

WaterNSW provides water quality monitoring through laboratory testing services used for:

- Long-term water stewardship function of the Ministerial Corporation; and
- Algal monitoring for the Ministerial Corporation.

As a matter of practice, WaterNSW outsources the laboratory analysis component of the provision of these services. The results are inputs to WaterNSW water monitoring systems.

As with the in-field monitoring services, WaterNSW has included in this pricing proposal the costs of laboratory testing for DPIE-W's long term water stewardship function as a share of NSW Government notional required revenue. In that way, we will seek to recover those costs through our pricing proposal which will allow IPART to review the prudency of the quantum and standard prescribed by DPIE-W.

The algal laboratory testing is conducted for a community benefit purpose in surface water sources (regulated and unregulated). WaterNSW would see these costs being funded by NSW Government share, paying on behalf of the communities who benefit from these services. However, in IPART's "*Rural Water Cost Shares – Final Report, February 2019*", pages 47-48, IPART allocated 40% of the cost of algal monitoring to customers. On that basis, we have charged a proportion of these charges to customers on the basis of IPART's cost shares.

3.2.2 Water monitoring service standards

WaterNSW adheres to different service levels for each function and customer.

For services provided to support long-term water stewardship, WaterNSW has been working with DPIE-W to develop a series of Schedules which define the services to be provided, including the service standards. While progress has been made in developing these Schedules, no schedules have been formally agreed. In the interim, WaterNSW has been continuing to provide the services at the locations and to the standard to which they were undertaken prior to the transfer of the functions and assets to WaterNSW.

Services supplied to the BOM for flood forecasting and warning are subject to operating guidelines agreed to between the BOM and WaterNSW. The guidelines specify the sites from which the BOM requires information and enables the BOM to request increased frequency of data interrogation rates during a flood emergency (being the period within either 48 hours after the BOM issues a flood water warning until it is cancelled or while the BOM is issuing flood warnings for a catchment in NSW until it is finalised or cancelled). The guidelines also deal with the frequency of data transfers between the parties.

The services supplied for purposes of algal monitoring are subject to the "*Guidelines to management response to freshwater, marine and estuarine harmful algal blooms: procedures for monitoring application of alter levels and communications*". It outlines the procedures used to monitor and assess algal blooms and management procedures that should be carried out in response to a harmful algal bloom in water used for recreational, stock and domestic purposes.

Regional specific guidelines have also been developed which detail the management frameworks and responsibilities of management authorities within each region which are applied in conjunction with the holistic guidelines. The guidelines provide for the types and frequency of sampling and where and how to send the samples for laboratory testing and the kind of laboratory testing required. Once an algal incident is identified the following alert levels may be triggered: recreational green, recreational amber, stock alert, high level alert for raw water sourced from potable supply and recreational red alert. The guidelines specify the circumstances

in which an alert can be lifted. The guidelines include a comprehensive communications strategy. Monitoring is conducted monthly which becomes weekly where a bloom is detected[8].

3.3 Licensing services

For the Ministerial Corporation, WaterNSW provides customers in regulated rivers and unregulated rivers and groundwater areas with billing account management and licensing services for certain users. These services fall into the following main categories:

- **Fee-for-service transaction services (licences, dealings or trades and approvals)**[9]. Costs are incurred for these services upon request by an individual customer for a particular transaction. We propose that the costs of these services are fully reflected in the proposed service charge.
- **Billing and account management systems and services**. This extends to billing for all Ministerial Corporation services charges (whether provided by WaterNSW, DPIE-W or NRAR). WaterNSW is proposing that these costs are recovered directly from customers as per the existing water management charging arrangements (comprised of a $ per entitlement (fixed) and a $ per water take (variable) charge) and the minimum annual charge (MAC) to send bills, manage and resolve billing queries and update relevant systems and processes.
- **Non-fee for service customer advisory and management services**. These arise from the complexity of administering the water licensing and management regime and comprise (non-exhaustive list):
    - Handling customer licensing queries, such as, what do customers need to apply for
    - This can extend to site visits;
    - Interaction with NRAR to assist with NRAR's compliance activities[10];
    - Managing the licensing system through:
        - Processing surrenders and cancellations;
        - Uploading discretionary conditions;
        - Notification of change in conditions
        - Managing security interests; and
    - Updating customer information (change of address, ownership) for land events; and
    - Conversion of licences from the 1912 Water Act to the WM Act and conversion of licence conditions to account for changes in the WM Act Water Sharing Plans (WSP) such as WSP name changes, zone changes, water source changes and linking the updated WSP to licence holders.

WaterNSW also provides condition re-notification to customers whose licence conditions change following DPIE-W policy decisions. This is essentially a mail-out service which relies on WaterNSW's systems for billing and account management.

WaterNSW supplies licensing services to all customers other than all decisions or other actions made in relation to the granting, conditioning, surrender, cancellation, suspension or extension of a water access licence, water use approval or water management work approval or an activity

[8] WaterNSW, Water Monitoring Program, 2017, pages 21-22.
[9] These are described in greater detail in section 14.6.
9[10] On 24 January 2019, WaterNSW and NRAR entered into an MOU to provide a framework for a cooperative relationship between WaterNSW and NRAR and a mutual commitment by both parties to establish and maintain processes for effective and efficient:
a) information and data exchange related to compliance and enforcement of the water management legislation;
b) support for compliance, investigation and prosecution activities;
c) IT systems access and use related to the administration of the water management legislation; and
d) Evaluation and review processes to ensure the on-going effective, efficient, transparent and accountable administration of the water management legislation.

approval in respect of approximately 300 customers[11] and certain activities which are managed by NRAR[12]. However, WaterNSW still supports these customers with other fee for service transaction services such as dealings (the trading of a Water Access Licence (WAL) or water allocation). WaterNSW provides account management and billing services to all customers.

3.3.1 Fee for service transaction services

The WaterNSW licensing team works towards five specific service levels in respect of the Fee for Service Transaction Services provided for the Ministerial Corporation. WaterNSW has three full years of data for these service levels, from the time that WaterNSW commenced these functions, namely 1 July 2016.

The Fee for Service Transaction Services service levels and the performance results are set out in Table 3 below.

Table 3 – Fee for Service Transaction Services service levels 2016-17 to 2018-19

Service Level	Target	2016-17	2017-18	2018-19	2019-20 (May YTD)
Percentage of applications for licence dealings assignment of shares (71Q) processed within 20 days	90%	98%	96%	98%	95%
Percentage of applications for new access licences processed within 40 days	80%	88%	86%	93%	96%
Percentage of applications for water management work and use approvals processed within 60 days	80%	82%	80%	80%	85%
Percentage of applications to extend a water management work approval processed within 20 days	90%	96%	84%	90%	69%
Percentage of applications for an approval for a bore for domestic and stock rights processed within 10 days	90%	94%	88%	89%	83%

WaterNSW also has a service level for first call resolution, of 90% of enquiries being directly responded to at the time of the call or email. WaterNSW has consistently met this target for both calls and emails, even though call and email volumes are approximately three times the expected target (in 2016-17 approximately 35,000 enquiries were received and in 2017-18 approximately 32,000 enquries were received, against an output measure of 10,000).

The reasons for 2017-18 service standards not being met for two metrics are:

[11] These customers are from the following categories: major utilities such as energy companies and Sydney Water; Water Supply Authorities such as the Sydney Olympic Park Authority; local water utilities such as Wingecarribee Shire Council and other regional local councils and licensed network operators such as Green Square Water Pty Ltd; irrigation corporations such as Murray Irrigation Ltd; the Commonwealth, a State or Territory, NSW Government Agency or a State Owned Corporation under the State Owned Corporations Act 1989 (NSW).

[12] This consists of the following activities: where the applicant has been required to obtain any authority, lease or licence under the *Mining Act 1992 (NSW)*, the *Offshore Minerals Act 1999 (NSW)* or the *Petroleum (Onshore) Act 1991 (NSW)* or any permit or licence under the *Petroleum (Offshore) Act 1982 (NSW)*; in relation to State Significant Developments and State Significant Infrastructure under the *Environmental Planning and Assessment Act 1979 (NSW)*; a controlled activity approval, an aquifer interference approval, a floodplain harvesting licence and associated works approval or an Aboriginal commercial, Aboriginal community development, Aboriginal cultural or Aboriginal environmental subcategory of access licence.

- The early impacts of the drought were being felt by landholders, leading to a 66% increase in basic landholder rights (BLR) bore assessments from the previous financial year; and
- As critical water needs, being BLR bores, are prioritised over other non-critical applications, this led to a delay in processing some extensions.

This drought trend was repeated in 2019-20.

In December 2017, WaterNSW implemented a new telephony system allowing us to manage all calls on the same platform. The IVR was updated with more options allowing customers to self-select their preference.

WaterNSW's performance against the current period output measures has been published by IPART under the following links:

- https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-legislative-requirements-water-bulk-water-water-administration-ministerial-corporation-nsw-office-of-water-pricing-review-commencing-1-july-2016/report-wamc-output-measures-for-2016-17.pdf

- https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-legislative-requirements-water-bulk-water-water-administration-ministerial-corporation-nsw-office-of-water-pricing-review-commencing-1-july-2016/complete-report-performance-against-wamc-output-measures-in-2017-18.pdf

- https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-legislative-requirements-water-bulk-water-water-administration-ministerial-corporation-nsw-office-of-water-pricing-review-commencing-1-july-2016/complete-report-performance-against-wamc-output-measures-in-2018-19.pdf

3.4 Customer consultation

WaterNSW is committed to meaningful engagement with its customers and stakeholders. In considering whether customers were supportive of the key elements of our WAMC pricing proposal, we consulted with customers primarily through the Customer Advisory Groups (CAG) process. The support from these groups for our proposal has been strong in recognition of the impacts of drought on the community. Our consultation on WAMC activities commenced as part of the February 2019 CAGs round presentations, totalling forty meetings (four meeting rounds with ten valleys per round).

Through the last CAG round presentations, there was broad consistency in the key messages from CAG members on the importance of the following matters:

- **Transparency**: seeking separate charges and revenue calculations in IPART's determination based on the efficient charges for the function undertaken by each Water Agency (including ensuring MDBA costs that are passed through are both prudent and efficient).
- **Cost reflectivity**: aligning the charging for our fee for service and water management activities with our underlying cost structures over time, taking into account the bill impacts of any realignment, noting customers see this as an important journey to be taken in understandable steps.
- **Value for money:** striving to provide least cost solutions to our customers' water needs and to deliver the Government's water reform agenda at lowest cost.

Through our "Voice of Customer" research, customers have told us that they have an increased awareness of the activities WaterNSW provides for unregulated river and groundwater customers. Increased customer service is also perceived by unregulated users.

We are pleased to see as a result of unprecedented groundwater-related transactions, customers surveyed show a greater than 30% increase in the perception of WaterNSW spending money on the 'right things' as compared to 2019 survey results when asked the same question.

3.4.1 Customer service levels

Table 4 – Customer service levels

	2017-18	2018-19
Customer complaints outstanding at the beginning of the financial year	17	147
New complaints received	316	82
Complaints resolved/closed	186	226
Customer complaints outstanding at the end of the financial year	147	3

4. Regulatory framework

WaterNSW is proposing a four-year determination period which represents a reasonable balance between providing longer-term certainty and minimising regulatory burden and administrative costs.

This chapter addresses the following elements of the regulatory framework that apply to the 2021 Determination period.

- Proposed determination period;
- Form of pricing control;
- Volume volatility; and
- Non-urban metering reform.

4.1 Proposed determination period

One of the decisions that IPART is required to make as part of the 2021 Determination for WaterNSW is the length of the regulatory period. IPART makes a decision on the number of years that the maximum prices they set can be levied. The period often reflects the circumstances that apply to that utility at that time.

As outlined in IPART's November 2018 Guidelines for Water Agency Pricing Submissions, IPART considers the following factors when deciding on the length of the determination period:

* *"the confidence we can place in forecasts;*
* *the risk of structural changes in the industry;*
* *the need for price flexibility and incentives to increase efficiency;*
* *the need for regulatory certainty and financial stability;*
* *the term of the operating licence (where applicable);*
* *the costs of a price review; and*
* *the benefits of aligning the determination with the price determination of related utilities".*[13]

The advantages of a longer determination period include stronger incentives for WaterNSW to increase efficiency (and retain the benefits of efficiency improvements), greater stability and predictability and reduced regulatory costs.

The disadvantages include increased risk associated with potential inaccuracies in the data, possible delays in customers benefitting from efficiency gains, and the risk that changes in the industry or the operating environment will affect the appropriateness of the determination. In periods of uncertainty, a shorter determination may be beneficial in reducing the pricing and cost risks.

In the 2016 Determination, IPART decided on a four-year determination period to apply to DPI Water as four years provided a "*stable and predictable regulatory environment for DPI Water and water users, while minimising regulatory costs*".[14]

[13] November 2018 *Guidelines for Water Agency Pricing Submissions*. Page 27.
[14] IPART *Final Report on the Review of prices for the Water Administration Ministerial Corporation from 1 July 2016*. Page 43.

Other than for the reasons noted below, on balance, we consider that the benefits of a four-year determination period in providing certainty and minimising both regulatory burden and administrative costs outweigh the costs and benefits of moving to a period shorter or longer than four years.

WaterNSW therefore proposes a **four-year determination period** starting on 1 July 2021.

However, we suggest that the length of the determination period is reviewed in light of how IPART addresses the timing of WaterNSW's Rural Bulk Water Prices Determination.

WaterNSW's Rural Bulk Water Prices Determination expires on 30 June 2021 with WaterNSW's pricing proposal to be submitted to IPART on 30 June 2020, giving IPART a year to review it and make the new Final Determination with new prices commencing 1 July 2021.

Depending on the length of the regulatory period proposed by WaterNSW and agreed by IPART for the upcoming Rural Valleys determination, consideration should be given to whether it is possible or practical to align the determination periods for the subsequent WAMC and Rural Valleys determinations (and potentially the Broken Hill Pipeline that expires on 30 June 2022) moving forward.

Aligning the Rural Valley Determinations and the WAMC Determination periods would greatly improve the efficiency of the pricing proposal and determination process for both WaterNSW and IPART given how aligned they are, but also improve and harmonies the customer consultation process.

4.2 Form of pricing control

WaterNSW is proposing a form of pricing control that largely maintains the methodology from the 2016 Determination. A key difference between the 2016 Determination and the 2021 Determination is that in the latter there are now three entities providing WAMC services as opposed to one (the DPIE-W) in 2016. As discussed above, this pricing proposal provides WaterNSW's efficient costs in providing WAMC services and provides consolidated water management charges across DPIE-W, WaterNSW and NRAR.

The Our proposed approach to customer charging is provided in Section 14.

4.3 Demand Volatility Adjustment Mechanism

In the 2016 Determination, IPART determined that it:

> "*will consider at the next determination of WAMC's prices:*
>
> *An adjustment to the revenue requirement and prices to address any over or under-recovery of revenue over the 2016 determination period due to material differences between the level of billable water take over the period and the forecast water take volumes used in making this determination.*
>
> *– Whether and how best to make a revenue adjustment based on the circumstances at the time".* [15]

IPART accepted stakeholder concerns regarding the reliability of DPI Water's water take forecasts at the 2016 Determination. In particular, Lachlan Valley Water raised the desirability of an adjustment mechanism to address the potential over-recovery of revenue by DPI Water, in the

[15] See IPART Review of prices for the Water Administration Ministerial Corporation, June 2016. Page 122.

event that actual water take over the 2016 Determination is considerably above the forecasts used to set prices.

IPART also acknowledged that actual water take may be considerably below forecast because of dry weather and limited water availability, which could lead to an under-recovery of revenue.

Some irrigators stated that the water take is volatile and suggested using long term average extraction information as alternatives. NSW Irrigators' Council argued that the 20-year rolling average understates water take, which will result in higher water management charges. It also argued that floodplain harvesting water take may not be accurate because DPI Water does not know how many licenses will be issued. WaterNSW notes that, in times of drought, the 20-year rolling average overstates the water take, which is what we've experienced in recent years.

In light of this uncertainty, IPART determined that:

> *"Given the uncertainty and volatility of water take we see merit in introducing a demand volatility adjustment mechanism for WAMC. While our decisions in the 2016 Determination cannot bind a future Tribunal, this demand volatility adjustment could be implemented by comparing the forecast and actual water demand over the 2016 determination period and adjusting the revenue requirement over the next determination period, as decided by the Tribunal at that time".*[16]

WaterNSW is not seeking an adjustment to its revenues for the 2021 Determination period based on the demand volatility adjustment mechanism included by IPART in the 2016 Determination.

WaterNSW, however, considers that a demand volatility adjustment mechanism is a useful and important feature of IPART's regulatory framework to provide an appropriate level of certainty to WaterNSW and its customers on how future revenues and prices are to be calculated.

WaterNSW therefore proposes that the demand volatility adjustment mechanism from the 2016 Determination is maintained by IPART for the 2021 Determination period. If a demand volatility adjustment mechanism is maintained for the 2021 Determination period, WaterNSW suggests that the trigger mechanism should be specified, such as to align with the 'material variation in sales defined as ± 5% change over the determination period' that applies to the Sydney Water, Hunter Water, Central Coast Council and Essential Water determinations.

4.4 NSW Government's non-urban metering reform program

The NSW Government is implementing a new metering framework for non-urban water take in NSW. The key objectives of the metering framework are that:

- The vast majority of licensed water take is accurately metered;
- Meters are accurate, tamper proof and auditable;
- Undue costs on smaller water users are minimised; and
- Metering requirements are practical and can be implemented effectively.

The major element of this framework is the introduction of a mandatory metering condition in licences requiring metering equipment that meets specified standards plus telemetry (or 'telemetry ready' data loggers) to be installed, used and properly maintained on all water supply work approvals above a certain threshold.

Under the new framework, water users with works that meet one or more of the metering thresholds will be required to have a meter:

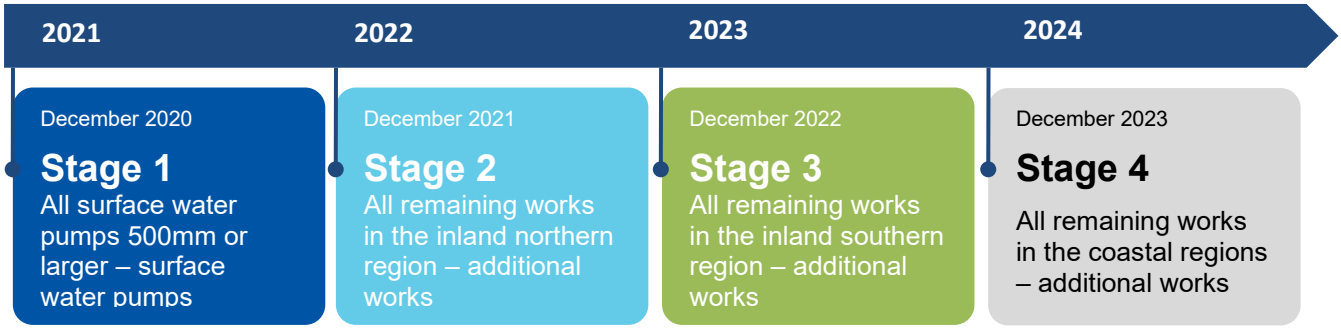
[16] Ibid. Page 123.

- Already required to have a meter or measure water take;
- Infrastructure size;
- Multiple works; and
- At-risk groundwater source.

The *Water Management (General) Regulation (2018)* (Regulation) sets out the requirements that must be complied with by all holders of approvals, licences and entitlements who are subject to the mandatory metering condition. It also prescribes which approval holders are exempted from the mandatory metering condition, based on thresholds. The regulation contains new record-keeping rules for holders of approvals, licences and entitlements, and a new process for faulty meters.

The new metering framework has commenced and will be rolled out over five years, starting with the largest consumers of water (i.e. the largest works) and then rolling out on a region by region basis. The remaining transition to the new metering requirements is intended as follows and as illustrated in Figure 7:

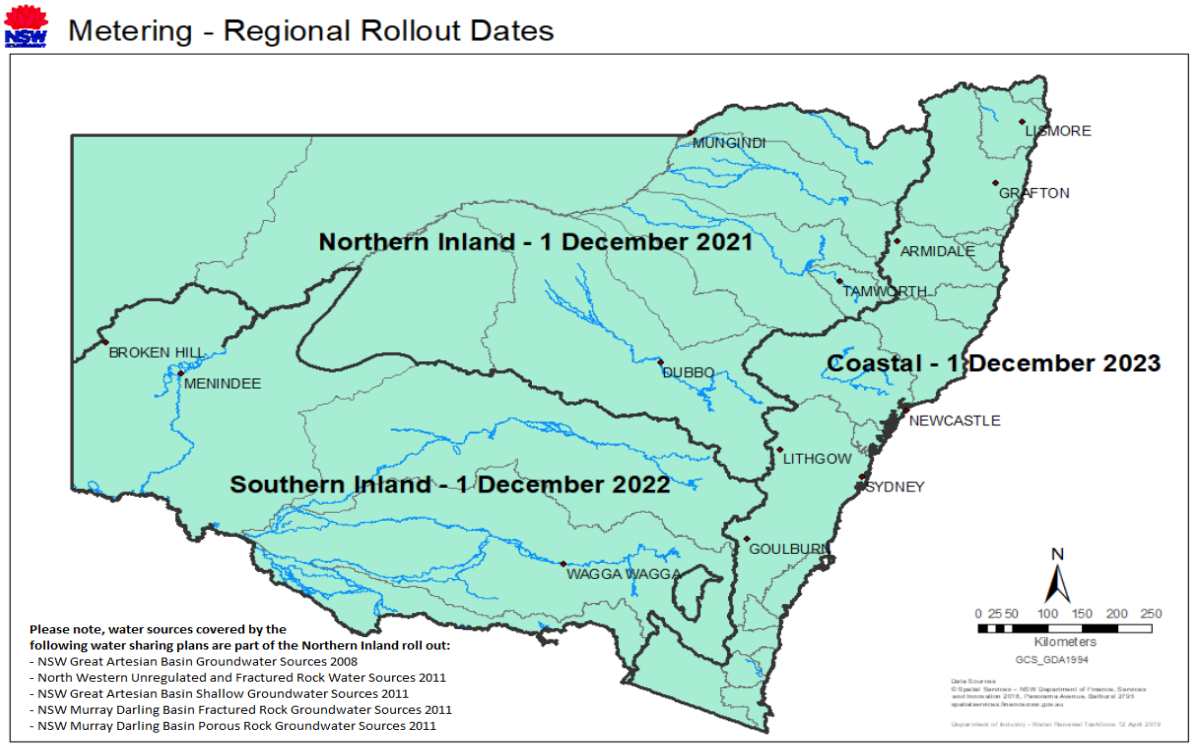
Figure 12 - Non-urban metering reform implementation timeline[17]



We note however that the current timelines are subject to change by Government.

[17] These numbers are taken from the DPIE-water website.

Figure 13 – Non-urban metering – regional rollout



Source: DPIE-W website

The non-urban metering framework will have a significant impact on WaterNSW; including current services related to metering and integration of new systems and data to carry out existing functions. A project has been in place to determine that impact, identify what needs to be done for implementation and then managed on an ongoing basis.

As part of the reforms, it is proposed that existing metering functions conferred on WaterNSW are amended and some new functions will be conferred. In addition, some new licence conditions are also proposed.

The background to the metering reforms and the likely impacts on WaterNSW, including for the WAMC activities, is discussed in detail in **Appendix 2 'Approach to non-urban metering reform'**.

Given the uncertainty around the final policy and operational landscape and the associated costs of metering reform, **WaterNSW has excluded the costs of non-urban metering reform from this pricing proposal**. WaterNSW will provide cost forecasts to IPART during the review process in the form of a supplementary proposal on the costs of non-urban metering, by end December 2020, for IPART's consideration and inclusion in the Final Determination.

In relation to the potential charging arrangements, WaterNSW is considering a number of approaches to recover the cost of metering reform, in particular the costs of telemetry systems.

Options we are considering include

- Introducing a separate electronic read charge to recover the costs on a user pays basis (e.g. telemetry service charge); and
- Recovering the cost equally from all customers on a socialised basis.

We note that the preferred approach will be influenced by several factors including:

- Cost recovery arrangements are transparency, fair and equitable;
- Ability to promote customer choice and align with risk-based policies;
- Ability to further the objectives of the NSW metering reforms; and
- Bill impact considerations.

In our supplementary proposal on the costs of non-urban metering, WaterNSW will provide a view on the most effective charging arrangements to recover the efficient costs of non-urban metering reform, taking into account the factors listed above

5. Operating Expenditure

We propose to invest $111.3 million ($2020-21) to provide prudent and efficient account management, water monitoring and licensing services over the four-year 2021 Determination period.

5.1 Past operating expenditure for the 2016 Determination period

5.1.1 Overview

For the 2016 Determination period, our total operating expenditure for WaterNSW account management, water monitoring, billing and licensing services is expected to be $157.0 million over the five years as illustrated in Table 4 below.[18]

Table 5 – WaterNSW total operating expenditure for WaterNSW WAMC services 2016-21 ($000s, $2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21	Total
Operating expenditure	33,549	40,220	29,587	26,078	27,565	**156,998**
Change (%)	NA	20%	-26%	-12%	6%	NA

Our business forecasting methods utilises a bottom up costs build up for 2021-25 determination period taking into account current period spend, anticipated changes in obligations, service delivery, additional functions, and operations. The forecast is underpinned by our 2020-21 Statement of Corporate Intent Annual Budget Process in which the key assumptions and principles were endorsed including high level financial targets, headcount and salary and wages input processes and principles and change control processes.

However, as noted previously, WaterNSW has **excluded** the costs of non-urban metering reform from this pricing proposal until such time as we have better visibility of the required services and associated costs. WaterNSW will provide cost forecasts to IPART during the review process, by end October, for IPART's consideration and inclusion in the Final Determination.

As noted in Section 3.1, the role and functions originally conferred on WAMC have been the subject of significant external industry reform – WaterNSW has undertaken a number of WAMC functions that were previously provided by DPIE-W since 1 July 2016 and also subsequently transferred some of those functions on to NRAR in 2018. To this end, our operating expenditure allowance for licensing services in the current determination period has largely been determined outside of our control and without our input.

Our *Deed of Business Transfer* with DPIE-W provided **$147.1** million ($nominal) in revenue for account management, billing, licensing, compliance[19] and water monitoring services for the current determination period. We expect to spend in excess of this allowance by **$2.9** million. This variation primarily reflects an inherent underfunding for water licensing services arising from industry reforms and the transfer of functions between our business and DPIE-W and NRAR. To a lesser extent, the variation has also been required as a result of the challenges of dry weather and drought, and the expanded role of NRAR.

[18] The 2016 Determination was a four-year determination that was extended to five-years by IPART at the request of the Department.

[19] When this function was undertaken by WaterNSW prior to the establishment of NRAR. Compliance functions are now carried out by NRAR.

We expect many of these drivers of variance to endure into the 2021 Determination period. At the same time, we are also renewing aged IT assets at a business-wide level.

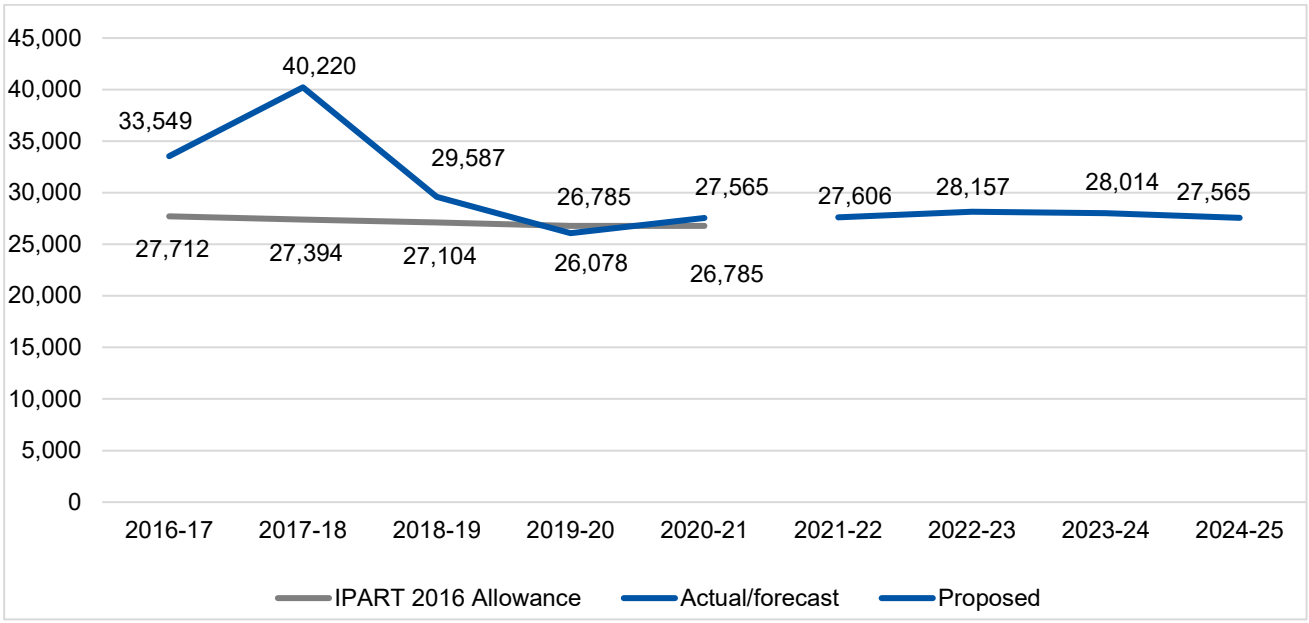
As illustrated in Table 5 below, WaterNSW is proposing total operating expenditure of **$111.3 million** for the four years of the 2021 Determination period.

Our total operating expenditure over 2016–21 and the forecast expenditure for 2021–25 are shown in the tables and figure below.

Table 6 – WaterNSW total operating expenditure for WaterNSW WAMC services 2022-25 ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Operating expenditure - proposed	27,606	28,157	28,014	27,565	**111,342**
Change (%)	0%	2%	-1%	-2%	**NA**

Figure 14 – Total operating expenditure for WaterNSW WAMC services, 2016-25 ($'000s, $2020-21)



*2019-20 forecast to be updated. 2017-18 includes the costs of Project Harvey.

For the avoidance of doubt, we have included forecast operating expenditure for water monitoring services we undertake for DPIE-W.

5.1.2 Operating expenditure 2016-21, by service and activity

For the 2016 Determination period, our total operating expenditure for WAMC services is forecast to be $157.0 million. Table 7 provides a breakdown of our total operating expenditure by service.

Table 7 – WaterNSW total operating expenditure for water licensing services, by service over 2016-21 ($'000s, $2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21	Total
Water Monitoring Services	15,159	18,423	12,108	10,805	11,600	**68,095**
Account Management and Billing Services	2,786	2,569	2,713	2,675	2,607	**13,350**
Licence Advisory Services	3,743	5,960	4,065	3,552	4,325	**21,646**
Licence Advisory - Water Consent Transaction Services	4,709	8,199	7,200	5,833	7,228	**33,168**
Meter maintenance services	2,181	2,165	2,233	1,657	825	**9,061**
Water take assessment services	3,212	1,464	972	860	806	**7,315**
Other services*	1,758	1,440	296	695	173	**4,363**
Total	**33,549**	**40,220**	**29,587**	**26,078**	**27,565**	**156,998**

*including compliance cost in respect of Project Harvey (see section 5.1.3 below) and for when the compliance function was undertaken by WaterNSW prior to the establishment of NRAR. Also includes prosecution and compliance support to NRAR.

While we submit that our proposed operating expenditure should be treated independently of DPIE-W's 2015 WAMC price submission, we have also provided a breakdown of our total operating expenditure using DPIE-W's activity codes for ease of comparison with the 2016 Determination. We note that DPIE-W's activity codes do not directly align with our own activities and cost allocation methods. The figures in Table 7 below should therefore be interpreted carefully and considered at the higher function/service level.

We are also asking IPART to align the activity codes to the way WaterNSW account for activities going forward.

Table 8 – WaterNSW total operating expenditure for water licensing services, by DPIE-W activity code over 2016-21 ($000s, $2020-21)

WNSW Activities	Former DPI Water activities	Former W code	2016-17	2017-18	2018-19	2019-20	2020-21
Water monitoring Services	Water Quality and Quantity	W01 to W02	15,159	18,423	12,108	10,805	11,600
Water take assessment services	Water take assessment	Partial mapped to W03-01	3,212	1,464	972	860	806
Account Management and Billing Services	Regulation system management	W08-01	0	2	694	435	0
	Consents management and licence conversion	W08-02	1,553	1,840	876	1,467	743
	Billing management	W10-03	1,232	727	1,143	773	1,865
License Advisory Services	Water consents transactions	W09-01	4,709	8,199	7,200	5,833	7,228
	Customer management	W10-01	3,743	5,960	4,065	3,552	4,325
Not used	Business governance and support	W10-02	0	0	264	123	0
	Water consents overhead	W08-99	0	0	0	0	0
	Water take data management and reporting	W03-02	0	0	0	0	0
Function of NRAR	Compliance management	W08-03	1,508	1,440	32	573	173
Meter maintenance services	Meter Maintenance	Partial Mapped to W03-01	2,181	2,165	2,233	1,657	825
Miscellaneous	Unallocated Projects	OH	251	0	0	0	0
Total			**33,549**	**40,220**	**29,587**	**26,078**	**27,565**

5.1.3 Variations in operating expenditure 2016-21

We have been limited in our ability to carry out a detailed variance analysis of our performance against the operating expenditure allowances set by IPART for the 2016 Determination. For that Determination, we note that the operating expenditure allowances set by IPART were based on an expenditure profile submitted by DPIE-W in its 2015 pricing submission and we have

insufficient detail of the expenditure profile to undertake a variance analysis based on our actual expenditure.

We have provided our *Deed of Business Transfer* payment amounts from DPIE-W instead as a proxy or indicator of operating expenditure allowances in the current determination period. Under our *Deed of Business Transfer* with DPIE-W, we were provided **$147.1 million** in revenue ($nominal) by the Department for licensing services in the current determination period.

Table 9 below provides our actual operating expenditure compared to the payments under the *Deed of Business Transfer,* as amended from 30 April 2018 to incorporate IPART's decision that an average annual payment of $4.6 million should be made by WaterNSW to NRAR.

Table 9 – WaterNSW operating expenditure v Deed of Business Transfer payments ($millions, $nominal)

	2016-17	2017-18	2018-19	2019-20	2020-21	Total
Deed of Business Transfer*	31.3	31.2	27.9	28.3	28.3	147.1
Actual Expenditure	30.9	37.8	28.3	25.4	28.0	150.0
Variance	0.4	-6.6	-0.4	2.9	0.8	-2.9

*minus NRAR component.

Actual expenditure has tracked closely with the Deed of Business Transfer, with the exception of 2017-18 where additional costs associated with Project Harvey which is the workstream triggered by multiple Government inquiries into water compliance pratices in rural NSW, resulting in:

- Extraneous consultancy costs from clearing the backlog of compliance cases from DPIE-W for alleged breaches of water management law;
- Material legal costs with respect to compliance prosecutions; and
- Additional consultancy costs responding to, and participating in, multiple Government inquiries. For example, the Ken Matthews review.

We discuss the factors behind operating expenditure variance in the current determination period in more detail below.

5.1.3.1 Industry reform

There has been significant industry reform over the current determination period. In 2016, DPIE-W underwent an extensive organisational restructuring, which saw the transfer of a number of functions to WaterNSW to:

- Enable DPIE-W to focus on policy, water market regulation and providing oversight on major government funded water infrastructure projects; and
- Reduce duplication and improve service delivery across the agencies.

In 2018, NRAR was established by the NSW Government with responsibility for the compliance and enforcement of water laws in NSW. This saw WaterNSW subsequently transfer a number of compliance and enforcement functions to NRAR in 2018.

While we have largely been able to perform our transferred functions in line with payments under our *Deed of Business Transfer* with DPIE-W, we have incurred an additional $2.9 million in operating expenditure over the current determination period. This is a significant variance when considered in proportion to the capital structure and balance sheet size of WaterNSW. This variation represents critical underfunding for water licensing services, which was primarily driven by extraneous operating costs and staff funding gaps created by the above industry reforms. In particular:

- The mismatch between staffing levels and the IPART expenditures was noted in the 2015 IPART Efficiency Report produced by Synergies as discussed in the following section;
- DPIE-W transferred to WaterNSW 180 FTEs to undertake IPART price regulated functions – a staff base which, according to DPIE-W's estimates, had a base salary cost of approximately $19.5 million (excluding overhead). This was despite the 2016 Determination only providing an operating expenditure allowance of $15.4 million in salary costs (excluding overhead), the equivalent of 126 FTEs, which has formed the basis of our *Deed of Business Transfer* payments;
- We have made annual payments of approximately $4.6 million to NRAR representing the cost of approximately 26 FTEs to take on our compliance functions[20]. However, at the time of the establishment of NRAR, only two investigative staff were transferred over to NRAR from WaterNSW as they were predominately working on compliance matters as substantiated by timesheets. The remaining licensing officers covered by the payments to NRAR were predominantly working on licensing matters. We continue to support the remaining staff to carry out water licensing services in line with operational requirements.
- It was necessary for WaterNSW to retain the remaining FTEs to perform water monitoring and licensing services to the required standards. This is evident in our operational and financial performance metrics for consent transactions in the current period. Our Financial reports show that actual operating expenditure has exceeded the allowed revenue due to an increase in workload, and staff utilisation on water licensing services. Furthermore, WaterNSW has struggled to meet the service standards for the performance metrics due to the backlog of application arising from the drought (this is noted further in section 3 above, and section 5.1.3.2 below) ; and
- The costs of compliance prosecutions have been borne by WaterNSW. WaterNSW has had to lead the prosecutions both pre and post the establishment of NRAR which has been a significant cost for WaterNSW. There was no funding for these costs provided under the allowances or the Deed of Business Transfer.

We have also incurred additional operating costs related to the transferred functions, which are neither funded by the *Deed of Business Transfer* nor contemplated by the 2016 Determination. These costs include:

- Ancillary costs in providing meter maintenance services (e.g. customer damage to meter, meter removal and meter relocation);
- Laboratory costs associated with the Rural Algal Coordination and State Water Assessment Monitoring Program functions;
- Extraneous consultancy costs from clearing the backlog of compliance cases from DPIE-W for alleged breaches of water management law;
- Material legal costs with respect to compliance prosecutions; and
- Additional consultancy costs responding to, and participating in, multiple Government inquiries into water compliance practices in rural NSW. For example, the Ken Matthews review.

To date, WaterNSW has been incurring these additional costs out-of-pocket as a result of the industry reforms as insufficient funding was provided through the Transfer Deed.

[20] The 26 FTEs was based on the allowance for compliance management as per the 2016-2020 WAMC determination. It is not clear to WaterNSW how these figures were derived as the efficiency operating base for compliance however we note that the 2016-2020 allowances were based a budget proposal from the then DPI Water who was responsible for carrying out compliance management functions prior to 2016-17.

DPIE-W labour operating expenditure forecasting

WaterNSW notes the concerns raised by IPART's consultants, Synergies, in the WAMC 2016 Determination review. Synergies noted a mismatch between the staffing levels proposed by DPIE-W (formerly DOIW) and the proposed expenditure as noted below:

> *The projected increase in FTEs is at odds with the decline in forecast expenditure*
>
> *…*
>
> *The projected increase in FTEs assigned to water management services would imply that the proposed cost reduction would have to be achieved through means other than remuneration savings, or that they are not achievable.*[21]

Furthermore, the Synergies report stated that DPIE-W overheads were calculated using an assumption of 1,533 hours per FTE, and an hourly rate of $24.35. However, these assumptions do not align with the relevant enterprise agreement, in particular the requirement for staff to work 35 hours per week in accordance with the relevant Enterprise Agreement. It is unclear where the additional labour hours (including entitlements) were allocated within the Department.

It is WaterNSW's view that we should not bear the forecasting risk caused by the budget assumptions used by DPI Water (as it was then known) as WaterNSW had no control over the inputs into the revenue forecast prepared at the time.

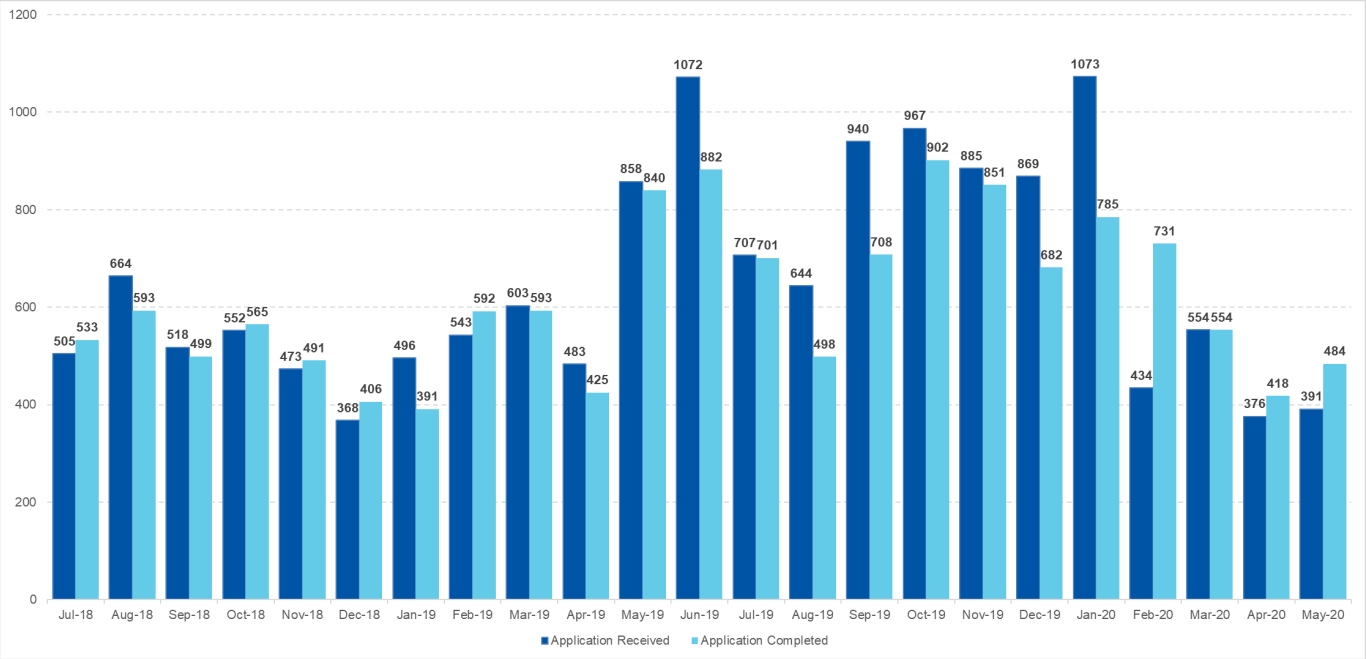
5.1.3.2 Drought – License Advisory Services

NSW has faced, and continues to face, one of the worst droughts on record. As outlined in Section 1 Executive Summary, while Sydney received significant (i.e. one in twenty year) rainfall in February earlier this year, most other regions of the State continue to face severe drought conditions.

Since the onset of drought conditions, WaterNSW has experienced a significant growth in consent transaction applications received by the Assessments and Approvals (A&A) team, particularly for BLR water bores. The numbers of completed applications since March 2019 has consistently failed to keep pace with the number of applications received as illustrated in Figure 15 below.

[21] See https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-legislative-requirements-water-bulk-water-water-administration-ministerial-corporation-nsw-office-of-water-pricing-review-commencing-1-july-2016/consultants_report_-_synergies_-_dpi_water_expenditure_review.pdf

Figure 15 – Water consent transaction applications processed and completed by WaterNSW A&A team, July 2018 to May 2020



The unprecedented volume of applications submitted due to drought has further seen our backlog of applications nearly double – in December 2018, there were 550 applications open at end of the month compared to over 1,000 applications in November 2019.

Current staffing levels for Licensing and Advisory services have been insufficient to meet the rise in new applications from drought and address the existing backlog. We have incurred an additional $3.7 million on average over the current determination period to ensure performance of our water consent transaction functions and meets customer expectations. Given that the current drought is continuing, we expect these costs to be maintained during the 2021 Determination period.

WaterNSW's algal bloom management activities have also increased due to drought, leading to higher water monitoring costs. Algal blooms occur more frequently during drought and the impact of this on our costs is not reflected in the allowance for monitoring services. The following table demonstrates the increase in number of red algal samples and red alerts related to algal blooms over the last three years.

It should be noted that red alerts declared for a site may last for varying lengths of time, implying that the total sample numbers are a better reflection of the impact of drought on algal blooms. The sample number for the 2019-20 period is also expected to near 1,200 by the end of 2020, reflecting the continuing effects of drought.

Table 10 - Number of Algal Samples and Red Algal Alerts

	2017-18	2018-19	2019-20
Total samples	859	1,152	875
Red alerts	32	36	43

5.1.3.3 NRAR

Since being established in 2018, NRAR has become more proactive in its role as a regulator granting and managing water licences and approvals, and ensuring compliance with NSW water management laws.

This has seen an increase in the demand for a number of WAMC licensing services at WaterNSW, which has had a flow on impact to the following services:

- **Water take assessment services/enquiries:** There has been an increasing number of water take enquiries and requests since NRAR became operational in 2018.
- **Water consent transactions:** Due to the establishment of NRAR and the complexity of the water management framework, we have seen an increasing number of customers submit work approval and licence applications to WaterNSW. This has seen an increase in the number of approvals processed by our Licensing Advisory team.
- **Information requests** to support compliance reviews, including prosecutions.

While our work with NRAR is critical and important to ensure compliance with water legislation, it has meant that our workload and operating expenditure in these services has been greater than expected in the current determination period.

5.2 Proposed operating expenditure for the 2021 Determination period

5.2.1 Proposed operating expenditure by service and activity

WaterNSW's proposed operating expenditure for the 2021 Determination period is **$111.3 million** over the four years as set out by service in Table 9 below.

Table 11 – Forecast Operating Expenditure ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water Monitoring Services to meet DPIE-W requirements	11,635	11,942	11,987	11,891	**47,455**
Account Management and Billing Services	2,629	2,607	2,485	2,445	**10,167**
License Advisory Services	4,385	4,640	4,672	4,411	**18,108**
Water Consent Transaction Services	7,228	7,228	7,228	7,228	**28,912**
Meter maintenance services	699	699	699	699	**2,795**
Water take assessment services	858	865	770	718	**3,211**
NRAR compliance requests	172	175	175	172	**694**
Total	**27,606**	**28,157**	**28,014**	**27,565**	**111,342**

In this proposal, WaterNSW forecasts operating expenditure allowances based on its own analysis and forecasts. While WaterNSW submits that IPART should use WaterNSW's allowances in this regard without reference to DPIE-W's 2015 WAMC price submission, we have also provided a breakdown of our total operating expenditure using DPIE-W's activity codes for ease of comparison with the 2016 Determination.

We note that DPIE-W's activity codes do not directly align with our own activities and cost allocation methods. The figures in the table below should therefore be interpreted carefully and

considered at the higher function/service level. We ask that IPART adopt our accounting activity costing approach going forward as it better aligns with how we manage our business.

Table 12 – WaterNSW total operating expenditure for water licensing services, by DPIE-W activity code over 2021-25 ($000s, $2020-21)

WNSW Activities	Former DPI Water activities	Former W code	2021-22	2022-23	2023-24	2024-25	Total
Water Monitoring	Water Quality and Quantity^	W01 to W02	11,635	11,942	11,987	11,891	**47,455**
Water take assessment services	Water take assessment	Partial mapped to W03-01	858	865	770	718	**3,211**
Account Management and Billing Services	Regulation system management	W08-01	0	0	0	0	**0**
	Consents management and licence conversion	W08-02	747	766	768	742	**3,022**
	Billing management	W10-03	1,883	1,842	1,716	1,703	**7,144**
License Advisory Services	Water consents transactions	W09-01	7,228	7,228	7,228	7,228	**28,912**
	Customer management*	W10-01	4,385	4,640	4,672	4,411	**18,108**
Not used	Business governance and support	W10-02	0	0	0	0	**0**
Meter maintenance services	Meter Maintenance	Partial Mapped to W03-01	699	699	699	699	**2,795**
Function of NRAR	Compliance management	W08-03	172	175	175	172	**694**
Total			**27,606**	**28,157**	**28,014**	**27,565**	**111,342**

^ Undertaken on behalf of DPIE-W.

5.2.2 Water monitoring operating expenditure

The projected operating costs of water monitoring that WaterNSW undertakes on behalf of DPIE-W are set out in Table 13 below.

Table 13 – Water monitoring operating expenditure ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water monitoring	11,635	11,942	11,987	11,891	**47,455**

5.2.2.1 Cost of Coal Seam Gas (CSG) Groundwater Bores

During the development of the WaterNSW WAMC Pricing Proposal, DPIE advised WaterNSW that it intended to transfer a number of groundwater bores which were constructed in the current period to monitor the impacts of coal seam gas activities. The operational costs of these assets have not been included in our pricing submission at this stage due to the uncertainty around the timing of the transfer date of the assets and the operational decision to transfer the assets to WaterNSW.

As we believe these assets are likely to be transferred to WaterNSW over the 2022-25 determination period, WaterNSW has provided indicative estimates on the operational cost of maintaining these assets. Once DPIE makes a decision on the transfer date of these assets, WaterNSW will ask IPART to provide an additional operating expenditure allowance to fund the additional costs of servicing the transferred assets. The increase in allowance would be allocated to the W02-01 and W02-02 activity codes.

- $5,500 per annum per site:
    - $3,500 for a telemetered site with level data
    - $1,000 per sample run (if they have the pumps installed) at twice per annum; and
- Approximately 70 CSG Groundwater Monitoring Sites (subject to revision as bore development is finalised).

Since the transfer of water monitoring functions from the then DPI Water to WaterNSW, the staff and other resources associated with both WAMC and Rural Valley hydrometric stations reside within WaterNSW. WaterNSW also provides water monitoring for other customers throughout the state on a fee for service basis.

The transfer of all water monitoring functions to WaterNSW provides opportunities for cost-effective management of the state-wide hydrometric monitoring network by implementing a consistent approach to managing infrastructure that provides hydrometric data, databases, modelling applications, SCADA systems, telemetry, service agreements with third parties, the method of maintenance and operation of equipment and equipment selection.

For example, analytical services were delivered involving five laboratories resulting in different and inefficient processes for the transport of samples, different timeframes and costs for analysis and different processes for data transfer. Some of the challenges with the inherited arrangements included:

- Samples and data either being lost or arriving in the wrong place;
- Confusion for field staff driven by different processes for different laboratories and locations;
- Inconsistent methodologies used by laboratories;
- Data arriving in different databases depending on the service provider; and
- Potentially limited access to services or optimal turn-around times during incident conditions.

WaterNSW sought to achieve continuity of field services, while the disparate and inconsistent approaches in the current arrangements for analytical services were harmonised to enable WaterNSW to have consistent processes and obtain access to flexible contemporary services.

An operational review was initiated to reflect the needs of the business after the transfer of water monitoring functions into WaterNSW to enable access to water monitoring data during routine and non-routine conditions in a timely and reliable fashion, consistent with the requirement of WaterNSW and its customers and regulators regarding methods and practices, data reporting and delivery mechanism, and efficient implementation and cost, including:

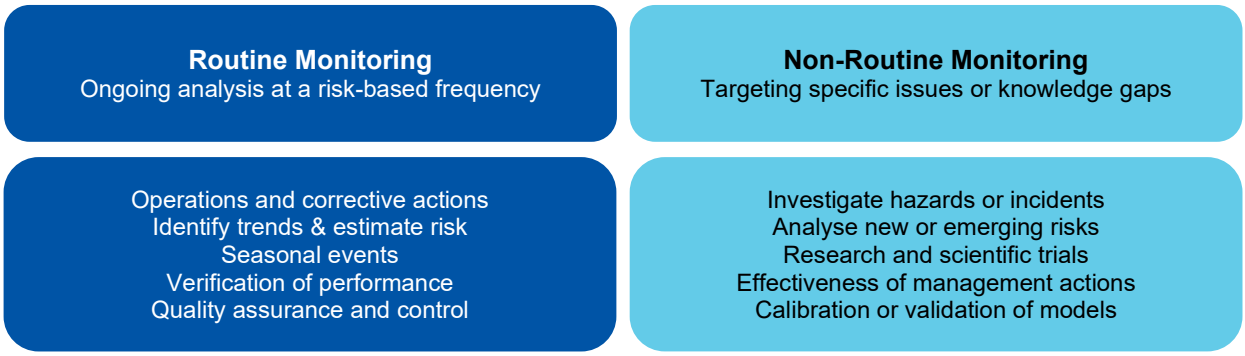
- Reliable field services to appropriate standards for time and quality;
- Consistent methods and practices;
- Costs that are comparable to the current market;
- Consistent data reporting and delivery;
- Flexible and responsive arrangements for non-routine services; and
- Facilitates improvements in efficiency and upskilling of staff.

Water Monitoring Expenditure covers field services which are currently undertaken by in-house resources transferred from the then DPI Water in 2016. Field service activities are critical for ensuring WaterNSW, its customers and stakeholders have ongoing access to accurate reliable water quantity and water quality information through installation, maintenance and operation of surface water and groundwater monitoring sites and instrumentation, including stream gauges, meteorological sites and in-lake monitoring instruments. Field service teams also collect water quality samples for laboratory analysis. Key components of field service functions include routine, non-routine and incident response, and asset management and renewals.

5.2.2.2 Routine and non-routine water monitoring

Routine monitoring focuses on assessing risks, operations, compliance and planning. Non-routine monitoring supplements the routine program through targeting specific issues or knowledge gaps. Outcomes of non-routine monitoring projects are also used to inform the review of routine monitoring.

Figure 16 – Routine and non-routine water monitoring activities



Routine monitoring

The frequency and details for the routine water quality monitoring are undertaken in accordance with the service level agreements with DPIE-Water, and are generally monthly, with the frequency increased if high algal levels are detected.

The frequency of groundwater monitoring is also in accordance with the service level agreement with DPIE-Water, and varies depending on the requirements of the site. Some sites are visited only a few times per year and simple depth measurements taken, while other sites are visited more frequently. The nature and duration of the work is highly influenced by the requirements for data collection, including whether the site has instrumentation and or telemetry. Travel times can be significant for groundwater monitoring in particular, as the sites cover most of the extent of NSW including the Great Artesian Basin.

Monitoring for surface water hydrometric sites is driven by the asset management requirements, the range of data collected by the site and the site conditions themselves. In addition to routine maintenance, site activities include cross section surveys, instrument calibration and undertaking

stream gaugings as necessary. Considerable effort is also required to undertake data management, quality coding and updates to rating tables, with the resultant information published real time.

Non-routine monitoring

Non-routine monitoring is conducted when a more specific monitoring program is required, in addition to the scheduled components of the Program. This may be to assess the effectiveness of management strategies, investigations into incidents or events or research to build knowledge of the water supply system. Non-routine monitoring is conducted under a Special Request process.

Field sampling

WaterNSW requires samplers to follow collection and handling procedures which comply with requirements of analytical lab methodologies. These procedures cover holding times, preservation and transport requirements to allow labs to undertake analysis using accredited methods. They provide audit trails of sample handling and assist in investigating anomalous results. Samplers are regularly audited for proficiency to ensure standards are maintained.

Laboratory analysis

WaterNSW requires samples to be analysed using methods and equipment descriptions that are detailed in the American Public Health Association (APHA) Standard Methods for the Examination of Water and Wastewater, 22nd edition 2012 or later version, and preferably accredited by NATA. The limit of reporting should be no greater than 25% of the health guideline provided in the ADWG or as close as possible in consultation with the analytical service providers and stakeholders.

All laboratories used by WaterNSW have an internal laboratory QA/QC program, based on additional analyses of randomly selected batches of samples, with known spikes and blanks. This data is internally validated by the laboratories and also checked by independent experts for accuracy and/or precision, errors, contamination, outliers for known ranges, and are collated for each analytical category.

Algal monitoring in rural areas

Monitoring is undertaken in rural rivers to characterise water quality and quantity. Physical and chemical properties are analysed monthly as part of the Surface Water Assessment and Monitoring Program. Algal analysis is conducted at 73 sites monthly as part of the Regional Algal Coordinating Committee Program. Water quantity data is collected, stored and managed through a network of hydrometric stations to be relayed to stakeholders and the general public. Levels of algae are also monitored as per the Regional Algal Contingency Plans (RACP) to provide advice regarding risks in recreational waters and requirements for advisory signage.

Field and laboratory quality assurance / quality control

WaterNSW reviews and analyses QA/QC samples to verify sampling methodologies, precision of laboratory analysis, and possible sources of systemic sample contamination. Field QA/QC samples consist of duplicates, field blanks and trip blanks. In addition, all field instruments and current meters must be calibrated in accordance with the manufacturer's instructions with reference to international standards.

5.2.2.3 Maintenance

Planning for work at each site includes a number of checks to ensure the data needs of WaterNSW are being met and that expenditure is targeted appropriately:

- Assessment of the ongoing need for the monitoring station;
- Appropriateness of the parameters measured;
- Changes to local environmental factors;
- Technological advancements in instrumentation and telemetry; and
- Data and metadata needs.

To achieve the optimal maintenance balance of cost and functionality WaterNSW's approach is to implement a three-tiered maintenance standard for the WAMC Hydrometric Network. The maintenance levels used are as follows:

- Corrective/Breakdown Maintenance;
- Condition Based Maintenance; and
- Planned Maintenance/Planned Renewals.

WaterNSW undertakes daily monitoring of the network through observing the network outputs such as telemetry status, instrument drift, site failures. The data collected by the hydrometric network is quality assured to produce information then added to the corporate archive. The quality assurance process includes instrument accuracies, routine performance checks and field deployed factors.

The specifications for replacement instruments include measurement tolerances to ensure the accuracy for good quality data can be achieved. The specifications identify the operating environments and conditions of instruments to ensure that they are constructed of appropriate materials.

The performance of probes in service is continuously monitored by checking the indicated value from the probe against the actual value from gauge boards (for level) or from field check instruments (water quality parameters). These checks are performed at each routine servicing visit. The history of the comparison of monitored value with actual value allows an assessment of the reliability of different probes.

Remote and implementation of modern technologies drive our corrective and condition-based maintenance and will reduce the need for high frequency routine site visits. Hydrometric monitoring equipment is generally installed in hostile environments and has an economic service life of between 5 to 10 years; furthermore, the equipment is subject to advancements in technology which can render older items obsolete.

Corrective breakdown maintenance

Breakdown maintenance is required when an un-planned failure occurs and a maintenance crew is dispatched to restore site functionality in accordance with site category.

Condition-based maintenance and renewals

Condition-based maintenance occurs where there are irregularities with equipment that provide an indication that a failure will occur in the near future, therefore preventative maintenance can be planned to avoid corrective maintenance. Parameters that are monitored through the telemetry system include: battery voltage; communication frequency; operation and meter readings.

Condition-based maintenance is categorised into 2 classes:

- Deterioration – Monitor deterioration daily and visit the site in accordance with the site category's timeframe to rectify the issue.

- Irregularities – Monitor weekly for any other irregularities and visit the site in accordance with the site category's timeframe to rectify the issue.

Deterioration will be a noticeable change in the output from the site such as a decrease in battery voltage. Irregularities will be any unusual outputs associated with the functionality of the equipment that is detected through comparison against verification information such as a visual read of a gauge board.

Planned maintenance and planned renewals

Renewals maintenance is preventative maintenance that has been scheduled based on known failure rates of components. Planned maintenance activities and scheduled timeframes will progressively be established throughout the course of the maintenance contract as a trend is established for component / component brand failure as it becomes clear.

Priorities for annual works programs will be informed based on asset condition assessments performed by WaterNSW staff and contractors, along with stakeholder consultation. Condition assessments are used to identify equipment which is nearing the end of its economic service life, which is becoming obsolete or unsupported, or which is not performing reliably and therefore in need of renewal.

Renewal forecasts are based on scheduled life cycles for electronic components and infrastructure at most monitoring stations. The annual renewals budget is based on the Financial Model which uses asset condition and criticality information stored in the Hydstra Instrument Database including the expected number of years remaining before the asset needs to be replaced. This data is continually updated via field visits and condition assessments conducted.

The value of the renewals for each year is the sum of the replacement values of the assets that are expected to reach the end of their useful lives during that year. The risk cost used is the residual risk after the assets have been replaced or renewed, i.e. the risk of adverse consequences due to asset failure are significantly reduced because the asset has been replaced.

5.2.2.4 Renewals

Annual Asset Condition Assessments contain the following information:

- Equipment inventory and condition assessment of monitoring site components;
- Review on the functional adequacy of the existing equipment arrangements, proposed repair and/or replacement recommendations and cost estimates;
- Review of calibration history, Asset Performance – reliability, safety and environmental and risks and issues (fault trends); and
- Photographic records of all sites showing instrumentation, instrumentation enclosure, in-stream water quality probes, prime gauge.

Continuous development of the planned maintenance and renewals strategies is undertaken by:

- Validation of the asset register including updating replacement costs and expected life for each asset;
- If the need for asset renewal works is based on condition, performing assessments to determine condition rating and remaining life. A basic form of assessment is physical inspection;
- Annual review of the Risk Matrix to derive a risk rating based on the consequences and likelihood of failure of the asset if no action is taken; and

- Continual development cycle of the renewals forecast schedule with all assets for replacement or refurbishment.
- Managing the delivery of Asset Renewals tasks including compliance to scope, quality, timeliness and compliance to operational, WHS and Environmental requirements;
- Maintaining a list of endorsed instruments; and
- Regular review of new products and evaluations (both lab and field) to assess suitability in the monitoring network.

Ongoing review, inspection and re-prioritisation is undertaken by:

- For condition-based renewals, establishing a program/schedule for ongoing assessment.
- Following a failure of an asset, investigating if the asset should be replaced or renewed if the asset is uneconomical to repair.
- Re-prioritising the schedule to accommodate the replacement of assets due to failure.

The projected expenditure levels in 2020-21 reflect the downwards pressure on costs resulting from WaterNSW's review of its water monitoring functions. They also reflect the costs associated with continuing to perform the monitoring activities to the extent of and standards required by DPIE-Water.

5.2.3 Drivers of operating expenditure 2021-25

5.2.3.1 Industry reform

As discussed above, we have been significantly underfunded for water licensing services in the current determination period, as a result of significant industry reforms and the transfer of functions between us and DPIE-W and NRAR.

With those industry reforms now largely complete, we would expect our operating expenditure over the 2021 Determination period to follow a similar profile to that in the latter years of the current Determination period. Our proposed operating expenditure importantly reflects the prudent and efficient operating costs of providing water licensing services and addresses staff funding gaps created by industry reforms.

5.2.3.2 The role of NRAR

As NRAR continues to become more established in its role as a water access regulator, we would expect our compliance work with NRAR to increase and our operating expenditure in water take assessment services, and licence advisory services such as water consent transactions and related enquiries to be higher, in line with the current determination period.

5.2.3.3 Allocated operating expenditure and our business-wide ICT strategy

Our proposed operating expenditure for water licensing services over the 2021 Determination period includes an allocated cost component predominately made up of corporate support expenses.

Allocated corporate support costs predominately relate to the following functions:

- **Customer and Community** – managing customer relationship through sales, billing, revenue management and product development. Supporting our customers through effective systems and processes.
- **Safety, People and Performance** – developing and implementing safety, environment, and human resources systems and training programs and safety, environment, and

human resources policies and standards. This also includes change management and industrial relations, payroll and safety management expertise.

- **Finance and Commercial Services** – providing accurate financial information, managing pricing regulation strategy and reform, and business analysis and review, procurement, property, land and fleet management.
- **Legal, Governance and Risk** – providing legal advice and support to the business and establishing and maintaining risk management, compliance and assurance functions (including internal audit).
- **Business Systems and Information** – providing communication and technology strategies, services and capabilities.

The proposed costs for the 2021 Determination period for the support functions identified above along with Executive team costs allocated to WAMC are provided in Table 14 below. All allocated operating expenditure for WAMC functions reflect the cost allocation approach set out in our Cost Allocation Method ("**CAM**") provided as Attachment 2. The cost below are allocated to both our account management, billing and licensing activities and our water monitoring cost codes as an overhead rate.

Table 14 – Proposed allocated corporate support operating expenditure ($000's, 2020-21)

Category	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Customer and Community	2,988	2,550	2,515	2,491	2,533	10,090
Safety, People and Performance	970	910	910	943	804	3,568
Legal, Governance and Risk	538	531	580	611	514	2,236
Business Systems and Information	1,453	1,510	1,597	1,438	1,217	5,762
Finance and commercial services	1,391	1,545	1,597	1,654	1,617	6,414
Executive Team	187	176	186	195	166	724
Subtotal corporate support costs	**7,526**	**7,222**	**7,386**	**7,333**	**6,852**	**28,793**
Operational Allocated Costs	1,494	1,565	1,585	1,521	1,439	6,111
Total allocated costs	**9,020**	**8,788**	**8,971**	**8,854**	**8,291**	**34,904**
% of total corporate support allocated to WaterNSW WAMC services	13.88%	11.99%	12.96%	12.97%	10.87%	N/A

Source: WaterNSW analysis. 2020-21 is the last year of the 2016 Determination period.

Over the future determination period, we expect allocated operating expenditure to be higher than that in the current determination period. This is because we are increasing our investment in ICT programs as part of our wider business strategy, as discussed below.

Information and Communications Technology

In response to the evolving business needs, aging and end of life assets, and changing environment, WaterNSW refreshed its ICT Strategic Plan in February 2019. The ICT Strategic plan proposed the roadmap for nine strategic programs in addition to the business as usual projects to support existing and future business demands.

Our ICT Strategic Plan will see our in-house ownership model move towards an externally hosted subscription model with cloud-based service provision (both for 'Software as a Service' (SaaS) and 'Infrastructure as a Service' (IaaS)) and an increase in operating expenditure over the future determination.

The major expenditure areas for WaterNSW are described below.

- **Software licensing agreements** – As with most organisations today, WaterNSW cannot operate without an effective ICT environment and the business applications which run on those environments. Generally, applications can now be procured as a service (SaaS) and hosted externally or as a licence (annual or perpetual) housed either internally in our data centres or externally on cloud-based infrastructure (IaaS).

  Application vendors generally offer a maintenance agreement which covers product upgrades and support. These agreements attract an annual expense of between 18-25% of purchase price together with an annual CPI increase and represent a large component of our software maintenance expense. WaterNSW actively manage these costs with reviews of license coverage to ensure licensing is right-sized for the business and we comply with licence provisions. Recently, WaterNSW renegotiated one of the largest agreements, the Enterprise Agreement with Microsoft. This extensive negotiation delivered a material a saving of 27%.

  Under accounting standards, previous software licence agreements were treated as capital expenditure and depreciated over time. However, cloud-based agreements are required to be expensed in the year the service is provided (i.e. treated as operating expenditure). This has resulted in expenditure previously capitalised being expensed in the year incurred. Further details are outlined below.

- **Telecommunications** – WaterNSW operates voice and data telecommunications services in excess of 80 physical locations spread geographically across NSW. The cost to serve varies widely between locations and this expense is one of the larger ICT based costs incurred. Provision of telecommunication services crosses a range of technologies including Optical Fibre, Radio, 3G/4G as well as traditional copper-based services. In 2018-19 WaterNSW took a major initiative as a component of the Telecommunications priority improvement project to renegotiate telecommunications agreements which yielded an annual estimated saving of 20% for the WaterNSW total business across the next three years.

- **Data centre operations** – WaterNSW maintains core ICT infrastructure for both Production and Disaster Recovery environments housed at the NSW Government data centres. These environments are provided as a service which includes floor space, utility costs, physical security and environmental controls (temperature/humidity). Additionally, as an element of the current data centre renewal project, WaterNSW will outsource a range of operational maintenance services with the data centre provider.

- **Contractor services** – WaterNSW maintains internal staffing levels to ensure business as usual operation together with level one and two support capability. To ensure efficient operation of desktop, server and network-based environment, WaterNSW engages third-party specialist organisations as necessary to undertake assessments (Health Checks) of specific technologies to ensure that configurations and implementations are in accordance with manufacturer recommendations. Additionally, these organisations are contracted on an as needed basis to assist with trouble shooting and problem rectification as a level three support service.

- **Cybersecurity** – Cybersecurity and the threat of a cyber-attack or breach is an increasing risk and key priority for WaterNSW. To mitigate this threat WaterNSW is adopting an approach which focuses on education, detection, prevention, and response. The education stream targets internal staff with a combination of education and controlled assessment. The detection and prevention streams include implementation and maintenance of real time network-based applications to assess traffic for malicious activity

and to reject known attack signatures, server and desktop-based antivirus services and regular active audits to test the resilience of our ICT environments. The response stream involved both internal procedures and engaging external specialist organisations to monitor and mitigate any breach.

- **Migration to cloud-based data management** – There is an emerging and strong ICT industry trend of organisations moving infrastructure and applications to a cloud-based service model. This trend changes the capital expenditure / operating expenditure trade off where ICT asset procurement is fully or partially replaced with expense-based service provision. This trend is accelerating such that some vendors are now only providing service-based products.

  WaterNSW is approaching this trend in a considered case-by-case basis and expects to maintain a hybrid model for the next infrastructure life-cycle iteration (approximately five years). We see value in adopting cloud-based services where validated in a whole of life-cycle costed business case approach. Examples include where computational capacity needs to be scaled up and down rapidly, in large scale data storage where the per gigabyte cost is much lower than internal storage and where currency of versions and version control are important.

As discussed in the CAM, movements in ICT costs allocated into WAMC reflect a combination of both the ICT cost levels and the method of apportioning ICT costs to WAMC, which are aligned to the CAM that was approved in the 2020 Greater Sydney Pricing Proposal. Our total proposed ICT operating expenditure for WAMC is provided in Table 12 below.

Table 15 – Proposed ICT operating expenditure ($000's, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Total ICT operating expenditure	1,510	1,597	1,438	1,217	5,762

5.2.3.4 Water metering reforms

We note that the recent water metering reforms are likely to increase our operating expenditure for water licensing services over the future determination period, particularly in the areas of water take assessment services and meter maintenance services.

As outlined in Appendix 2, we have not included the additional costs of metering reforms in our proposed operating expenditure in this pricing proposal.

5.2.3.5 Efficiency gains

We expect to achieve productivity improvements and realise efficiency gains relating to motor vehicle operating expenditure and office consolidation. In addition, Water NSW is harmonising its Information and Communications Technology (ICT) systems (including a unified Enterprise Resource Management system) with the goal of reducing the number of end of life and duplicate systems.

Our CIMs solution (an ERP solution using Microsoft Dynamics D365 as the foundation) has been successfully launched, leading to:

- A significant consolidation of WaterNSW's information and communications systems to replace the fragmented systems that supported processes within SCA, State Water and DPIE. The improvements have resulted in consolidation of websites, infrastructure (email systems, desktop, data centre and collaboration tools) and key corporate applications

across business functions including Finance, Customer Billing, Asset Management, HR, Safety, Project Management and Legal; and

- The retirement of outdated legacy ICT systems such as TechOne, Proclaim, Maximo, Smart Assets and Manage Engine. As at June 2020, decommissioning of these systems is underway and the costs of these systems are being removed as the data is archived for business access.

CIMS is now being leveraged to continuously improve the efficiency and efficacy of business processes across these functional areas.

Our WAVE Program will deliver a range of efficiency benefits to our business, and greater value for money for our customers through more streamlined service delivery and greater access to information, including replacement of systems, and 41 applications that provide a piecemeal solution currently will be replaced by just 7 new systems. The solution will eliminate the cost of and reliance on DPIE support services and infrastructure platform for applications transferred to WaterNSW in 2016. It also allows proper separation of function between the entities resolving the legacy uncontrolled access that has persisted since “stage 2” of the Bulk Water Reforms in 2016. Further details on our WAVE program can be found in the capital expenditure section of this pricing proposal.

Fleet

WaterNSW conducted a major internal review of our motor vehicle fleet assets in 2018-19, with a view to moving towards a standardised, safe and fit-for-purpose and efficient (on a total cost of ownership basis) fleet. As part of that review, we have moved from motor vehicle leases to an outright purchase model in line with the NSW Government’s decision to wind down the State Fleet entity and also implemented a new asset replacement strategy in the current determination period.

These changes will see leased vehicles and vehicles over 5 years old or over 150,000km prioritised for replacement with new WaterNSW-owned vehicles and an increased use of manufacturer servicing. Accordingly, we expect to see reduced lease, maintenance, repair and motor vehicle safety costs over the future period.

5.2.3.6 Additional Activity

As noted above, over the last 4 years there has been a significant increase in obligations and requirements in a number of areas, in part due to the drought but also in respect to additional requirements and request to support the DPIE – W and NRAR. For example:

- **Project Harvey:** workstream triggered by multiple Government inquiries into water compliance pratices in rural NSW, resulting in:
  - Extraneous consultancy costs from clearing the backlog of compliance cases from DPIE-W for alleged breaches of water management law;
  - Material legal costs with respect to compliance prosecutions; and
  - Additional consultancy costs responding to, and participating in, multiple Government inquiries. For example, the Ken Matthews review

- **Consent transactions**: WaterNSW has seen a significant increase in demand for water transaction and water resource information in response to an increase in NRAR’s compliance capability, and as a result of the prolonged effects of drought. Due to the establishment of NRAR and the complexity of the water management framework, we have seen an increasing number of customers submit work approval and licence applications to WaterNSW;

- **Customer queries:** There has been an increasing number of water take enquiries and requests since NRAR became operational in 2018. An increase in consent transaction activity has also resulted in an increase in the number of queries addressed by our Licensing Advisory team;
- **Information requests** to support compliance reviews, including prosecutions and in response to customer requests and operational and policy requests from DPIE and NRAR;

- **Additional costs related to licence notification requirements** This includes revise licences and/or work approvals for the new conditions, undertaken before each stage of the roll out commences, or when a new water sharing plan commences. The volume and frequency of the notification requirements was not contemplated in the current determination. In 2016-17, the first "bulk notification" involved almost 1million pages of conditions posted to licence holders / approval holders, in excess of the activity funded in the allowances.

WaterNSW has been able to maintain its costs whilst at the same time facilitating these additional obligations.

Office Consolidation

In 2016 WNSW property undertook a rationalisation and relocation program of office and depots, to date the savings per annum are shown in the following table across both Rural Valley and WAMC functions.

Table 16 – Savings due to rationalization and relocation program of offices and depots ($000s, $2020-21)

Annual OPEX savings from co-locations	**(000's)**
Dubbo	61.5
Yanco	100.1
Newcastle	19.7
Gunnedah Depot	66.0
Condobolin	80.0
Total Savings Per Annum	**327.3**

6. Capital expenditure

We propose to invest $42.1 million ($2020-21) in 2021-25 to provide prudent and efficient account management and licensing services to comply with our WAMC and other relevant regulatory and legislative obligations.

6.1 Our approach to forecasting capital expenditure

WaterNSW forecast capital expenditure has been developed based upon the assessed requirement to meet current and projected levels of customer service at an acceptable level of reliability, whilst maintaining compliance with WaterNSW's regulatory obligations.

The capital forecast has been developed assuming no substantial changes to our operating licence nor any impacts of the NSW Government's Metering Reform and is aligned to the WaterNSW Strategic Action Plan.

WaterNSW prioritises capital works according to criteria aligned to the effective and efficient management of risks and benefits for customers and the community.

Our capital planning process applies the following principles to the identification, prioritisation and scheduling of capital works:

- All investment is justified against 'do nothing' and alternative options. This means that capital investment projects are required to 'pay their way';
- Investment analyses considers whether an asset is still needed. Retirement or disposal is always a possibility;
- WaterNSW adopts a policy of 'latest responsible intervention' while being sensitive to asset criticality, regulatory compliance requirements, and life-cycle costing considerations; and
- Customer interests are always considered - '*should our customers be paying for this?*' is a core consideration of the capital planning process.

These principles are embedded in our capital planning and expenditure governance arrangements. They deliver an appropriate level of service to our customers for the least possible cost, whilst managing the risk to the organisation, customers and stakeholders to an acceptable level, and maintaining regulatory compliance.

6.1.1 Updating our approach to cost allocation

Regulatory cycles are not aligned across our determinations and the pricing issues concerning our customers will differ depending on the customer base, determination specific issues, the historical context and any bill impact considerations. Therefore, IPART must consider the allocation of corporate capital expenditure holistically, taking into account the Greater Sydney, Rural Valleys and Broken Hill Pipeline determinations.

Throughout the 2016 Determination period, numerous corporate capital expenditure allocations have been applied to WAMC:

- In 2016-17, corporate capital expenditure was allocated based on a percentage of the RAB. However, as WAMC historically has a very low RAB, but a large headcount (FTEs) relative to Greater Sydney and Rural Valleys, the RAB was not considered an appropriate basis for the allocation of capital costs;

- In 2017-18 and 2018-19, WaterNSW allocated 27% of the total cost of 'staff based' corporate capital projects to WAMC based on the proportion of headcount (FTEs). This method was applied to overcome the issue of WAMC having a low RAB compared to a disproportionally high head count; and
- Since 2019-20, WaterNSW allocated corporate capital projects, using salary and wages as an allocator.

Consistent with our CAM, we allocate shared corporate capital expenditure using salary and wages as an allocator. While WaterNSW explored the use total expenditure ('totex') as an allocator in the Greater Sydney review, we have not adopted this approach for WAMC based on IPART not accepting this allocator for the 2020 review. We will continue to engage with IPART with the appropriate allocator for corporate capital expenditures over the review period.

6.2 Past capital expenditure in the 2016 Determination period

Actual capital expenditure is expected to be $41.0 million ($2020-21) over the 2016 Determination period (including 2020-21). This is $21.0 million (105%) above IPART's allowance of $20.0 million, which assumes that the 2019-20 capital allowances are carried forward into the 2020-21 financial year.

The following section outlines the actual capital expenditure for the current determination period compared to the IPART allowance. In addition, the key drivers of variance and business improvements achieved through this capital expenditure have been identified.

6.2.1 Business improvements

WaterNSW has implemented business improvement initiatives consistent with our strategic goal to consistently deliver and continuously improve core performance. These improvements have been achieved through the delivery of the following projects in the current determination period:

- As discussed above, Our CIMs solution (an ERP solution using Microsoft Dynamics D365 as the foundation) has been successfully launched, leading to:
    - A significant consolidation of WaterNSW's information and communications systems to replace the fragmented systems that supported processes within SCA, State Water and DPIE. The improvements have resulted in consolidation of websites, infrastructure (email systems, desktop, data centre and collaboration tools) and key corporate applications across business functions including Finance, Customer Billing, Asset Management, HR, Safety, Project Management and Legal; and
    - The retirement of outdated legacy ICT systems such as TechOne, Proclaim, Maximo, Smart Assets and Manage Engine. As at June 2020, decommissioning of these systems is underway and the costs of these systems are being removed as the data is archived for business access.

  CIMS is now being leveraged to continuously improve the efficiency and efficacy of business processes across these functional areas;
- Our WAVE Program will deliver a range of efficiency benefits to our business, and greater value for money for our customers through more streamlined service delivery and greater access to information, including replacement of systems, and 41 applications that provide a piecemeal solution currently will be replaced by just 7 new systems; and
- The consolidation of WaterNSW's office locations into a single new major office 'hub' located in Parramatta has facilitated a number of business improvements including:

- Organisational culture improvement toward a single “One WaterNSW” culture, this was considered to be particularly important with DPI Water staff joining the business; and
- Increased productivity, arising from less inter-office travel, co-locations of teams, and overall increased interaction and collaboration across the business.

The improvements achieved to date are aligned with the positive 10-year NPV relative to the ‘base case’ determined in the business case for office consolidation.

The business systems and processes that support organisation-wide activities; including asset management, annual reporting and pricing submissions to IPART have been improved.

6.2.2 Actual capital expenditure compared to the 2016-21 IPART Allowance

For operating expenditure, the role and functions originally conferred on WAMC have been the subject of significant external industry reform in recent years. Since 1 July 2016, WaterNSW has undertaken a number of WAMC functions that were previously provided by DPIE-W and also subsequently transferred some of those functions on to NRAR in 2018. To this end, the capital expenditure allowance for the current determination period was determined outside of WaterNSW’s control and input.

In developing this regulatory proposal, we have reviewed the allowances approved by IPART for the current 2016 Determination period and compared it with our actual capital expenditure for the five-year period starting in 2016-17. We have estimated our share of the revenue allowance using the W code splits in IPART’s 2018 Ministerial Advice on the allocation of WAMC Determination revenue between WaterNSW, DPIE-W and NRAR. This section will:

- Explain any variance between the IPART allowance for WAMC and actual capital expenditure, by category; and
- Highlight any significant deferment of projects, cost savings or cost increases experienced over the current determination period.

The total capital expenditure allowance set by IPART for WAMC for the 2016-21 regulatory period was $20.0 million ($2020-21) as shown in Table 13 below. Current estimates show that actual and forecast expenditure will be $41.0 million, $21.0 million higher than the IPART allowance. The table includes water monitoring allowances and actual expenditure to enable a like for like comparison against the 2016-Determination allowances.

This is illustrated in Table 17 – Actual / forecast capital expenditure in the 2016 Determination period ($000s, $2020-21)Table 17 below.

Table 17 – Actual / forecast capital expenditure in the 2016 Determination period ($000s, $2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21	Total
IPART 2016 Allowance	1,318	4,394	4,192	5,061	5,061	20,024
Actual/forecast	4,798	4,979	6,886	8,557	15,780	41,001
Variance ($)	**3,481**	**585**	**2,694**	**3,496**	**10,720**	**20,976**
Variance (%)	**264%**	**13%**	**64%**	**69%**	**212%**	**105%**

As shown above, our actual and forecast expenditure is expected to be 105% higher than IPART’s capital expenditure allowance.

At the time of IPART’s review for the 2016- Determination, WaterNSW was not a ‘steady state’ business. The structural reforms and transfers of business functions to WaterNSW were

accompanied by legacy business factors, which have affected our ability to invest according to the profile set out in IPART's capital expenditure allowance for WAMC.

The WAMC 2016 Determination did not contemplate and therefore did not provide, a sufficient capital expenditure allowance for ICT systems (including end of life systems) and corporate assets to support the transfer of WAMC functions into WaterNSW, including system consolidation This included the startup/establishment costs required to support an additional 220+ FTEs (including FTEs that perform functions that are not WAMC related), placing additional pressure on WaterNSW's ability to reduce costs and minimise bill impacts for WAMC customers.

A significant driver of corporate capital expenditure was the consolidation of WaterNSW's office locations into a single new major office 'hub' located in Parramatta and other regional locations. Given WaterNSW's employee base comprised ex SCA staff, ex State Water staff, ex DPI Water staff and staff who joined WaterNSW without any previous affiliation, management viewed it necessary to bring these teams together into one metropolitan Sydney location and or existing WaterNSW regional locations. This was done to help create a single WaterNSW "team" and contribute to the development of a high-performance culture. Neither of the existing WaterNSW major locations (Sydney CBD or Penrith) was a viable site for a single WaterNSW office location, due to the significant travel distances required for those moving offices.

Overall, this move presented significant opportunity for increased productivity, arising from less inter-office travel, co-locations of teams, and overall increased interaction and collaboration across the business.

We have used the actual capex figures to establish a separate WaterNSW RAB for corporate assets and water monitoring assets. Most of the actual spend enters the corporate RAB as it relates to corporate assets such as ICT and Head Office consolidation.

Table 18 – Corporate capital expenditure in the 2016 Determination period ($000s, $2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21	Total
Corporate capital expenditure	4,697	4,500	6,465	4,902	7,031	27,595

6.3 Proposed capital expenditure for the 2021 Determination period

WaterNSW is proposing to invest **$42.1 million** of capital over the 2021-2025 Determination period. The capital expenditure program underlying this forecast includes $9.1 million for capital programs to ensure efficient and prudent provision of licensing and billing services and the replacement of end of life corporate systems, and $32.9 million for water monitoring.

The proposed forecast will allow us to continue to provide the aforementioned services which are essential for our customers and that comply with our operating licence.

The following figure provides our total capital expenditure allowance and actual capital expenditure during the 2016 Determination period (2016-17 to 2020-21)[22] and provides proposed total capital expenditure during 2021-22 to 2024-25.

[22] The current regulatory period is four years (i.e. 1 July 2016 to 30 June 2020). A fifth year (2020-21) has been included for completeness to reflect that IPART approved a one-year deferral for which no regulatory allowances were set.

Figure 17 – Allowed, actual and proposed capital expenditure ($000s, $2020-21)

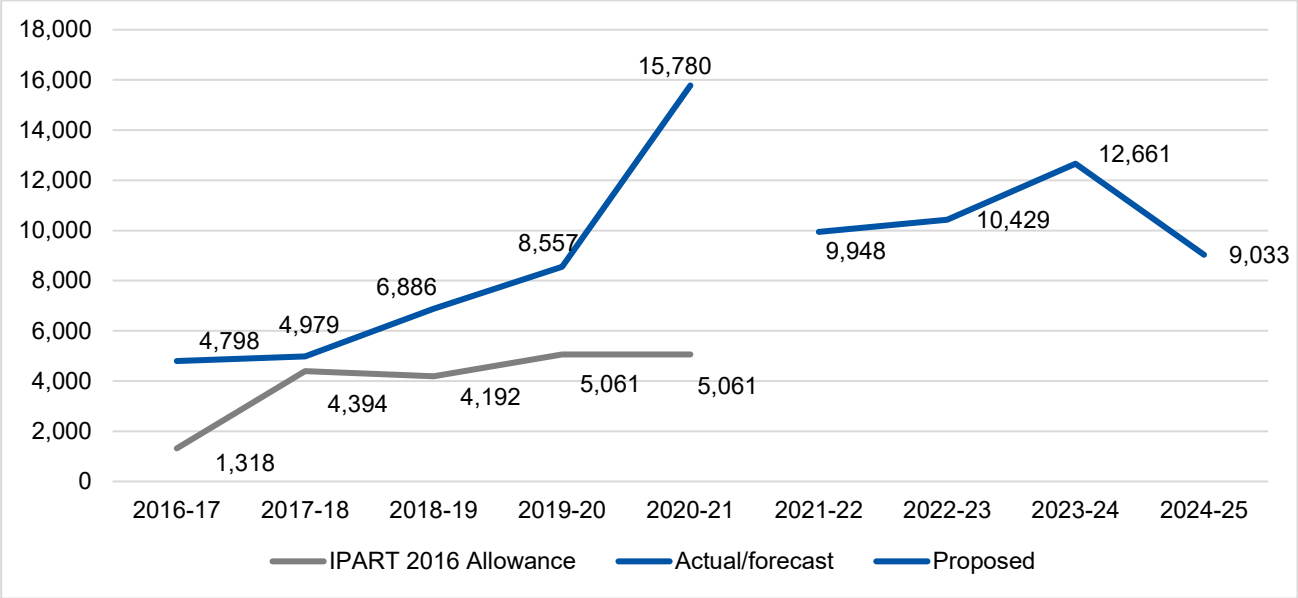


Figure 18 – Allowed, actual and proposed capital expenditure excluding Water Monitoring ($000s, $2020-21)

The forecast capital expenditure for the 2021-25 Determination period reflects the fair sharing of corporate support costs, primarily technology and fleet, in providing WAMC services. The main driver for lower expenditure in the upcoming determination is the shift in cost allocation methodology.

The below table provides a notional split of the allowance and actual/forecast expenditure in the current determination period between Water Monitoring and other services undertaken by WaterNSW.

Table 19 – Notional split of IPART allowance and actual/forecast capex ($000s, $2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21*	Total
Allocation of allowance						
Allowance Account Management, licensing and billing services	271	271	271	271	271	1,355
Allowance corporate capex	249	629	282	389	389	1,938
Allowance Water Monitoring	798	3,494	3,639	4,401	4,401	16,732
Total allowance	**1,318**	**4,394**	**4,192**	**5,061**	**5,061**	**20,024**
Allocation of actuals/forecast						
Actual/forecast corporate capex	4,697	4,500	6,465	4,902	7,031	27,595
Actual/forecast allocated to Water Monitoring	101	479	421	3,654	8,750	13,406
Total actual/forecast	**4,798**	**4,979**	**6,886**	**8,557**	**15,780**	**41,001**

Table 20 – Split of proposed capex by WaterNSW services and Water Monitoring ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
WaterNSW corporate capex	3,609	3,857	6,051	2,418	15,935
Water Monitoring capex	6,339	6,572	6,610	6,615	26,136
Total proposed capex	**9,948**	**10,429**	**12,661**	**9,033**	**42,071**

During the 2016 Determination period we underspent on water monitoring capital expenditure. In 2016, WaterNSW inherited numerous capabilities and assets from DPIE-W in order to streamline processes and drive efficiencies (e.g. 220 staff and ~900 hydrometric stations, ~6000 groundwater bores)). Despite receiving an associated allowance for water monitoring capital projects, we did not receive all necessary documentation (e.g. business cases) to be able to form a detailed understanding of the expenditure items making up this allowance.

Therefore, it required time for WaterNSW to develop a complete understanding, leading to an underspend in capital for these services. The decision to withhold spending despite having an allowance aligns with our strategy to only spend after we have confirmed it is efficient and prudent to do so.

Notwithstanding, we reiterate that our Deed of Business Transfer with DPIE-W provided no allowance in capital, as the revenue payments were determined exclusively on an operating expenditure per headcount basis. During the transfer negotiations, DPI Water was unable to present evidence which sufficiently linked the transferred roles to the relevant IPART cost codes and the revenue allowances.

WaterNSW's proposed water monitoring capital expenditure to support DPIE-W by service category for the 2021 Determination period is shown in Table 21 below.

Table 21 – Proposed water monitoring capital expenditure by category ($millions, $2020-21)

Category	2021-22	2022-23	2023-24	2024-25	Total
Surface water monitoring	2,374	2,462	2,477	2,479	**9,791**
Groundwater monitoring	3,966	4,110	4,134	4,135	**16,345**
Total	**6,339**	**6,572**	**6,610**	**6,615**	**26,136**

WaterNSW is proposing to establish a water monitoring RAB which will be ring-fenced from the corporate capex WaterNSW RAB[23].

The proposed forecast has been developed on a bottom-up, line-by-line basis and justified for need, timing, cost and efficiency. This has been overseen by executive management and Board scrutiny of the overall forecasts to ensure that price impacts to customers are fair and reasonable.

Our planning, asset management, forecasting and governance processes provide assurance that the capital expenditure forecasts are prudent and efficient.

The capital expenditure program underlying this forecast includes the fair and equitable sharing of corporate capital programs to support WaterNSW's account management, billing and licensing functions relating to our WAMC functions.

WaterNSW's proposed capital expenditure forecast for the 2021 Determination period is set out in Table 17 below. This excludes an allocation of corporate capex to the water monitoring staff base.

The capital expenditure forecast has been developed to address key categories of need necessary to continue to deliver the required services for WAMC.

Capital costs of corporate wide projects (such as corporate information technology projects) are allocated to each regulated business segment based on the proportional value of salaries as set out in our Cost Allocation Methodology (CAM).

The table below shows the corporate capex which has been allocated to the WaterNSW regulated cost base for account management, billing and licensing services and water monitoring

Table 22 – Proposed WaterNSW capital expenditure forecast ($000s, $2020-21)

Category	2021-22	2022-23	2023-24	2024-25	Total
Total proposed corporate capex	**3,609**	**3,857**	**6,051**	**2,418**	**15,935**

6.3.1 Water monitoring capital expenditure

WaterNSW operates and maintains the largest hydrometric network in Australia, including extensive surface water and groundwater monitoring networks.

[23] For example, RABs used to calculate the WaterNSW charges for licensing and billing services

WaterNSW's Water Monitoring Program describes the water quality and quantity monitoring undertaken to manage the catchments and water supply, identify and manage water quality risks and measure compliance with applicable standards and guidelines. The Water Monitoring Program which underpins our expenditure plan for water monitoring activities has been designed based on the regulatory drivers described in this section, in consultation and collaboration with stakeholders.

WaterNSW carries out its Water Monitoring Program and operates and maintains its sampling and hydrometric network to measure and monitor water quality and quantity throughout state-wide water sources.

To deliver the Water Monitoring Program, a combination of in-house and contracted field services are proposed.

The primary purpose of the field services is to collect water samples for analysis and to operate and maintain hydrometric monitoring sites.

Sampling involves collection of samples from streams, lakes, water and delivery points, dam structures, and groundwater wells, and includes the measurement of field parameters such as the delivery of collected samples to the nominated locations for analysis.

Water monitoring includes the operation and maintenance of assets such as rainfall stations, river stations, ALERT telemetry repeaters, thermistor chains, vertical profilers, pipeline water quality monitoring equipment, ground water boreholes, flow gauging, and delivery and management of associated quality-controlled data.

The proposed expenditure plan is shown below:

Table 23– Proposed water monitoring capital expenditure ($000s, $2020-21)

Project	2021-22	2022-23	2023-24	2024-25	Driver
Rural Hydrometric Renewals WAMC SW	2,374	2,462	2,477	2,479	Operating licence obligations Continued Asset Management System (AMS - Assets) Continued QMS Certification (Water Monitoring) Water Act 2007 Customer Service Standards (Local Councils, NRAR, DPIE-W, Operational Standards) Risk / safety BOM Industry Guidelines Continued asset service and reliability meet growing demand for water information and water data for internal and external customers. Failure to undertake capital renewal would result in increased operational maintenance costs and
Ground Water Management Phase I	930	964	969	970	
In Ground Water Asset Renewals	3,036	3,147	3,164	3,166	
Total	**6,339**	**6,572**	**6,610**	**6,615**	

Project	2021-22	2022-23	2023-24	2024-25	Driver
					increased capital costs due to full replacement for assets rather than capital maintenance

Water monitoring existing asset network

The hydrometric monitoring network for WAMC consists surface water monitoring sites and groundwater monitoring sites providing real time data into the enterprise systems. These sites are spread throughout WaterNSW's rural operation and beyond in the case of WAMC.

The sites can be categorised into one of the following types:

- River monitoring /flood warning sites;
- Water quality sites;
- Meteorological/weather monitoring sites; and
- Boreholes and groundwater sites.

These sites comprise a variety of equipment types and configurations:

- Tipping bucket rain gauges;
- Metrological monitoring instruments (automatic weather stations);
- Data loggers;
- Telemetry equipment;
- Equipment enclosures and instrument huts including cabling and wiring;
- Power supply system's;
- Level and flow monitoring equipment;
- Water quality monitoring equipment; and
- Control structures.

Surface water monitoring network

We have categories of gauging stations that include basic, intermediate and sophisticated monitoring sites with a mix of automated and manual collection of data.

Hydrometric Monitoring Network covers the following key areas:

- **Delivery System:** Hydrometric assets such as water quantity and quality probes analyse water and provide water information that is used to assess the quality of raw water delivered to the customers and the effectiveness of operational actions. The information obtained through such monitoring is also used by plant operators to make informed decisions on treatment options.
- **Downstream of dams:** Hydrometric monitoring downstream of storages is used to provide water information to inform the compliance of Water Licences and Approvals that include requirements for monitoring water releases. This information can be used to inform Government decisions on future environmental flows and assess the effectiveness of licence conditions for the improvement of river health.
- **Groundwater:** Hydrometric assets are used for monitoring the pressure, salinity, pH, temperature and water level in the groundwater bores. This information provides ongoing baseline data as well as enabling assessment of natural variability and linkages with ecosystems and in CSG production regions.

Groundwater monitoring network

The groundwater quantity monitoring network within NSW comprises bore sites and active pipes, meaning they have data against them in the past 5 years - with some bores comprised of multiple pipes. In addition, there are inactive sites distributed across the State which could be activated depending on demand for data. The network was originally installed during the 1960s and 1970s as part of groundwater exploration programs. Since then it has maintained this function as well as resource management functions.

The majority of bores are manually monitored at various intervals from every 4-6 weeks, quarterly, annually and bi-annually. They are generally only checked for water height unless special projects require more detailed information such as water chemistry. There are approximately 455 pipes which are regularly monitored for water quality in coastal and inland catchments. Parameters monitored include, Ec, temperature, pH, redox, major ions and cations. At sites within the coal seam gas and major development areas, additional analytes specific to these industries are monitored. All water quality data is entered into the corporate water quality database following laboratory analyses.

The monitoring network extends into the Great Artesian Basin where WaterNSW monitors and manages more than 195 bores for height, pressure, temperature and flow. The main driver for this part of the monitoring network is the Cap and Pipe the Bore project. The aim is to monitor and quantify any changes in pressure across the Basin as a result of this project.

Groundwater is monitored using a combination of data loggers and manual readings. Parameters monitored include temperature, barometric pressure and water pressure which is converted to standing water levels. All data is entered into Hydstra.

All standing water level data obtained from this network is entered into Hydstra.

Hydstra is a corporate database established for the archival and retrieval of groundwater data to help in resource management issues.

Some bores have been equipped with automatic data loggers recording time series data, while some are on telemetry. All current and historical data are available to public on the Real Time Data Web page.

Water level information is used to determine acquifer response to stresses such as pumping and natural climatic variations. This information assists hydrogeologists to further understand the impacts of water users and climatic variations on the resource, in particular recharge and water quantities.

Standards

The integrity of all Hydrometric assets is paramount to ensure service levels are achieved and objectives can be met, both of which are realised when the hydrometric network is structurally sound, has suitable capacity and there is no foreseeable risk of failure.

Data collected by the WaterNSW hydrometric monitoring network is shared with external organisations including the BOM, State Emergency Services, DPIE-W, Murray Darling Basing Authority, Border Rivers Commission, local councils and NSW Health. Reliable monitoring equipment is therefore essential for WaterNSW to meet its data sharing commitments with these organisations. Water monitoring data is collected using methods accredited by NATA and in compliance with Australian Standards.

WaterNSW has developed a Rural Hydrometrics Asset Class Standard to ensure its hydrometric assets are managed effectively and efficiently in the long term by striking an optimal balance

between performance, cost and risk, which is espoused within the international asset management standard.

The Rural Hydrometrics Asset Class Standard supports WaterNSW's Strategic Asset Management Plan by providing reliable and safe assets to support supply of quality raw water to customers, reliable operation of our assets and a safe workplace by replacing assets with contemporary equivalents that comply with current WHS practices.

WaterNSW has established an Asset Management System based on the existing asset management processes and policies, methods and plans, and long-term corporate knowledge in the management of raw water assets and their ancillary systems and infrastructure. WaterNSW has been certified to ISO55001 standards to assure its competence in asset management, covering asset generation, commissioning, operations and maintenance, and eventual disposal. The standard is consistent with the Water Monitoring Standardisation Technical Committee's endorsement of a series of ten National Industry Guidelines for hydrometric monitoring within Australia. These Guidelines align with industry recommended practices and are aligned with relevant Australian and international standards.

The Water Monitoring Renewals Program provides a sustainable approach for the replacement or refurbishment and modernisation of water monitoring instrumentation, equipment and other monitoring assets, bringing together disparate programs into a single delivery model.

The WAMC hydrometric renewal program is a revision and integration of the Greater Sydney and Rural Water Monitoring Network Renewals Programs that have been operating in previous organisations since 2008 and will deliver a single integrated asset renewal program across all Water Monitoring Assets in the Greater Sydney and Rural areas of operation.

The Program was initiated in 2017 to address critical operability, reliability, compliance and safety issues across water monitoring assets in the operational valleys, whilst addressing operation, maintenance, asset management, environmental and heritage requirements.

The objective of the Program is to deliver safe and reliable operation of the water monitoring assets to maintain an agreed service level of safety, operability and maintainability in providing reliable water supply to customers for a period of ten or more years. Where no longer operational or included in strategic plans, assets are made safe and either decommissioned or disposed of at the lowest cost.

The Program will deliver capital upgrades to elements of the water monitoring network to improve operability, reliability and maintainability. Constraints to customer access to reliable water data and information will be addressed and the safety risks to WaterNSW staff and the public will be reduced. The delivery of this Program will see the assets upgraded to allow the assets to extend life for at least 10 years. Outcomes of the Program support WaterNSW to:

- Make informed decisions relating to catchment health, water supply operations, supply and flood planning;
- Identify and manage risks associated with water quality;
- Identify and manage risks associated with water quantity and flood warning;
- Manage stakeholder and customer needs and share knowledge with them;
- Maintain compliance with statutory and regulatory requirements;
- Have greater reliability of real time information for operations and during events;
- Improve asset reliability and functionality. The improved reliability and functionality will enable WaterNSW to meet its service obligations in the most cost-efficient manner and will provide optimal life cycle solution over the remaining asset life;

- Avoid cost both to remediate assets and restore service due to unplanned and forced outages;
- Reduce exposure to WHS risks (WaterNSW staff, contractors and the public);
- Reduce risk of undetected Water Quality and Quantity incidents through early warning; and
- Improve compliance against current operating licence and regulatory requirements

Furthermore, reliable water monitoring assets will:

- Reduce the need for unscheduled maintenance visits and their associated costs;
- Reduce the likelihood of data gaps and poor data that could compromise decision making; and
- Facilitate compliance with operating licence and regulatory obligations

The Program draws on condition assessments performed on the Water Monitoring Network to determine the condition of civil and instrumentation components. In addition to condition assessments, the 2012 National Water Commission review of the Ground Water Monitoring Network found that approximately 19% of our groundwater monitoring bores are at or beyond their calculated effective life.

WaterNSW have identified the need to investigate and deliver a sustainable approach to managing the in-ground assets associated with the bore network. The program aims to provide thorough investigation planning and delivery of a renewal and or replacement program specifically for these in ground assets specifically for groundwater monitoring network. WaterNSW has considered several factors in determining the appropriateness of assets proposed for replacement, including:

- Monitoring Requirements, Asset class Standards, Preferred Instruments, Asset Condition Reports;
- Asset lifecycle e.g. end of asset life, obsolescence;
- Likelihood of asset failure based on asset condition and remaining life;
- Asset criticality based on a number of factors including customer requirements, water supply, data supply, safety and environment;
- Loss of water quantity or water quality information; and
- WHS related injury to staff, contractors or the public.

Water monitoring capital expenditure in the 2016 Determination period

During the 2016 Determination period we underspent on water monitoring capital expenditure. In 2016, WaterNSW inherited numerous capabilities and assets from DPIE-W in order to streamline processes and drive efficiencies (e.g. 220 staff and ~900 hydrometric stations, ~6000 groundwater bores)). Despite receiving an associated allowance for water monitoring capital projects, we did not receive all necessary documentation (e.g. business cases) to be able to form a detailed understanding of the expenditure items making up this allowance.

Therefore, it required time for WaterNSW to develop a complete understanding, leading to an underspend in capital for these services. The decision to withhold spending despite having an allowance aligns with our strategy to only spend after we have confirmed it is efficient and prudent to do so.

Notwithstanding, we reiterate that our Deed of Business Transfer with DPIE-W provided no allowance in capital, as the revenue payments were determined exclusively on an operating expenditure per headcount basis. During the transfer negotiations, DPI Water was unable to

present evidence which sufficiently linked the transferred roles to the relevant IPART cost codes and the revenue allowances.

6.3.2 Drivers of capital expenditure for 2021-25

6.3.2.1 ICT capital expenditure

WaterNSW's ICT systems support every aspect of our role in providing bulk water services to our customers. Therefore, ICT capital expenditure should be considered holistically across all four regulatory submissions, not in isolation. Our approved CAM for ICT capital expenditure uses the salary and wages driver to allocate costs, explained in our CAM. In addition to ICT, further capitalised overheads are allocated to WAMC from the total pool of overheads.

The merger of SCA and SWC to form WaterNSW (and transfer to WaterNSW of some then DOI functions) created an ICT environment that needed to be transformed to allow us to better serve our customers on a sustainable basis.

Substantial progress was made by WaterNSW in the current regulatory period towards increasing the efficiency and effectiveness of end of life legacy systems from SCA, SWC and DOI. The improvements impacted our ICT systems used by employees, including the consolidation to a single login environment, updated website content, integration of water market systems and implementation of a unified Enterprise Resource Management system. The evolution of our ICT systems into a consolidated, efficient environment will continue into the 2021 Determination period, to enable us to deliver our customers innovative, reliable and affordable services.

We propose to invest 15.9 million in WAMC corporate capex in the 2021 Determination period to continue transforming our ICT environment to match the needs of our customers. This expenditure is necessary to continue transforming legacy ICT systems into a modern and fit-for-purpose architecture and improve our operating performance.

6.3.2.2 Our current investment in ICT

In 2015, WaterNSW inherited a mix of ICT legacy systems that were found to be outmoded, overly complex and costly to support. As noted above, at the time of the 2016 Determination process, WaterNSW was not a steady state business due to the NSW Government reforms and merger of water agencies[24].

At the time, there was significant duplication and inefficiencies in ICT systems, resulting in ineffective or limited business process automation capability. This complex and diverse technology platform created risks in our business, including higher operating costs.

The newly formed WaterNSW established a new corporate direction and Strategic Action Plan requiring review of the ICT environment. The new Strategic Action Plan required an 'enterprise' view of the ICT environment to enable us to achieve the plan.

The ICT Road Map set out WaterNSW's future state ICT capability requirements over four years. We submitted our ICT program to IPART as part of the 2017 Rural Valleys Determination process. IPART's consultant reviewed the proposed expenditure, and found it to be prudent and efficient, and recommended no adjustments be made to the forecast[25].

Costs for the ICT program are allocated to WAMC in accordance with the WaterNSW CAM, based on totex.

[24] Aither, Final Report, WaterNSW Greater Sydney expenditure review, February 2016, p.vi
[25] Aither, Final Report - WaterNSW rural bulk water services expenditure review, p. 199

The current 'ICT Road Map' comprises five themes/programs outlined in Table 22 below.

Table 24 – ICT Road Map themes and programs

Program	Aim
Customer Value Program	To provide clarity on our customer and retail aspirations and deliver the enabling technology to support new and improved services.
Insightful Information Program	To develop the necessary capabilities to make the best use of our information and knowledge, gaining insights into improvement opportunities and our customer's needs.
Improved Productivity Program	To reduce inefficiencies and duplication, giving our people the right systems and technologies to support their work.
Proactive Planning and Governance Program	To develop the guiding frameworks and knowledge to better understand, plan for and deliver on the business aspirations of WaterNSW.
Healthy Assets Program	To optimally manage the ICT assets of WaterNSW to reduce business risk and cost, and to ensure they support the business needs now and into the future.

Water NSW is harmonising its ICT systems (including a unified Enterprise Resource Management system) with the goal of reducing the number of end of life and duplicate systems. Our CIMS has been successfully launched, which will lead to the retirement of outdated legacy ICT systems. WaterNSW has significantly consolidated its information and communications systems during the last regulatory period to replace the fragmented systems that supported processes within SCA, State Water and DPIE. The improvements have resulted in consolidation of websites, infrastructure (email systems, desktop, data centre and collaboration tools) and key corporate applications across business functions including Finance, Customer Billing, Asset Management, HR, Safety, Project Management and Legal.

The implementation in April 2019 of our CIMS solution is an ERP solution using Microsoft Dynamics D365 as the foundation) has meant that systems such as TechOne, Proclaim, Maximo, Smart Assets and Manage Engine are no longer required, and the costs of these systems are being removed as the data is archived for business access. As at June 2020, decommissioning of these systems is underway. In addition, the new CIMS platform is now being leveraged to continuously improve the efficiency and efficacy of business processes across these functional areas.

The corporate ICT Road Map and our progress in delivering the ICT projects is shown in Figure 19 below.

Figure 19 – ICT Road Map (corporate perspective)

Source: WaterNSW

The Road Map has guided ICT investment in the current regulatory period. Substantial progress has been made towards harmonising ICT systems in the current period. The types of programs implemented to date include systems to consolidate to a single employee login environment, updated website content, integration of water market systems and implementation of a unified Enterprise Resource Management system.

6.3.2.3 ICT Strategic Plan for the 2021-25 period

Our ICT forecast for the 2021 Determination period is based on the 2020-2029 ICT Strategic Plan. The 2020-2029 ICT Strategic Plan identifies themes closely aligned to our strategic priorities to better support our people and contribute to WaterNSW's core functions, with the goal to deliver operational efficiency and ultimately customer value.

Our previous ICT Strategy commenced in 2016 with an initial focus on the stabilisation of technology systems and assets, as WaterNSW adjusted to its new functions. We are now beginning the implementation of the next wave of technology platforms that will establish the future capabilities that WaterNSW needs.

The ICT Strategic Plan includes nine strategic programs focusing on customer, efficiency and technology foundations.

Table 25 – Total ICT Capital expenditure Program costs

Program Theme	Program	Proposed Activities
Customer and Community	Water Market Systems	• Implement a water licensing system to improve trading functions • Implement a water accounting to improve billing • Install a Customer Relationship Management system • Install a Customer Portal • Integrated the above with existing WaterNSW systems
	Analytics	• Build an analytics program that couples a data repository with Power BI to enhance analytics capability

		• Under a data integration strategy, enable better sharing of data between internal and external parties through a portal or common access point
Supporting our People	Corporate Systems	• Replaces legacy corporate applications (prior to creation of WaterNSW) • Implement an integrated enterprise resource planning capability (i.e. Microsoft Dynamics 365) to manage assets, human capital and costs.
	EUC/Collaboration	• Establish a single online sign-on system for WaterNSW staff to unlock core corporate systems • Automate processes to on-board and off-board staff • Provide virtual systems to increase staff collaboration and agility (e.g. through O365 solutions)
	Business Process Automation	• A Business Process automation system to improve the operational efficiency of WaterNSW internal ICT processes • This includes an ICT asset management system and event management system
Enabling reliable services and agile solutions	Operations Technology	• Install five telemetry systems to collect data at remote locations • Consolidate rural and metro SCADA systems into a single system • Investigate IOT technologies to lower costs of asset and operational monitoring • Centralised control room for the integration of SCADA systems to better control and monitor river and dam operations
	Information Security	• Improve cyber security management as WaterNSW maintains and operates critical infrastructure • Conduct threat and risk assessments • Periodic testing of critical IT systems
	Telecommunications	• Improve telecommunications network connectivity between corporate offices and sites (e.g. dams) across 85 locations • Improve the operational network across 46 locations (e.g. routers, switches, SCADA servers) • Renew and improve voice and other telecommunications networks for field staff
	Data Centre Services	• Periodic renewal of data centre infrastructure from assets reaching end of life • Improving disaster recovery capability for data centre services
Business as usual	ICT Technology	• Enhance the ICT Project Management Office function and embed the Project Delivery framework governing the provision of ICT services • Establish periodic strategic planning process
	Renewals	• Renewal and refresh of ICT infrastructure for WaterNSW covering hardware (e.g. laptops, printers), software procurement and telecommunications devices (e.g. mobile phones). • This would improve the reliability of IT assets and optimize lifecycle costs.

Cybersecurity issues have been identified as one of the top risks in the Power and Utilities industry[26]. The increased convergence of information technologies (IT) and operational technologies (OT), along with the reliance on IoT and Cloud services, represent a new pathway for security threats.

Breaches of payment systems and confidential information is an emerging issue faced by essential infrastructure services, both in Australia and globally. CERT Australia, an Australian Government body focused on cyber threats to national infrastructure and systems, identifies a strong relationship between the use of the internet and ICT in critical infrastructure delivery, and the risk and impact of a cybersecurity incidents.27 For example, the Water Corporation in Western Australia observed that there were 7,000 malicious connection attempts per day, and an attempt in Syria saw hackers breach a water utility's control system and alter chemical systems for treatment.[28]

A cybersecurity or data breach incident at WaterNSW would have adverse implications for public health, employee and contractor safety, regulatory compliance, as well as our reputation and public trust. While new technologies have the potential to lead to efficiency gains and benefits for consumers, they require improvements to security in parallel.29 Therefore, WaterNSW has recognised the need for a more mature cyber security capability to mitigate cyber risk and respond to potential and emerging threats.

Further, the increasing concern around cyber security for critical infrastructure more generally was reflected in the 2017 Finkel Review of the energy sector. This highlighted the trade-off between the innovation benefits of adopting digital technologies and the risk of cyber security threats. To improve preparedness of electricity infrastructure to such threats, the review recommended the publication of an annual report into cyber security preparedness of the National Electricity Market. This is to assess and action any issues related to the cyber maturity of energy market participants.30 In relation to water, IPART incorporated cyber security requirements as part of Sydney Water's 2020-25 Operating Licence.[31]

6.3.2.4 WAVE Program.

The WAVE Portfolio constitutes a substantial share of the WaterNSW ICT Capital investment plan for the next three years and involves a proposal to transform operational business processes. The WAVE program represents a significant step change in customer service, water delivery and water data management. The WAVE program will significantly enhance our ability to serve our customers, providing for improvements to our customer interfaces:

- An online licensing and transactions system (Customer, Stakeholder and Water Markets stream);
- Streamlining our delivery and operational decisions for our customer transactions (Water Delivery and Visualisation stream); and
- Enhancements to our ability to monitor and model our water system (Water Monitoring and Modelling stream).

The key objectives of the WAVE Program include:

[26] EY Power and Utilities Risk Pulse: https://www.ey.com/gl/en/industries/power---utilities/ey-see-how-your-risk-pulse-measures-up
[27] CERT Australia, *Critical infrastructure & big business* (2019) <https://www.cert.gov.au/critical-infrastructure-big-business>.
[28] Thea Cowle, 'Caught in the network', *The Australian Water Association Magazine* (online), November 2016 <https://issuu.com/australianwater/docs/current_november_2016/1?ff&e=32264009/57258143>
[29] WaterSource, 'Water utilities set to tackle cyber security', *Water source* (online), 28 November 2016 <https://watersource.awa.asn.au/business/assets-and-operations/water-utilities-set-to-tackle-cyber-security/>.
[30] Commonwealth of Australia 'Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future' (2017) <https://www.energy.gov.au/sites/default/files/independent-review-future-nem-blueprint-for-the-future-2017.pdf>.
[31] IPART, *Review of the Sydney Water Corporation Operating Licence 2015-20 – Final Report*, April 2019, Recommendations 77 and 78. Available at https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/licensing-public-water-business-licence-end-of-term-review-of-operating-licence-2015-2020-sydney-water/working-papers/iparts-report-to-the-minister-sydney-water-licence-review-12-april-2019.pdf

- Service and efficiency improvement;
- Centralised management of water information;
- Consolidation of IT systems; and
- Mitigation of risks.

For each of the three WAVE streams, the table below sets out the current state of our service delivery, and the proposed solutions which WAVE will deliver. These include:

1. **Customer and Water Markets Program**
2. **Water Delivery and Visualisation Program**
3. **Water Data Program**

The table sets out the key activities for each program.

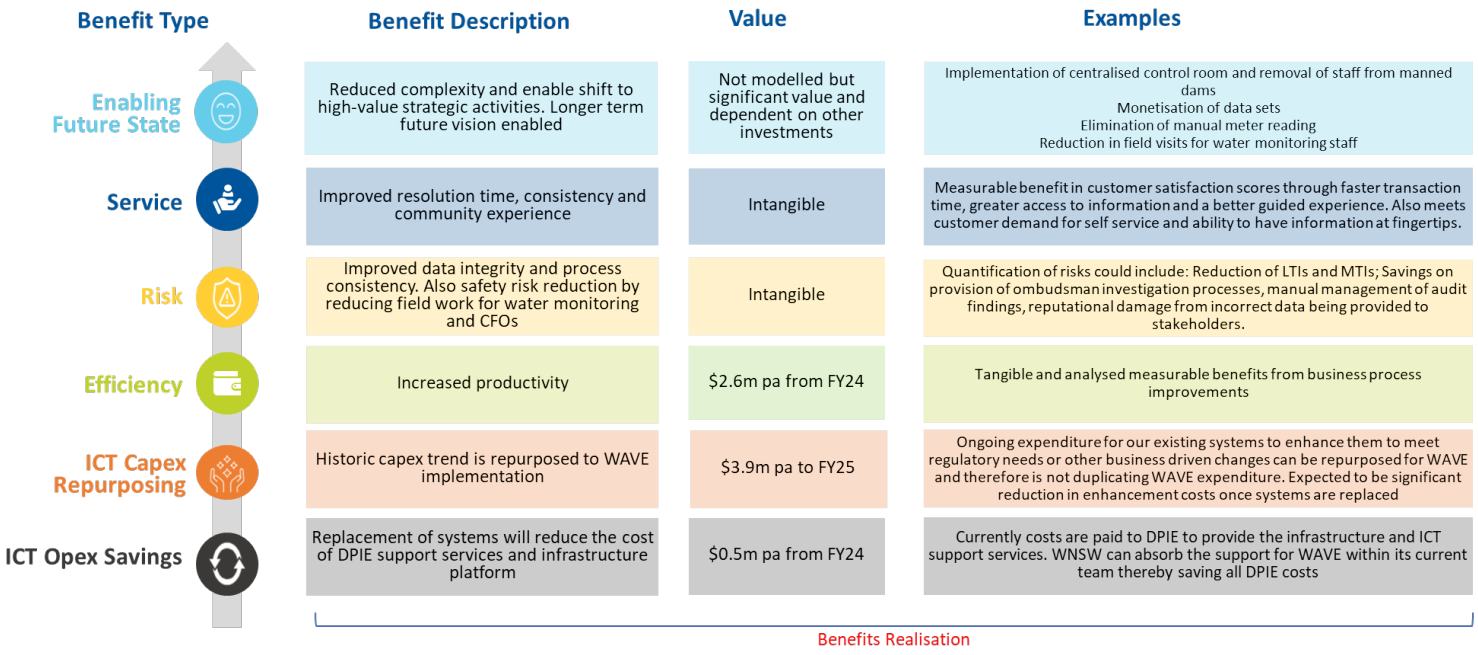
Table 26 – WAVE program by work stream

Stream	Current Issues	Proposed Solution: Key Activities by Stream
Customer, Stakeholder and Water Markets	• Difficult for customers to get access to information in a central location • Licence and trade transactions done over the phone or by paper • Inefficient administration processes for customer service staff.	• Online self-service customer portal to make it easier for customers to make transactions and licensing applications. • Enables WaterNSW staff to focus on complex customer queries as simpler customers transactions are automated online. • Workflow based on customer queries and transactions can be more efficiently allocated and addressed to relevant WaterNSW staff.
Water Delivery and Visualisation	• Manual water delivery operations • Time consuming to provide water delivery and operations advice as data is dispersed across multiple sources	• An online 'Water Insights' portal that allows dam operators, water delivery planners and the broader community to understand a range of water system information (e.g. dam inflows, extractions, evaporation). This information will be presented spatially and with graphs over a historical time period. • A centralised control room for integration of the SCADA systems with the ability to monitor and control of river and dam operations.
Water Monitoring and Modelling	• Poor data quality and data drawn from disparate sources • Reports, graphs and charts are manually developed • Groundwater data not integrated between licences, sites and other technical data	• Streamline and make consistent the process for quality checking, rating and publishing data across all data sources. • Improve groundwater monitoring using IOT devices. For example, implementing a pilot of Internet of Things (IOT) ground water monitoring devices in the Peel river area. • Unify the way data is collected from the field by integrating data collection processes for asset maintenance with telemetry collected data. • Provide a data portal for all end users of data to make it easier to access and analyse data.

The WAVE Program will deliver a range of efficiency benefits to our business, and greater value for money for our customers through more streamlined service delivery and greater access to information. These benefits are outlined below:

- **Replacement of systems** – 41 applications that provide a piecemeal solution currently will be replaced by just 7 new systems. The solution will eliminate the cost of and reliance on DPIE support services and infrastructure platform for applications transferred to WaterNSW in 2016. It also allows proper separation of function between the entities resolving the legacy uncontrolled access that has persisted since "stage 2" of the Bulk Water Reforms in 2016.
- **Risk mitigation** - in relation to manual data management, key person risk, cyber security or other major incidents that consume business resources and create reputational damage from incorrect data being provided to stakeholders.
- **Efficiency gains** in substantial productivity uplift across the business from planned improvements in processes.
- **Improved customer service** from meeting customer expectations that now include web-based transactions, real time visibility of transaction status and water information
- **Enabling future state** by providing a simplified, integrated and modern platform that allows development of new and improved processes and services.

Figure 20 – Expected benefits from the WAVE Program



6.4 Summary of capital expenditure proposal

The capital expenditure program underlying this forecast includes the fair and equitable sharing of corporate capital programs to support WaterNSW's account management, billing, licensing functions and water monitoring activities relating to our WAMC functions.

Capital costs of corporate wide capital projects (such as corporate information technology projects) are quarantined and allocated to each regulated business segment based on the

proportional value of their total salary and wages as set out in our CAM provided as Attachment 2[32].

On that basis, **23%** of the cost associated with WaterNSW corporate wide capital projects are allocated to WAMC.

The table below presents that share of corporate capex which has been allocated to WaterNSW's regulated cost base for account management, billing and licensing services and water monitoring

WaterNSW is proposing to invest $15.9 million ($2020-21) of corporate capital over the 2021 Determination period for WAMC activities.

Table 27 – Proposed WaterNSW capital expenditure forecast ($000s, $2020-21)

Category	2021-22	2022-23	2023-24	2024-25	Total
Total proposed corporate capex	**3,609**	**3,857**	**6,051**	**2,418**	**15,935**

6.4.1 Motor Vehicles capital expenditure

WaterNSW's Fleet comprises of motor vehicles, trailers and vessels, which we manage and maintain to ensure they are safe, compliant, reliable, fit for purpose and efficient.

6.4.1.1 Current regulatory period

In managing our fleet in the current regulatory period, WaterNSW has continued to address a number of requirements associated with the transfer of assets in 2016 from State Water, SCA and elements of the former Department of Primary Industries. Some of the tasks we have undertaken to consolidate our fleet through the asset transfer process include:

- Validation of the Asset Register (i.e. physical asset reconciliation);
- Reconciling the inconsistent application and compliance of fleet to relevant legislative and regulatory requirements; and
- Aligning our fleet management and relevant work practices, to our Asset Management System and best practice standards.

In 2018-19, WaterNSW commenced a comprehensive review of Fleet Asset management. The intent of the review was to ensure and move towards a more fit for purpose, safe and standardised asset fleet.

The review involved an assessment of the specified assets to assisting with confirming:

- The physical assets held against location,
- The overall condition and state of the assets
- To obtain asset specific data to assist with review of compliance to against relevant legislative and regulatory requirements.

As part of the comprehensive review and to reduce re-occurrences of issues experienced during a number of prior audits (i.e. which still resulted in incomplete/omitted data, inaccurate data), Fleet utilised iAuditor as an 'electronic' tool to help ensure and deliver a structured approach to

[32] WaterNSW's attached CAM is consistent with the version provided as an attachment to our Greater Sydney Pricing Proposal, with minor updates that provide greater clarity and transparency of our cost allocation process.

collating relevant information as part of the audit of WaterNSW Trailer and Vessel fleet to help make better informed decisions as to the overall Fleet strategy.

In 2019-20, capital expenditure in Fleet is forecast to be further reduced e, this is due to a combination of factors including: the continuation of drought, severe bushfires and COVID-19. These factors are delaying manufacturing and impacting supply chains, which flows through to our purchase of new vehicles to support our asset management activities.

The following sections will specifically focus on different aspects of Fleet throughout the current determination period.

Motor Vehicles

Throughout the current determination period a comprehensive review of our motor vehicle fleet was undertaken. This was to help us develop and implement initiatives to prudently manage our cost base and ensure efficiency improvements. This involved a review of optimal vehicle asset types and configurations.

As part of this, we transitioned our motor vehicle fleet suppliers in order to improve the efficiency of our servicing processes, shifting to suppliers with service centres closer to our fleet depots. This has led to improved productivity through reduced travel time.

This review has also modified our renewal policy from every 3 years or 100,000 kilometres to 5 years or 150,000 kilometres.

We also transitioned from a direct ownership model in lieu of leasing and therefore are progressing replacing existing leased vehicle assets. StateFleet is requiring all previously NSW State Government leased vehicles to be finalised by 31 December 2020 with cessation of the StateFleet business entity by 31 March 2021

While the review of fleet management was undertaken, a backlog of vehicles due for replacement accumulated. This is currently being addressed, driving a temporary increase in vehicle purchases. As vehicles are being replaced, the need for the vehicle is also being reviewed.

Vessels

Capital expenditure is forecast for vessel replacement, as a number of the vessels are reaching end of life and need to be replaced for WaterNSW to maintain compliance with safety and regulatory standards.

WaterNSW is currently considering the adoption of a 10-year replacement strategy for all vessels. WaterNSW vessels operate in smooth/partially smooth waters. The vessels are currently exempt from the requirements of a Certificate of Survey (5 year in and out water) in which the structural integrity and sea worthiness of the vessel is undertaken by a qualified Marine Surveyor.

As part of this strategy development, WaterNSW has weighed the associated risks of asset failure and our fleet operating conditions, with the fact that vessels have not undergone any formal or qualified review outside of visual inspection or assessment, within 10 years. WaterNSW has also taken into further consideration the replacement strategies for vessels across other NSW Government groups and bodies.

As part of this strategy, WaterNSW does not intend to undertake any repowering of motors in vessels during the 10 year period, unless issues arise in direct connection with reliability/availability or general failure.
WaterNSW has however purchased a number of new motors for existing vessels.

Additionally, the development and implementation of a Vessel – QR code/inspective app is expected in 2020-21. This app has recently received endorsement and approval to proceed to Authorisation to Spend. The implementation and use of QR (Quick Response) barcode technology on WaterNSW assets (such as Vessels) is a key strategic initiative of WaterNSW Fleet. QR codes can deliver the following benefits: fleet management and logistics, electronic data storage and safety.

Trailers

WaterNSW is planning to incur capital expenditure to replace a number of trailers in 2020-21, as the review has highlighted that a number of trailers have aged significantly. Replacing our aging fleet is necessary to bring trailers into line with the current Australian Design Regulations (ADR) & Vehicle Standards Bulletin (VSB1) requirements.

Our replacement strategy for WaterNSW trailers is based on an initial 10 Year replacement point. This considered the 'age' profile for WaterNSW's fleet of 'registered' trailer assets, with further efforts to rationalise, and where practical, consolidate the overall total number of trailer assets.

6.4.1.2 Fleet forecast capital expenditure for the 2021 Determination period

WaterNSW is planning to incur capital expenditure of $4.8m on motor vehicles and fleet renewals over the 2022-25 determination.

Table 28 – Fleet costs 2022-25 Determination period (2020-21$)

	2021-22	2022-23	2023-24	2024-25	Total
Motor Vehicle Renewals	298	684	3,212	617	**4,811**

As noted above, our review of fleet management is currently ongoing, with the aim to ensure our assets are satisfying legislative requirements and meeting the needs of our business and customers. Following the completion of the fleet wide review, the scale and timing of the replacement required in the next regulatory period will become clearer.

Atkins Cardno has acknowledged that our method of procurement is "efficient".[33] As WaterNSW accesses cheaper bulk rates through the purchasing power of the Whole of NSW Government discount structure as well as negotiating an additional rebate with one vendor in the master purchasing agreement.

The following sections will specifically focus on different aspects of Fleet throughout the upcoming determination period.

Motor Vehicles

As described above, WaterNSW has shifted from motor vehicle leases to an outright purchasing model, in line with the NSW Government's decision to wind down the State Fleet entity. These changes should result in reduced maintenance, repair and motor vehicle safety costs.

The replacement of Motor Vehicles is scheduled such that life cycle costs are minimised whilst ensuring that vehicles are of a suitable standard for work.

Vessels

[33] Atkins Cardno – Water NSW Greater Sydney Expenditure and Demand Review. Page 130

Following the completion of the fleet wide review, and based on the updated replacement strategy, it is forecast that a number of vessels will be required for replacement within the next regulatory period. Additionally, it is expected the fleet wide audit will identify modifications required to the fleet composition, which may require the purchase of additional vessels.

It is intended that as an outcome of the fleet wide audit, all vessels will be uploaded and maintained within Microsoft Dynamics D365 to ensure improved visibility and management of acquisitions and disposals.

7. Regulatory Asset Base and return of capital

Our RAB has been rolled forward with our proposed forecast capital expenditure for the 2021 Determination period for water monitoring and licensing services. The RAB has been split in to a legacy RAB, a corporate RAB and a water monitoring RAB.

7.1 Introduction

This section summarises WaterNSW's approach to calculating the RAB. The RAB represents the value of monopoly assets used by WaterNSW to provide monopoly services for the Ministerial Corporation. Under the building blocks approach, the RAB is used to calculate the capital costs allowances for the capital which invested in monopoly infrastructure assets by the regulated entity. The capital costs allowances include:

- A return on capital component intended to compensate the service provider for efficient debt and equity funding arrangements. This revenue stream is calculated by multiplying the weighted average cost of capital (WACC) by the average value of the RAB in the relevant year; and
- A return of capital component or regulatory depreciation allowance intended to fund the initial value of the capital investment. This revenue stream is calculated by dividing the value of the initial investment by the numbers of years in which the investment is expected to generate a return. The time period is calculated by reference to the expected economic life of the asset which is commissioned because of the investment.

In the WAMC Determination, the capital costs allowance (i.e. return on and of capital) represented a small component of the total revenue requirement. However, capital expenditure by WaterNSW to provide Licensing Services for the Ministerial Corporation and water monitoring services to support DPIE-water's discharge of certain WAMC functions is expected to increase over the forthcoming determination period. The value of the RAB will therefore be a critical determinant of forecast revenue over the forthcoming determination period.

This section discusses the following topics:

- WaterNSW's share of the 'legacy RAB';
- WaterNSW RAB roll forward to 2021; and
- Proposed RAB for the 2021 Determination period.

7.2 WaterNSW's share of the legacy RAB

The 2016 Determination includes an established RAB that incorporated capital expenditure incurred by DPIE-W for Ministerial Corporation services. The allocation of the existing WAMC Determination RAB is referred to below as the determination of WaterNSW's share of the 'legacy RAB'.

Because of the structural changes since the 2016 WAMC Determination, there is a need to allocate the value of the actual legacy RAB as at 2016 between WaterNSW and DPIE-W.

As the value of capital expenditure is the primary driver of the growth of the legacy RAB, WaterNSW believes that an appropriate method of allocating the legacy RAB between both DPIE-W and WaterNSW is by the proportion of total cumulative capital expenditure assigned to each organisation as at 2016.

WaterNSW intends to maintain its share of the legacy RAB and allocate the resultant capital costs allowances to WaterNSW's proposed charge categories, until this legacy RAB is depreciated to zero.

In anticipation of the establishment of NRAR, on 28 March 2018, IPART provided advice to the Portfolio Minister for Regional Water with respect to adjustments that in its view should be made to the allocation of WAMC Determination revenue between DPIE-W and WaterNSW.

In this decision, IPART also set out its view on the allocation of WAMC functions and costs codes (W codes) between WaterNSW and DPIE-W. The capital costs allowances used to calculate prices in the WAMC Determination were determined using:

- A RAB which was rolled forward to 2016 incorporating actual capital expenditure incurred by DOIW in 2011 to 2015 and forecast capital expenditure incurred by DOIW in 2015; and
- A forecast RAB to 2020 incorporating IPART's view of efficient capital expenditure requirements over the WAMC Determination period.

The capital expenditure inputs for the RAB were categorised by cost codes ('W codes'). To determine the cumulative capital expenditure assigned to WaterNSW as at 2016, WaterNSW has applied the cost code splits determined by IPART in its 2018 decision on the allocation of WAMC Determination revenue between DPIE-W and WaterNSW and used this as the basis for determining WaterNSW's share of the legacy RAB as at 2016.

The legacy RAB has been allocated between user and Government RABs, as determined in the WAMC Determination using the IPART cost share ratios.

WaterNSW's calculation of the proportion of cumulative capital expenditure as at 2016 is shown in Table 24 that includes the water monitoring component.

WaterNSW's calculations identify that:

- 97.7% of the value of the existing **total RAB** should be allocated to WaterNSW as at 2016. This was determined by dividing $7.78 million of cumulative capital expenditure (allocated to WaterNSW) by the total capital expenditure of $7.97 million;
- 98.0% of the value of the existing **user RAB** should be allocated to WaterNSW as at 2016. This was determined by dividing $6.10 million of cumulative user share capital expenditure (allocated to WaterNSW) by total user share capital expenditure of $6.22 million
- 96.5% of the value of the existing **Government RAB** should be allocated to WaterNSW as at 2016. This was determined by dividing $1.68 million of cumulative Government capital expenditure (allocated to WaterNSW) by total Government capital expenditure of $1.74 million.

Table 29 – Cumulative capital expenditure Share (nominal$)

	Total Cumulative Capex as at 2016	User Share	Total Cumulative User Share of Capex as at 2016	Total Cumulative Government Share of Capex as at 2016
W01-01 Surface water quantity monitoring	1275.7	70%	893.0	382.7
W01-02 Surface water quantity data management and reporting	1813.8	50%	906.9	906.9
W01-03 Surface water quality monitoring	444.0	50%	222.0	222.0
W01-04 Surface water algal monitoring	49.3	50%	24.6	24.6
W02-01 Groundwater quantity monitoring	558.6	100%	558.6	0.0
W02-02 Groundwater quality monitoring	1155.9	100%	1155.9	0.0
W03-02 Water take data management and reporting	0.0	100%	0.0	0.0
W08-01 Regulation systems management	1239.6	100%	1239.6	0.0
W10-02 Business governance and support	481.3	70%	336.9	144.4
W10-03 Billing management	762.1	100%	762.1	0.0
Total to WaterNSW	**7780.2**	**78%**	**6099.6**	**1680.6**
Total (WaterNSW & DPIE-W)	**7965.7**	**78%**	**6223.6**	**1742.2**

There is also a need to allocate allowed depreciation from the forecast RAB approved by IPART in the 2016 Determination between DPIE-W and WaterNSW in order for both WaterNSW and DPIE-W to 'roll forward' their share of the legacy RAB to 2020.

WaterNSW has split allowed depreciation using the yearly percentage of cumulative capital expenditure assigned to WaterNSW. The cumulative percentage was calculating using actual capital expenditure to 2016 and forecast capital expenditure, as approved by IPART in its WAMC Determination, to 2020.

Table 30 sets out WaterNSW's share of allowed depreciation used to depreciate both the user and legacy share of the legacy RAB from 2016 to 2020.

Table 30 – WaterNSW share of allowed depreciation ($000s, $nominal)

	2016-17	2017-18	2018-19	2019-20
Split of allowed depreciation User share	98.3%	91.4%	93.6%	95.1%
Split of allowed depreciation Government share	96.9%	72.4%	74.9%	77.1%
Total depreciation to WaterNSW	590	703	977	1,270

The tables below provide WaterNSW's share of the legacy RAB rolled forward to the end of the current determination period.

Table 31 – RAB roll forward of the legacy RAB to 2015-16 ($'000, $nominal)

	2011-12	2012-13	2013-14	2014-15	2015-16	Split
Opening RAB	0.0	-51.5	3283.8	4176.3	5277.2	**~98% to WNSW**
Plus: Capital expenditure	0.0	3453.3	1049.7	1300.1	2162.7	
Less: Asset disposals	0.0	0.0	0.0	0.0	0.0	
Less: Allowed regulatory depreciation	51.5	158.1	271.5	271.5	271.5	
Plus: Indexation	0.0	40.2	114.3	72.4	63.6	
Closing RAB	-51.5	3283.8	4176.3	5277.2	7232.1	

Table 32 – RAB roll forward of the legacy RAB to 2020-21 ($'000, $nominal)

	Split	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAB	**~98% to WNSW**	7,064.8	6,609.4	6,044.8	5,164.9	4,003.7
Plus: Capital expenditure		0.0	0.0	0.0	0.0	0.0
Less: Asset disposals		0.0	0.0	0.0	0.0	0.0
Less: Allowed regulatory depreciation		589.7	703.4	976.6	1,269.6	1,301.4
Plus: Indexation		134.2	138.8	96.7	108.5	100.1
Closing RAB		6,609.4	6,044.8	5,164.9	4,003.7	2,802.5

* Forecast inflation rates of 2.1% to index from $2018-19 to $2019-20 and 2.5% to index from $2019-20 to $2020-21 applied.

As illustrated above, the closing RAB from the 2016 Determination period ($2.8 million) becomes the opening RAB for the start of the 2021 Determination period.

7.3 WaterNSW RAB roll forward to 2021

WaterNSW has established a RAB as at 2016-17 with a starting base of zero. This RAB has been rolled forward with actual capital expenditure incurred by WaterNSW during the 2016 Determination period on monopoly Water Monitoring and Account Management, Billing and Licensing Services.

The RAB has been split into:

- **A corporate RAB** incorporating the costs of corporate capital program such as IT, motor vehicles and other corporate capex
- **A water monitoring RAB** incorporating the costs of water monitoring assets.

The asset lives assumed for each RAB are explained in greater detail in Section 9 – 'Return of capital'. The total WaterNSW RAB has been rolled forward to 2019-2020, as shown in Table 31.

Table 33 – RAB roll forward to 2021 ($'000, $nominal)

	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAB	-	4,461.7	9,165.7	15,927.0	24,626.9
Plus: Capital expenditure	4,419.7	4,682.9	6,579.9	8,348.2	15,780.5
Less: Asset disposals	-	120.5	17.8	69.7	71.4
Less: Allowed regulatory depreciation	-	-	-	-	-
Plus: Indexation*	42.0	141.6	199.1	421.4	812.0
Closing RAB	**4,461.7**	**9,165.7**	**15,927.0**	**24,626.9**	**41,148.0**

* Forecast inflation rates of 2.1% to index from $2018-19 to $2019-20 and 2.5% to index from $2019-20 to $2020-21 applied.
** No depreciation applied, as WaterNSW share of the allowed depreciation has been applied to the legacy RAB.

In prior determinations, it is understood that capital expenditure was aggregating into a pool which was then distributed to pricing regions using a cost driver. In this way, capital expenditure RABs were split into pricing regions to construct valley-based charges.

WaterNSW does not believe a more complicated cost allocation methodology necessarily results in more cost reflective prices. For example, multiple RABs have been established only by splitting the aggregated capital expenditure into valleys. The RABs have not been developed using a bottom up valley-based analysis of the true costs to serve in a particular valley. WaterNSW considers the current approach to modelling valley-based charges to be overly complicated with no improvement in achieving accurate cost reflective valley-based pricing.

For corporate capital expenditure, the costs of administering the more complicated aspects of the licensing regime are corporate, head office costs. The associated costs of licensing advisory services do not differ depending on whether the licensing query was raised by a customer in the Southern Valleys or the Northern Valleys nor do they differ based on whether the query was raised in an unregulated river system or a groundwater system.

Whilst WaterNSW supports the current valley-based regulatory reporting requirements to IPART under its Annual Information Returns to maintain continuity of reporting for the WAMC Determination, WaterNSW is unable to use its reported actual costs to date to form an opinion as to whether a customer in one geographic region should pay a premium for licensing advisory services compared to a customer in another geographical region.

7.3.1 Current Period Disposals

WaterNSW is forecasting $0.3 million of disposals over the 2016-17 to 2020-21 period as shown below. The disposals will be applied to the WaterNSW RABs.

Table 34 – Disposals to 2021 ($'000, $nominal)

	2016-17	2017-18	2018-19	2019-20	2020-21
Opening RAB	-	121	18	70	71

The allocation of revenue from the disposal of minor assets to the WAMC Determination follows the allocation of corporate capital expenditure to the relevant IPART determinations in the relevant years.

This is shown in the table below.

Table 35 – Allocation of revenue from the disposal of minor assets to 2021 ($'000, $nominal)

	2016-17	2017-18	2018-19	2019-20*	2020-21
Corporate wide revenue from disposals	256	451	43	261	267
Allocation to GS*	171 (66.7%)	221 (66.7%*(**1-26.7%**))	7 (66.7%*(**1-26.7%**))	128 (66.7%*(**1-26.7%**))	131 (66.7%*(**1-26.7%**))
Allocation to Rural*	85 (33.3%)	110 (33.3%*(**1-26.7%**))	17 (33.3%*(**1-26.7%**))	64 (33.3%*(**1-26.7%**))	65 (33.3%*(**1-26.7%**))
Allocation to WAMC*	0	121 (**26.7%**)	18 (**26.7%**)	70 (**26.7%**)	71 (**26.7%**)

*Allocation percentages provided relate to assets relevant to all determinations. Assets that have been identified as relating to specific determinations are allocated only to those determinations.

Throughout the 2016 Determination period, numerous corporate capital expenditure and disposal revenue have been applied to WAMC:

- In 2016-17, corporate capital expenditure was allocated based on a percentage of the RAB. However, as WAMC historically has a very low RAB, but a large headcount (FTEs) relative to Greater Sydney and Rural Valleys, the RAB was not considered an appropriate basis for the allocation of capital costs.
- In 2017-18, 2018-19, WaterNSW allocated 27% of the total cost of 'staff based' corporate capital projects to WAMC based on the proportion of headcount (FTEs). This method was applied to overcome the issue of WAMC having a low RAB compared to a disproportionally high head count.
- From 2019-20, WaterNSW allocates shared corporate capital expenditure using salary and wages as an allocator.

7.4 Proposed RAB for the 2021 Determination period

The forecast RAB calculations are shown in Table 36 below.

Table 36 – Forecast RAB excluding legacy RAB ($'000, $2020-21)

	2021-22	2022-23	2023-24	2024-25
Opening RAB	41,148	45,381	49,032	53,667
Plus: Capital expenditure	9,948	10,429	12,661	9,033
Less: Asset disposals	71	71	71	71
Less: Allowed regulatory depreciation	5,643	6,706	7,955	9,103
Plus: Indexation	0	0	0	0
Closing RAB	**45,381**	**49,032**	**53,667**	**53,526**

The total forecast RAB calculation for WaterNSW, incorporating both the WaterNSW RAB and the WaterNSW's forecast share of the legacy RAB, is shown in Table 36.

Table 37 – Forecast RAB including legacy RAB ($'000, 2020-21$)

	2021-22	2022-23	2023-24	2024-25
Opening RAB	43,950	47,650	50,768	54,870
Plus: Capital expenditure	9,948	10,429	12,661	9,033
Less: Asset disposals	71	71	71	71
Less: Allowed regulatory depreciation	6,177	7,239	8,488	9,635
Plus: Indexation	0	0	0	0
Closing RAB	**47,650**	**50,768**	**54,870**	**54,197**

7.4.1 Future Period Disposals

WaterNSW is forecasting disposals of approximately $71k p.a. over the 2021-22 to 2024-25 period as shown below. The disposals will be applied to the WaterNSW RABs.

Table 38 – Future period disposals ($'000, 20-21$)

	2021-22	2022-23	2023-24	2024-25
WAMC disposals	71	71	71	71

The allocation of revenue from the disposal of minor assets to the WAMC Determination is derived by taking the average disposals in the current period as described above.

8. Return of capital (depreciation)

For the 2021 Determination period, WaterNSW has adopted the straight-line method for calculating the forecast depreciation of its proposed RABs and has applied appropriate asset lives.

8.1 Introduction

This section describes WaterNSW's approach to calculating the depreciation of the RABs for Licensing Services for WAMC functions conferred on WaterNSW and water monitoring services.

For the 2021 Determination period, WaterNSW has applied forecast or allowed depreciation derived from the forecast capital expenditure from the WAMC Determination.

WaterNSW's share of allowed depreciation was determined by applying, from 2016 to 2020, the yearly percentage of cumulative capital expenditure assigned to WaterNSW using the cost code allocations presented in IPART's March 2018 decision on the allocation of WAMC Determination revenue between WaterNSW and DPIE-W. WaterNSW's share of allowed depreciation was applied to the roll forward of WaterNSW's share of the legacy RAB. The application of this methodology is discussed in more detail in section 7.2.

As outlined in the preceding section, WaterNSW has established the following RABs:

- A **water monitoring RAB** incorporating the costs of water monitoring assets;
- A **corporate RAB** incorporating the costs of corporate capital program such as IT and motor vehicles; and
- A **legacy RAB** which refers to the allocation of the existing RAB in the WAMC Determination, prior to the transfer of functions to WaterNSW, as the determination of WaterNSW's share of the legacy RAB.

For the upcoming determination period, WaterNSW has adopted the straight-line method for calculating the forecast depreciation of its proposed RABs for the upcoming determination period. The following sections outline WaterNSW's assumptions on asset lives for new assets over the 2021 determination period.

8.2 Asset lives assumptions for new assets – water monitoring RAB

WaterNSW has applied the following assets lives as provided for in the WAMC Determination.

WaterNSW's proposed assets lives and categories for the Water Monitoring RAB are set out in Table 39.

Table 39 – Asset lives for the Water Monitoring RAB

Asset Type	Asset Life (years)
Infrastructure	20
Laboratory and specialised equipment*	7

*Laboratory and specialised equipment include water monitoring instruments.

For new assets which are forecast to enter the Water Monitoring RAB, WaterNSW has calculated a weighted average asset life of 8 for surface water assets and 17 years for groundwater assets based on the table above. The weighted average asset life was applied to the value of the Water Monitoring RAB for the forecast period to determine the regulatory depreciation allowance.

8.3 Asset lives assumptions for new assets – corporate RAB

The Corporate RAB consists of a share of the WaterNSW corporate wide capital projects (such as corporate information technology projects).

Corporate wide capital projects are isolated and allocated to each regulated business segment based on the proportional value of their total salary and wages.

The asset lives and categories set out in Table 40 were applied to determine the regulatory depreciation of the forecast RAB.

Table 40 – Corporate RAB asset classes and asset lives

Asset Class	**Asset life** (years)
IT systems	7
Vehicles	5
Buildings	60
Office equipment	10
Plant & machinery	25

For new assets which are forecast to enter the Corporate RAB, WaterNSW has applied an average life of 7 years to the additions of the corporate RAB, as the additions predominately comprise of capex on IT assets. This assumption is consistent with the IPART 2020 Greater Sydney Determination.

The 7 year asset life was applied to the value of the corporate RAB for the forecast period to determine the regulatory depreciation allowance.

8.4 Asset lives assumptions for existing assets – legacy RAB

As discussed above, WaterNSW proposed to establish its share of the legacy RAB. WaterNSW is proposing to carry forward the asset life assumptions used in the WAMC Determination.

Under this assumption, the existing life of the legacy RAB is up to 7 years at the beginning of 2021-22. It is proposed that the legacy RAB will not be updated with additional capital expenditure in future determinations and will be depreciated to zero over a 7 year period.

9. Return on capital

Our proposed 'placeholder' rate of return on capital for the 2021 Determination period is 3.2%. Our estimate is based on IPART's 'standard' post-tax real methodology.

9.1 Proposed method and rate of return

The return on capital covers the cost of servicing our debt and provides a return to our shareholders for their equity investment in our business. It is calculated by multiplying the value of our regulated asset base by the rate of return on capital. WaterNSW is proposing to apply the Weighted Average Cost of Capital (WACC) methodology for determining the rate of return on capital.

The WACC is the minimum ('benchmark') financial return an investor requires from an investment given its risk before committing additional capital. It is the sum of weighted average returns expected from the two types of capital invested – debt and equity.

In determining the appropriate rate of return, economic regulators strive to provide an allowance as reasonably accurate as possible. This ensures that customers do not pay more than necessary and that the regulated firms will be financially viable and have the incentive to invest in the efficient level of productive assets.

In this section, we outline an approach to calculating the WACC based on IPART's standard methodology. As part of IPART's methodology, market data will be updated closer to the Draft and Final Determinations, with the cost of debt updated during the regulatory period. Therefore the WACC proposed in this section should be considered to be a '**placeholder**' as the estimate will need to be updated during the review process and regulatory period.

9.1.1 Why is it important?

The return on capital makes up approximately 4% of the revenue allowance that we need to provide water monitoring and licensing services. As the services provided to the Ministerial Corporation, excluding water monitoring, are largely operational in nature, the proportion of the total revenue impacted by the WACC is relatively lower than that for our other more capital intensive determinations (were the return on capital drives approximately 30-40% of total revenues).

Nevertheless, for WAMC services if the rate of return is set too low, we may not be able to secure the funds needed to invest in water monitoring and licensing services, which could negatively impact on water quality and customer service levels. Alternatively, if it is set too high, our customers could pay too much for our services.

9.2 Our WACC proposal

WaterNSW proposes that IPART apply its 2018 WACC Methodology for the 2021 Determination period which results in a placeholder **post-tax real WACC of 3.2%**.

The current placeholder WACC represents a significant reduction from the WACC of 4.9% in the current 2016 Determination that reflects, amongst other things, a materially lower interest rate environment. The lower WACC results in downward pressure on regulated prices for customers.

The following Table 41 provides WaterNSW's proposed 'placeholder' WACC used in our calculation of proposed revenues and prices in this pricing proposal.

Table 41 – Proposed WACC for the 2021 Determination period

WACC Parameter	Current market data	LT averages	Midpoint average
Nominal risk free rate	0.9	3.1%	2.0%
Inflation	2.30%	2.30%	2.3%
Debt margin	2.1%	2.6%	2.3%
Debt to total assets	60%	60%	60%
Market risk premium (current / long-term)	9.7%	6.0%	7.8%
Gamma	0.25	0.25	0.25
Equity beta	0.7	0.7	0.7
Cost of equity (nominal post-tax)^	7.7%	7.3%	7.5%
Cost of debt (nominal pre-tax)^	3.0%	5.7%	4.3%
Nominal Vanilla WACC^			5.6%
Post-tax real WACC^			**3.2%**

Our **proposed WACC of 3.2%** is based on the values provided in IPART's March 2020 consultation on the debt margin.[34] Our detailed WACC proposal is provided in Appendix 5 – Rate of return, inflation and financeability.

9.3 Inflation forecasting risk impacting our financeability

Notwithstanding the relatively low capital base for WAMC services relatively to our other IPART determinations, the impact of forecast inflation is nonetheless an important consideration in the 2021 Determination.

Market-based measures of expected inflation have fallen dramatically over the last few months. The breakeven inflation series suggests bond market participants are pricing in an estimate that is close to zero inflation on average over the next four years. Maintaining IPART's approach for inflation that results in a current forecast of inflation as at May 2020 of 2.3% over the next four years is simply not sustainable. This is particularly the case given the current low inflation forecasts arising from the impacts to the economy of COVID-19. The inflation rate used by IPART puts WaterNSW at significant financial risk.

The following issues relating to rate of return, inflation and financeability are discussed more fully in Appendix 5:

- The exceptional impact of the COVID 19 pandemic on the economy as a whole and financial markets more specifically. The impact of COVID-19 more generally is discussed in Appendix 2;

[34] See https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/regulatory-framework-regulatory-policy-sea-weighted-average-cost-of-capital-wacc-models/wacc-publications/fact-sheet-wacc-consultation-on-debt-margin-april-2020.pdf. We note that IPART's Final Determination for Greater Sydney bulk water services released on 16 June 2020 contained a WACC of 3.4%. Given the timing of the release of the Final Determination and recognising the proposed WACC is a placeholder that will be updated prior to the WAMC Final Determination, we have maintained the use of a 3.2% WACC for this pricing proposal.

- The associated heightened level of uncertainty that exists around all WACC parameters but, in particular, the uncertainty associated with the forecast of inflation used by IPART to derive a real WACC;
- How the uncertainty around the inflation forecast can best be mitigated, and in so doing, reduce or eliminate the prospect of extreme windfall gains/losses accruing to stakeholders as a result of regulatory forecast error;
- The implications for the financeability of WaterNSW's business were IPART to not adapt its regulatory framework and methodology to the new economic circumstances; and
- How heightened uncertainty should be reflected in the WACC.

To address financeability concerns, WaterNSW proposes that IPART puts in place:

- A mechanism to **eliminate the impact of inflation forecast error** on the compensation provided for WaterNSW's services through annual adjustments;
- **Increasing revenues in the 2021 Determination period** by either lowering the inflation forecast in IPART's revenue model (e.g., to 1.7%) or by including a new building block in the model that captures the cost difference between an inflation forecast of 2.3% and 1.7%; and
- Should IPART decide not to implement the above measure, then as a minimum we consider that an **uplift to the equity beta** of at least 0.2 should be applied in recognition of the financeability facing equity holders and the risks of locking in a low ROE for four years. A 0.2 uplift to the equity beta raises the post-tax WACC by around 0.6%.

Critically, WaterNSW is not suggesting that customers solely bear the risk of IPART's inflation forecasting inaccuracies. Rather, we view the current approach of businesses solely bearing IPART's inflation forecasting risk as unreasonable and inequitable and **should be borne equally** by the business and its customers. This could be achieved by passing through the difference between IPART's forecasts and actual inflation used in the setting of the real WACC.

We note that some forecasting risk is already shared between WaterNSW and customers through the indexation of the RAB, where actual inflation is applied. Extending a similar approach to IPART's inflation forecasts used in setting the real WACC would be a straightforward and internally consistent exercise.

While the relatively low capital asset base associated with providing WAMC services compared to our more traditional infrastructure determinations (i.e. Greater Sydney and Rural Valley bulk water prices and the Broken Hill Pipeline) results in inflation having a much lower impact on the financeability of WaterNSW, we nevertheless consider the regulatory approach to inflation estimation to be an important consideration regarding the financeability of our business.

Our proposal regarding inflation and financeability is outlined in **Appendix 5** and is supported by an expert report by CEG provided as **Attachment 2**.[35]

[35] See CEG report titled *WACC, inflation compensation and financeability for WaterNSW* provided as Attachment 2. This report was originally provided as Attachment 1 to WaterNSW's 27 April 2020 response to IPART's Draft Greater Sydney Determination and is unchanged from that version.

10. Tax allowance

WaterNSW has applied the tax inputs from the IPART Tax decision in its calculation of the regulatory tax allowance and carried forward the tax assumptions and tax asset bases generated by IPART in its 2016 Determination to calculate the regulatory tax allowance.

10.1 Introduction

In a post-tax framework, corporate income tax expenses are included as one of the building blocks that make up WaterNSW's total revenue requirement. IPART includes an explicit allowance for tax, because it uses a post-tax (rather than a pre-tax) WACC to estimate the allowance for a return on assets in the revenue requirement. This allowance reflects the regulated business' forecast tax liabilities.

This section sets out WaterNSW's approach to calculating the total tax allowance for the regulatory period commencing 1 July 2021.

Our estimate of the regulatory tax allowance for our water monitoring and licensing services for the forthcoming determination period is set out in Table 42.

Table 42 – Tax Allowance ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total	Average
Tax Allowance	271	533	842	1,124	**2,770**	**693**

10.2 Background

At the time IPART made the WAMC Determination, the functions were delivered entirely by DPIE-W. DPIE-W did not propose a regulated tax allowance, as it is not subject to the National Tax Equivalent Regime (NTER), unlike WaterNSW. Nevertheless, IPART did provide DOIW with a regulatory tax allowance as part of its building block revenues, noting:

> *given the potential implications on competitive neutrality, we recommend the NSW Treasury clarifies whether DOIW (on behalf of WAMC) is subject to the tax equivalents regime in the NSW Commercial Policy Framework*[36]

WaterNSW, as a Government owned corporation is subject to the NTER and is required to pay income tax as part of its profit generating businesses. WaterNSW has therefore included a regulatory tax allowance in its calculation of the notional revenue requirement.

10.3 Regulatory Requirements

In 2011, IPART released its *Final Decision on the incorporation of company tax in pricing determinations* (IPART Tax decision). It established a framework for determining the regulatory tax allowance for IPART regulated entities in industries such as water. After a period of consultation and detailed analysis by IPART of the tax treatment approaches undertaken by regulators in other jurisdictions, IPART established a number of tax inputs to be used to calculate the regulatory tax allowance in its determinations:

[36] IPART, Review of prices for the Water Administration Ministerial Corporation, page 73.

- Compute regulatory tax liabilities using a post-tax WACC framework with a tax depreciation allowance embedded in the building blocks calculation, instead of the alternative pre-tax WACC framework;
- The tax depreciation allowance will be calculated using the statutory tax rate of 30 per cent;
- The tax depreciation allowance will be calculated using a gamma of 0.25.
- Notional tax deductions for interest costs will be calculated using the notional gearing ratio of 60% debt and 40% equity. Interest costs would be calculated using the risk-free rate and debt margin used to calculate the WACC. The notional interest rate would be applied to the average of the opening and closing RAB in each year to calculate the annual interest deductions.
- Actual tax loses would not be factored in IPART determinations. Instead, expected tax losses will be set from a zero base from the point at which the regulated entity moves from a pre-tax WACC framework to a post-tax WACC framework.
- Tax depreciation, including the modelling inputs on asset lives and the rate of depreciation, would be determined by the regulated entity using its financial modelling.

WaterNSW has applied the requirements listed above in its calculation of the regulatory tax allowance. WaterNSW has also carried forward the tax assumptions and tax asset bases generated by IPART in its 2016 Determination to calculate the regulatory tax allowances for WAMC regulated functions.

10.4 Assumptions

This section sets out the assumptions used by WaterNSW to calculate the regulatory depreciation allowance, such as the approach to:

- The statutory tax rate;
- Carrying forward tax losses;
- Tax depreciation; and
- Tax asset lives.

10.4.1 Statutory tax rate

IPART calculates the tax allowance for each year by applying the statutory corporate tax rate adjusted for franking credits to the business's (nominal) taxable income.[37] The adoption of a corporate tax rate of 30% is consistent with the rate expected to be applicable in the upcoming regulatory period to the benchmark efficient entity that is applied in estimating the WACC and net tax liabilities, being a firm operating in a competitive market and facing similar risks to the regulated business.

- A 30% statutory tax rate is consistent with:
- IPART's 2011 decision on the incorporation of company tax in pricing submissions;
- IPART's Determinations for WaterNSW's Greater Sydney and Rural Valley bulk water customers; and
- WaterNSW's actual tax costs as per the Income Tax Legislation (for instance, the Tax Consolidation/Grouping Provisions).

In March 2017, the Australian Government enacted legislation that introduced different rates of corporate income tax for businesses of different sizes. Under the legislation, from 1 July 2018,

[37] Under IPART's post-tax framework, the value of franking credits (gamma) enters the regulatory decision directly only through the estimate of the tax liability.

businesses with an aggregated turnover of less than $50 million (base rate entities) pay 27.5% tax, while those with a higher turnover pay 30% tax on all their taxable income. From 2024-25, base rate entities will pay 27.0% tax, and this rate will reduce to 26.0% in the following year and 25.0% in 2026-27.

In past water industry price reviews, IPART flagged the possibility of using the aggregate turnover of the regulated *business unit* to determine the rate of income tax to apply in its determinations and applied a lower tax rate in its Broken Hill Pipeline determination in 2019. The logic applied by IPART assumes that a regulated business unit earning an aggregate turnover of less than $50 million would be eligible for a lower tax rate of 27.5%.

We note that even if the provision of our WAMC functions operated as a separate business (which it does not), tax law requires the determination of aggregated turnover (a key factor in eligibility as a base rate entity) to include the turnover of connected entities. Therefore, even if the annual turnover was less than $50 million (which it is not), the applicable corporate income tax rate is 30%.

An entity is a base rate entity for a year of income if no more than 80% of its assessable income for the year of income is base rate entity passive income and its "aggregated turnover" for the year of income is less than $50 million (Income Tax Rates Act 1986 s 23AA). 'Aggregated turnover' is calculated as the sum of the company's annual turnover and the annual turnover of any entity connected with the company or that is affiliated with the company (Income Tax Assessment Act 1997 s 328-115).

In accordance with income tax legislation, the statutory tax rate of 30% would apply to the tax consolidated group of WaterNSW, as the aggregated turnover of WaterNSW, inclusive of the turnover derived from WaterNSW's monopoly water monitoring, billing and licensing services, would exceed $50 million.

On this basis, WaterNSW has applied the statutory corporate tax rate of **30%** in its calculation of the regulatory tax allowance in this pricing proposal. Any other tax rate used to calculate the regulatory tax allowance would result in WaterNSW not being funded sufficiently to meet a legislative compliance obligation.

10.4.2 Carrying forward tax losses tax rate

In the IPART Tax Decision, IPART decided to allow estimated tax losses to be used in the calculation of the regulatory tax allowance, beginning from a position of no accumulated tax loss under IPART's standard calculation of tax payable. That is, the actual tax losses determined under tax law are not to be considered in calculating the regulatory tax allowance.

IPART has calculated the estimated tax losses for WAMC regulated services from a position no accumulated tax loss starting from a starting year of 2011. This calculation was used by IPART in the WAMC Determination. WaterNSW proposes to adopt the tax loss carryforward calculations made by IPART for the upcoming determination period.

WaterNSW considers that the IPART calculations should be carried forward over the upcoming determination period in the interest of maintaining the continuity of regulatory decisions. Furthermore, the tax loss carryforward calculations are linked to the calculations used to derive the tax asset base and the RAB. Therefore, these calculations need to be maintained to ensure the losses are appropriately allocated in a consistent manner between WaterNSW and DPIE-W in accordance with allocation of the WAMC RAB and allocation of W-code functions between WaterNSW and DPIE-W, discussed in Section 7.

10.4.3 Tax depreciation

In the WAMC Determination, IPART established a tax base for each WAMC pricing source to compute the tax depreciation for the regulatory depreciation allowance. The tax bases were calculated by IPART using 2011 as the starting year.

The rate at which the assets are depreciated under the tax bases computed by IPART is the 'prime' method. Consistent with the IPART calculations, WaterNSW has also adopted the prime method in its modelling of the regulatory tax allowance.

The calculations essentially follow the assumptions used to calculate the WAMC RAB, with the exception of inflation, where the tax asset base does not experience an annual uplift in value due to changes in the Consumer's Price Index. WaterNSW considers that the tax base calculation by IPART should be carried forward over the upcoming determination period to ensure the continuity of its regulatory decisions.

WaterNSW also considers that the calculations for the tax asset base calculations have to be maintained and allocated consistently in accordance with allocation of the WAMC RAB between WaterNSW and DPIE-W, discussed in section 7. This allocation has been adopted in WaterNSW's modelling.

10.4.4 Tax asset lives

The IPART Tax Decision requires that IPART apply the regulated entity's modelling of tax depreciation to calculate the regulatory tax allowance. As mentioned above, IPART's calculations for the tax asset base essentially follow the assumptions used to calculate the WAMC RAB. IPART has applied the average life of RAB assets to calculate the effective life of depreciating assets for tax purposes. WaterNSW agrees with this approach.

WaterNSW considers that the tax base calculation by IPART, including IPART's assumptions for the effective life of assets for tax purposes, should be carried forward over the upcoming determination period in the interest of maintaining the continuity of regulatory decisions. The RAB asset lives are discussed in further detail in Section 8.

10.5 Return on working capital

IPART finalised its updated working capital policy in September 2018 and published a policy paper on this matter in November 2018.

IPART includes an allowance for working capital in the notional revenue requirement to ensure businesses can recover the costs they incur due to delays between them delivering regulated goods or services and receiving payment for those goods or services (net of any benefits they receive due to delays between them receiving goods or services and paying for those good or services). It typically represents around 1% of their notional revenue requirement (NRR).

WaterNSW has applied IPART's standard methodology in calculating the working capital allowance for this pricing proposal using inputs for each customer type as shown in the table below.

Table 43 – Working Capital Allowance inputs

	Regulated	Unregulated	Groundwater	Government
Length of billing cycle (days)	90	365	365	90
Days fixed charges billed in advance	0	0	0	90
Days allowed delay before payment for receivables	30	30	30	30
Payment term for accounts payable (days)	30	30	30	30

In addition:

- WaterNSW is not proposing an inventory amount over the determination period; and
- WaterNSW is not proposing a prepayment amount over the determination period.

WaterNSW's proposed working capital allowance is set out in Table 44 below.

Table 44 – Working Capital Allowance ($'000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total	Average
Working Capital Allowance	497	539	566	608	**2210**	**553**

11. Revenue requirement

WaterNSW proposes a total revenue requirement of $154.2 million ($2020-21) over the 2021 Determination period, averaging $38.6 million per year.

11.1 Introduction

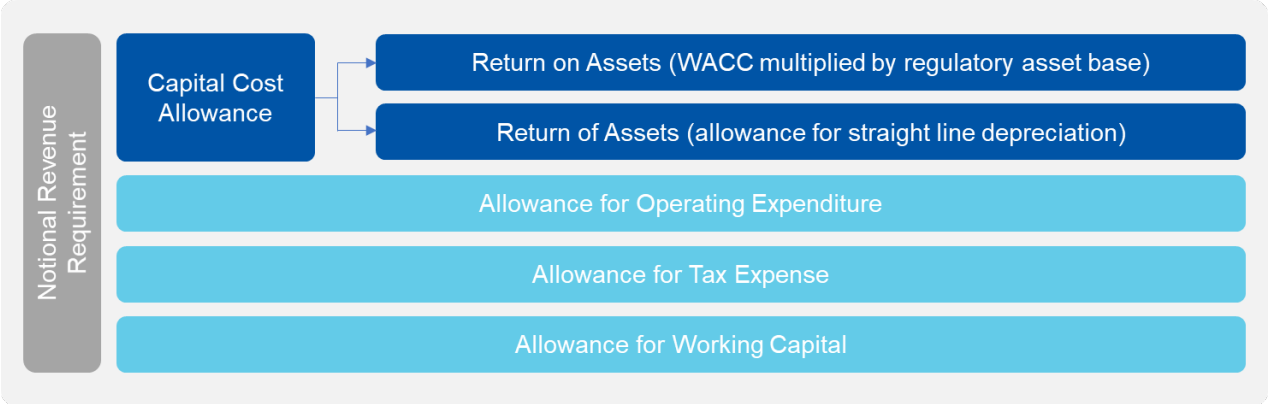
This section sets out WaterNSW's approach to calculating the total revenue requirement.

We propose the use of a building block approach to calculate WaterNSW's total revenue requirement in each year of the determination period for WaterNSW's water monitoring and licensing services for the forthcoming determination period, based on IPART's standard methodology from the 2016 Determination.

The total revenue requirement represents the efficient costs that can be recovered by WaterNSW for the provision of monopoly services. The revenue requirement is set by IPART at efficient levels to ensure that WaterNSW can meet its legislative and regulatory obligations as well as any service standards and customer driven discretionary requirements.

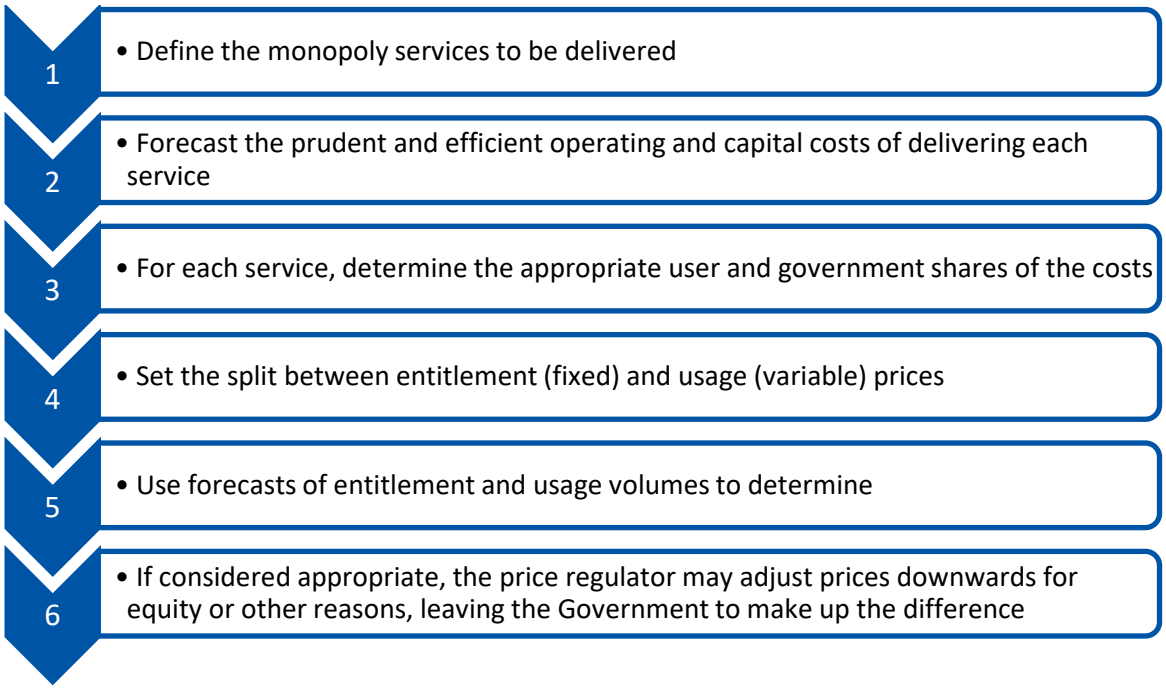
A diagram of the building blocks revenue is shown in Figure 21 below:

Figure 21 – Total 'Building block' revenue requirement



IPART's general approach in setting charges for WaterNSW customers set out in Figure 20 below.

Figure 22 – IPART's approach to setting charges for WaterNSW customers



This section refers to WaterNSW's methodology or forecasting the prudent and efficient operating and capital costs of delivery each of its monopoly services (i.e. Step 2). Step 3 is discussed in Section 12 on the application of the IPART cost shares.

11.2 Revenue during 2016 Determination period

In 2020-21 dollars terms, the WAMC user share revenue requirement during the 2016 Determination period for the user share is $251.3 million. The actual revenue received from users is expected to be $246.5 million or $4.8 million lower compared to the user share allowance.

Table 45 – Revenue during the 2016 Determination ($000s, $2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Average
Actual	47,555	50,413	49,946	48,919	49,632	246,466	49,293
Allowance	50,832	50,765	50,414	49,632	49,632	251,274	50,255
Variance	(3,277)	(352)	(468)	(713)	-	(4,808)	(962)

*2019-20 expected revenue equals 2018-19 actuals. 2020-21 expected revenue equals allowance for the purposes of the analysis.

The drivers for the variance to the allowance include:

- Lower revenue recovered from meter service charge customers mainly as a result of the decision by the Minister to waive the meter service charges for Hawkesbury Nepean customers with a Government owned meter;
- Lower variable revenue from the water management (fixed variable) charges due to the impact of drought in rural NSW;
- Higher consent transaction revenue due to an increase in the number of applications; and
- Lower revenue from water take assessment charges compared to the 2016 Determination estimates provided by DPI Water. From 2017, WaterNSW encouraged customers to

report self-meter reads through online usage surveys, reducing the need for manual meter reads.

Since 2017-18, WAMC fixed revenue has been contributed by Government instead of water users who are eligible for a rebate under the NSW Drought Stimulus Package. The NSW Government continues to provide financial assistance of up to $4,000 to all general water licence holders in rural and regional NSW across surface and groundwater systems, and to customers of Irrigation Corporations.

11.3 Proposed Revenue for 2021 Determination period

WaterNSW approach

For this pricing proposal, WaterNSW has calculated separate buildings blocks for the following charge categories which refer to specific monopoly services to be delivered by WaterNSW:

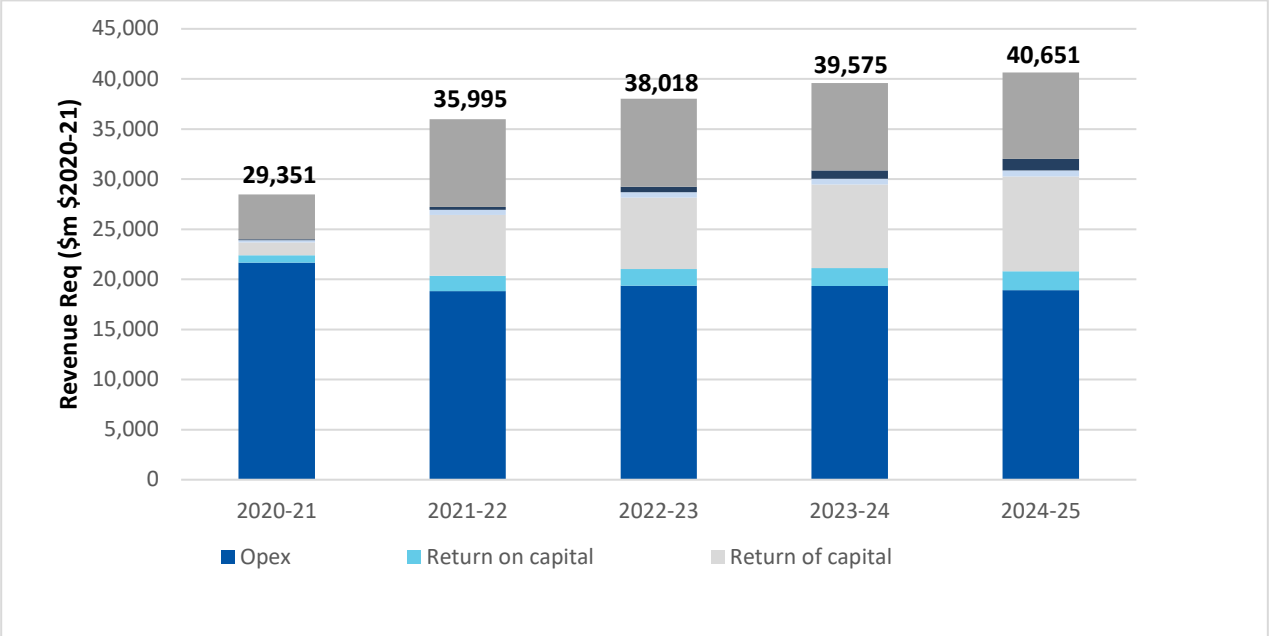
1. Building block revenues to determine the efficient revenue requirement for the water monitoring charge levied on DPIE-W to recover the costs of water monitoring services;
2. Building block revenues to determine the efficient revenue requirement for WaterNSW customer charges such as:
   a. The Minimum Annual Charge to recover the cost of billing and account management monopoly services; and
   b. The Water Management Charge to recover the cost licensing monopoly services; and
3. Separate revenue for WaterNSW's fee for service charges set at cost reflective levels. These charges solely comprise of operating expenditure allowances for specific products which form a part of WaterNSW's monopoly functions. They include the fee for service transaction charges and the miscellaneous charges (such as the water take assessment charge and the meter service charges).

The total building blocks for WaterNSW's monopoly water monitoring, licensing and billing services, prior to the allocation of revenue to charge categories, is shown in Table 46.

Table 46 – WaterNSW Notional Revenue Requirement ($000s, $2020-21)

	2020-21	2021-22	2022-23	2023-24	2024-25	FY22-25
Operating Expenditure	21,676	18,821	19,365	19,318	18,920	76,424
Fee for service costs	4,455	8,785	8,792	8,696	8,645	34,918
Return on Assets	727	1,540	1,664	1,797	1,870	6,871
Return of Assets	1,280	6,080	7,126	8,355	9,484	31,046
Return on Working Capital	231	497	539	566	608	2,210
Regulatory Tax Allowance	88	271	533	842	1,124	2,770
Contributions to MDBA & BRC	893	-	-	-	-	-
Total Revenue Requirement	**29,351**	**35,995**	**38,018**	**39,575**	**40,651**	**154,240**

Figure 23 – Total revenue requirement ($millions, $2020-21)



Source: WaterNSW analysis

Our proposed notional revenue requirement increases from $29.4 million ($2020-21) in 2020-21 (the last year of the 2016 Determination period) to $36 million in 2021-21 (the first year of the upcoming Determination period) before increasing to $40.7 million in 2024-25.

11.3.1 Building blocks for WaterNSW customer charges

The WAMC water management charges, including the minimum annual charge, recover the costs of providing the following services

- Billing and account management services, the cost of which are generally recovered through Minimum Annual Charge;
- licensing advisory services, the costs of which are recovered through a combination of the Minimum Annual Charge and the Fixed and Variable charges; and
- Water monitoring services

The following capital allowances have also been incorporated into the WAMC charges:

- **Legacy RAB costs** – these costs include the capital costs allowances associated with DPIE-W's actual capital expenditure from 2011 to 2016. WaterNSW's proposed roll forward of a portion of the legacy RAB into the Water Management Charge is discussed in Section 7.
- **WaterNSW's RAB allowances on corporate projects** –the cost of WaterNSW's corporate capital projects, such as the WAVE program.

Minimum Annual Charge costs comprise mostly of operating expenditure incurred by WaterNSW to deliver account management and billing services, inclusive of corporate overhead.

WaterNSW has applied the IPART cost share ratios (step 3) for both charges to determine user share of notional revenue to be passed onto customer charges (see Section 12 for more details). The notional revenue requirement for WaterNSW customer charges are set out below.

Table 47 – Customer Charges Notional Revenue Requirement ($000s, $2020-21)

	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Operating Expenditure Allowance	17,234	17,255	17,759	17,708	17,338	70,060
Fee for service costs	4,455	8,785	8,792	8,696	8,645	34,918
Return on Assets	620	1404	1540	1684	1770	6,398
Return of Assets (depreciation)	1,075	5,471	6,485	7,671	8,763	28,389
Return on working capital	223	511	552	580	621	2,264
Regulatory Tax Allowance	78	253	511	817	1096	2,677
Contributions to MDBA & BRC	515	0	0	0	0	0
Total Notional Revenue Requirement	**24,200**	**33,679**	**35,639**	**37,156**	**38,233**	**144,708**

Note: 2020-21 is the last year of IPART's 2016 Determination.

11.3.2 Building blocks for fee for service charges

WaterNSW is proposing to levy:

- **Fee for Service Transaction Charges** are levied for each transaction or application submitted to WaterNSW to administer the licensing regime under the Water Management Act, and where relevant the *Water Act 1912.* These transactions capture a variety of applications such as water trading and creating or amending licences. The Fee for Service Transaction Charges are discussed in further detail in section 14.6. The costs of Fee for Service Transactions were determined using separate operating expenditure cost codes to capture the costs of processing each transaction, inclusive of corporate overhead. The cost codes applied by WaterNSW generally align with the cost codes in the WAMC Determination, for example W09-01 and W08-03.
- **Water Take Assessment Charges** are fee-for service charges which apply to water users in unregulated rivers and groundwater sources. The charge intends to recover the cost of reading user-owned meters and meter equivalents for the purpose of accurate account management, billing and reporting in line with clause 6.3.1 of the WaterNSW operating licence. The costs of these charges were determined using separate operating expenditure cost codes to capture the costs of this function.
- The **Meter Service Charges (MSC)** are fee-for service charges which apply customers who have a government-owned meters installed at their extraction site in groundwater and unregulated systems. The MSC intends to recover the efficient cost of operating and maintaining WaterNSW owned meters. The costs of maintaining WaterNSW owned meters were determined using separate operating expenditure cost codes to capture the costs of this function.

The total revenue requirement for all fee for service charges are set out in Table 48.

Table 48 – Fee for Service Charge Notional Revenue Requirement ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total	Average
Operating Expenditure Allowance	8,785	8,792	8,696	8,645	**34,918**	**8,729**

11.3.3 Under recovery of the user share of cost

The building block tables presume that the requirement for customer charges is set at cost reflective levels.

In Section 16 on customer charges, WaterNSW proposes to **cap its share of WAMC charges at 5% per annum** until prices are cost reflective in each valley and water source. We note that shortfall between the expected revenue from tariffs (capped at 5% p.a.) and WaterNSW's user share of costs is expected to be funded under a CSO payment or Government contribution to WaterNSW.

In Section 13 regarding forecast volumes and customer numbers, WaterNSW presents the forecast volumes used to calculate the potential funding gap between the user share of revenue and expected revenue from tariffs in the 2021-25 Determination period.

The table below presents the estimated shortfall measured as the difference between the user share of cost and the expected revenue from tariffs over 4 years under a 5% per annum price cap on customer charges. The shortfall presented compares the total cost reflective revenue requirement of all WAMC agencies (WaterNSW, DPIE-W and NRAR) to total WAMC revenues, assuming that tariffs will increase by 5% per annum

Table 49 – WAMC Shortfall – total ($'000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total FY22-25
Cost recovery revenue (user share)	70,929	72,456	72,105	72,766	288,256
Forecast revenue from users (prices capped at 5% p.a.)	44,528	46,664	48,916	50,818	190,926
Shortfall	**26,402**	**25,792**	**23,189**	**21,948**	**97,330**

*Source: DPIE-W analysis. Revenues exclude fee for service. For the purpose of estimating revenues from the minimum annual charge, this table uses 2017-18 data on licences.

12. IPART Cost Shares

All of WaterNSW's future WAMC costs are allocated to the user, consistent with the IPART cost share ratios.

Traditionally, IPART have applied the share ratios to allocate the efficient costs of regulated services between customers and the Government using the 'impactor pays' principle. The impactor pays principle, as described by IPART, proposes to allocate the price-regulated costs to those entities that create the need for the costs to arise, that is, the costs are allocated to either users or the Government that creates the costs.

IPART, in its 2018 Final Report on the Review of its Rural Water Cost Share Framework (IPART Cost Share Report), revised a number of cost share percentages under its activity-based cost sharing framework. The IPART activity-based framework assigns a cost share ratio to each 'W code' in the WAMC Determination.

The major changes proposed by IPART that are relevant to WaterNSW include:

- Assigning a greater portion of the costs associated with water monitoring activities (W01 codes) to the user;
- Assigning 40% of the costs of blue green algae to the user instead of the current cost share ratio of 50%;
- W costs codes on business governance and support (W10-02) and water consents overhead (W08-99) could be considered an overhead cost and therefore apportioning using a cost allocation methodology in the next price review.

WaterNSW has grouped its costs into service areas. For example, license advisory services and account management and billing services WaterNSW has also proposed to establish separate RABs for WaterNSW's:

- Share of the legacy RAB for which there will be a Government and User share depending on the cost share ratios determined by IPART in the WAMC Determination;
- Water monitoring assets; and
- Corporate assets.

WaterNSW has mapped its proposed charges categories and service areas to the W cost codes which were considered by IPART in the IPART Cost Share Report.

WaterNSW does not use the cost codes on business governance and support (W10-02) and water consents overhead (W08-99). WaterNSW believes these costs should be considered an overhead cost to be allocated to charge categories using a cost allocation methodology. To mimic this outcome for capex, we have isolated the cost of corporate capex to establish a corporate RAB for WAMC. We then applied a 94% weighted average user share over the 2022-25 determination period, based on a weighted average user share of operating expenditure and capital expenditure from FY22-25. We note that IPART has established a corporate RAB for our Greater Sydney 2020 Determination.

Excluding Water Monitoring Costs and corporate capex, we note that all of WaterNSW's future costs are allocated entirely to the user, as shown in Table 50. This cost split is consistent with the IPART cost share ratios, both before and after the IPART Cost Share Report.

Table 50 – Mapping of cost share category to WaterNSW's proposed charge categories

W Code	IPART category	WaterNSW charge category	User Share %
W01-01	Surface water quantity monitoring	• Water Management Charges (Fixed/Variable Charges/ MAC)	100%
W01-02	Surface water data management and reporting	• Water Management Charges (Fixed/Variable Charges/ MAC)	50%
W01-03	Surface water quality monitoring	• Water Management Charges (Fixed/Variable Charges/ MAC)	60%
W01-04	Surface water algal monitoring	• Water Management Charges (Fixed/Variable Charges/ MAC)	40%
W02-01	Groundwater quantity monitoring	• Water Management Charges (Fixed/Variable Charges/ MAC)	100%
W02-02	Groundwater quality monitoring	• Water Management Charges (Fixed/Variable Charges/ MAC)	100%
W03-01	Water take data collection	• Meter Service Charge • Water Take Assessment Charges	100%
W03-02	Water take data management and reporting	• Water Management Charges (Fixed/Variable Charges/ MAC) ○ Account Management and Billing Services ○ License Advisory Services	100%
W08-01	Regulation systems management		
W08-02	Consents management and licence conversion		
W10-01	Customer management		
W10-03	Billing management		
W09-02	Water consents overhead	• Fee for Service Transaction Services ○ Licence Advisory Services	100%
W08-99	Water consents Overhead	• The Business Governance and Support and water consents overheads cost code have not been used by WaterNSW • WaterNSW overhead pool which is allocated to charge categories	N/A
W10-02	Business Governance and Support		
Corporate Capex	Corporate capital expenditure	• Corporate capital expenditure such as IT, motor vehicles, head office and other capex. • We have itemised WaterNSW's corporate capital expenditure to establish a corporate RAB for WAMC services. • We have applied a weighted average user share on corporate capital expenditure and RAB revenues based on a weighting of cost share ratios for opex and capex .	94% Weighted average user share over the 2022-25 determination period. Based on a weighted average user share of opex and capex from FY22-25

13. Volumes and customer numbers

Our water take and entitlement volume forecasts provide the inputs to support our tariff modelling by customer charge for groundwater, regulated river and unregulated river sources.

In accordance with the IPART Guidelines on Pricing Submissions for Water Agencies, WaterNSW has prepared a forecast of water take and entitlement volumes by water source over the 2021 Determination period. The purpose of the forecast is to provide a set of inputs to support the tariff modelling by customer charge for Groundwater, Regulated River and Unregulated River sources.

WaterNSW is proposing to cap the WaterNSW share of WAMC water charges by **5% per annum** until prices are cost reflective in each valley and water source in the 2021-25 Determination period. In practice, the forecast volumes described in this section have been used to calculate the potential funding gap between the user share of revenue and expected revenue from tariffs in the 2021-25 Determination period. Fee for service charges are proposed to be set at cost reflective levels.

WAMC charges are split into a 1-part tariff consisting of a fixed charge and a 2-part tariff consisting of a fixed and variable charge for regulated water sources, unregulated water sources and groundwater sources. WaterNSW provides a forecast of 1-part entitlements and 2-part entitlements volumes for the fixed charges and of expected usage for the variable charges by water source.

13.1 Regulated water sources

WaterNSW's forecast of 2021-25 expected demand for regulated water sources is based on:

- **For the Usage Charges:** the 20-year rolling average of actual water sales (with a two year lag) from 1999-2000 to 2018-19;
- **For the Fixed Charges:** Actual entitlement volumes in the 2018-19 financial year.

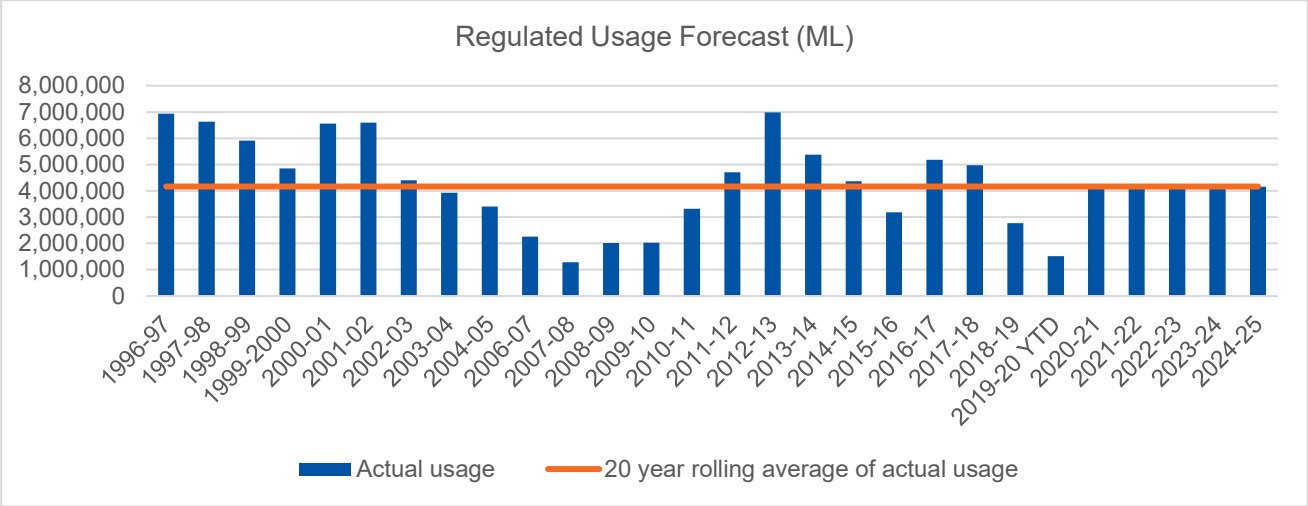
Consistent with the 2016- Determination, WaterNSW has used the 20-year rolling average of historical water usage to forecast expected demand over the 2021-25 Determination period (by year and water source). This approach assumes that expected demand will be equal to the long-run average over a 20 year period.

The time series uses actual usage from the period 1999-2000 to 2018-19. We propose that the time series be updated with data from 2000-01 to 2019-20 as part of the IPART Price Review once actual 2019-20 data becomes available.

Data on interstate trade usage (i.e. temporary allocation trades) was previously excluded from the 2016 Determination rolling average calculation. However, WaterNSW does levy the usage charge at the point of trade for those temporary allocation trades involving buyers outside of NSW or buyers without a NSW Works Approval. On this basis, WaterNSW has included in its usage data any interstate trade volumes that attract the WAMC usage charges at the point of trade.

The 20-year rolling average is shown below:

Figure 24 – 20-year rolling average of water sales



*Figures include interstate trade usage

The 20-year rolling average has been used for both the WaterNSW Rural Valleys and WAMC Determinations as the charges in both of these determinations have fixed and variable components. In the Rural Valley Determination Pricing Proposal, the proportion of variable charges can be as high as 60 per cent and in the WAMC Determination it is currently as high as 30 per cent under the 2-part tariff.

Updates to the 20-year rolling average ensure that the demand forecast for regulated river systems are more indicative of recent water usage patterns and incorporates to some extent any recent variations resulting from sudden changes in the demand profile or consumption patterns of the industry and customers.

The 20-year rolling average also provide a hedge against the revenue volatility risk experienced by WaterNSW as it relies on a high portion of usage charge revenues to recover the predominately fixed cost of providing WAMC services to rural valley customers.

The 2021-25 forecast volumes are summarised below for the regulated river systems:

Table 51 – Forecast usage by valley

Regulated Valley Forecast Usage				
	2021-22	**2022-23**	**2023-24**	**2024-25**
Border	147,948	147,948	147,948	147,948
Gwydir	239,365	239,365	239,365	239,365
Namoi	149,925	149,925	149,925	149,925
Peel	12,686	12,686	12,686	12,686
Lachlan	191,214	191,214	191,214	191,214
Macquarie	249,042	249,042	249,042	249,042
Murray	1,419,325	1,419,325	1,419,325	1,419,325
Murrumbidgee	1,629,683	1,629,683	1,629,683	1,629,683
North Coast	574	574	574	574
Hunter	121,447	121,447	121,447	121,447
South Coast	3,946	3,946	3,946	3,946
Total	**4,165,155**	**4,165,155**	**4,165,155**	**4,165,155**

Table 52 – Forecast entitlements by valley

Regulated Valley Forecast Entitlements				
	2021-22	**2022-23**	**2023-24**	**2024-25**
Border	265,334	265,334	265,334	265,334
Gwydir	535,601	535,601	535,601	535,601
Namoi	264,329	264,329	264,329	264,329
Peel	46,826	46,826	46,826	46,826
Lachlan	686,431	686,431	686,431	686,431
Macquarie	671,271	671,271	671,271	671,271
Murray	2,337,493	2,337,493	2,337,493	2,337,493
Murrumbidgee	2,698,407	2,698,407	2,698,407	2,698,407
North Coast	9,261	9,261	9,261	9,261
Hunter	206,219	206,219	206,219	206,219
South Coast	14,869	14,869	14,869	14,869
Total	**7,736,040**	**7,736,040**	**7,736,040**	**7,736,040**

13.2 Unregulated water sources

WaterNSW's forecast of 2021-25 expected demand for unregulated river sources is based on the following:

- For the Usage Charges:
  - forecast of expected demand from licence holders on a 2-part tariff; and
  - forecast of expected demand from licence holders expected to transition from a 1 part to 2-part tariff over the 2021-25 Determination period.
- For Fixed Charges under the 1-part tariff:
  - 1-part entitlement volumes in the 2018-19 financial year adjusted for the entitlement volumes assigned to each licence holder expected to transition from a 1 part to 2-part tariff over the 2021-25 Determination period
- For Fixed Charges under the 2-part tariff:
  - 2-part entitlement volumes in the 2018-19 financial year adjusted for the entitlement volumes assigned to each licence holder expected to transition from a 1 part to 2-part tariff over the 2021-25 Determination period

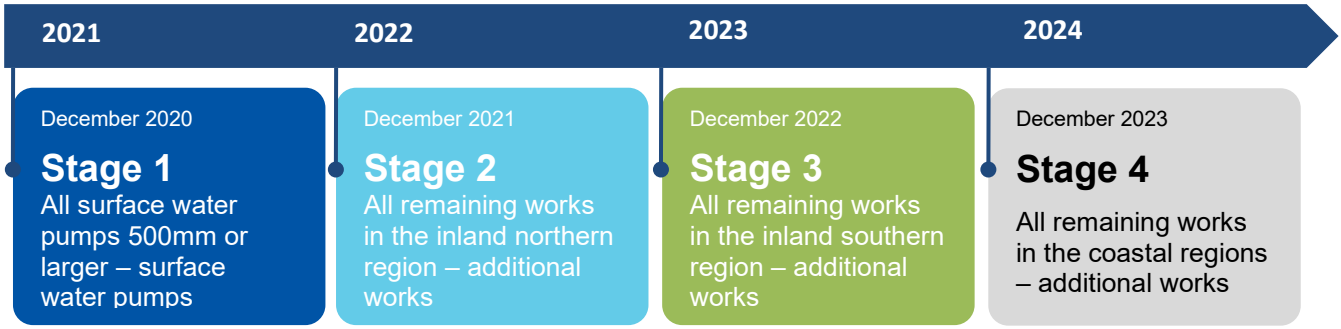
WaterNSW forecast of water take is based on an estimate of expected usage developed by the CIE for input into the DPIE/NRAR WAMC Price Submission. The report is attached to the DPIE/NRAR WAMC Price Submission

Under the new framework, users with works that meet one or more of the metering thresholds will be required to have a meter:

- Already required to have a meter or measure water take
- Infrastructure size (200mm or larger)
- Multiple works
- At-risk groundwater source.

The new metering framework will be rolled out over a five year basis, starting with the largest consumers of water (i.e. the largest works) and then rolling out on a region by region basis. The transition to the new metering requirements is as detailed in Figure 25:[38]

Figure 25 - The transition to non-urban metering reform



Although it is difficult to predict the expected usage patterns for newly metered licence holders in the absence of specific metering data, WaterNSW has nevertheless provided an estimate of future usage based on the work of the CIE by multiplying an estimate of the number of additional 'metered' entitlements, by the average utilisation rate for existing 2 part tariff customers.

An incremental adjustment was applied to our forecast of 1-part and 2-part entitlement volumes in line with the adjustment to the water take forecast.

The 2021-25 forecast volumes are summarised below for the unregulated river systems:

Table 53 – Unregulated forecast usage by valley (ML)

Unregulated Valley Forecast Usage				
	2021-22	**2022-23**	**2023-24**	**2024-25**
Border	5,724	5,724	5,724	5,724
Gwydir	1,506	1,506	1,506	1,506
Namoi	3,942	3,942	3,942	3,942
Peel	575	575	575	575
Lachlan	4,050	4,050	4,050	4,050
Macquarie	54,931	54,931	54,931	54,931
Far West	92,802	92,802	92,802	92,802
Murray	5,201	5,201	5,201	5,201
Murrumbidgee	9,073	9,073	9,073	9,073
North Coast	41,138	41,311	41,311	41,311
Hunter	123,287	123,438	123,438	123,438
South Coast	651,027	651,157	651,157	651,157
Total	**993,255**	**993,709**	**993,709**	**993,709**

[38] See https://www.industry.nsw.gov.au/__data/assets/pdf_file/0005/205790/NRAR-compliance-approach-metering-regulations-fact-sheet.pdf

Table 54 – Unregulated 1 Part tariff entitlements by valley (ML)

Unregulated Valley Forecast 1 Part Entitlements				
	2021-22	**2022-23**	**2023-24**	**2024-25**
Border	15,734	15,734	15,734	15,734
Gwydir	18,605	18,605	18,605	18,605
Namoi	89,250	89,250	89,250	89,250
Peel	10,024	10,024	10,024	10,024
Lachlan	37,029	37,029	37,029	37,029
Macquarie	58,304	58,304	58,304	58,304
Far West	71,712	71,712	71,712	71,712
Murray	13,557	13,557	13,557	13,557
Murrumbidgee	48,999	48,999	48,999	48,999
North Coast	157,271	154,174	154,174	154,174
Hunter	153,633	149,262	149,262	149,262
South Coast	90,469	86,718	86,718	86,718
Total	**764,586**	**753,366**	**753,366**	**753,366**

Table 55 – Unregulated 2 Part tariff entitlements by valley (ML)

Unregulated Valley Forecast 2 Part Entitlements				
	2021-22	**2022-23**	**2023-24**	**2024-25**
Border	30,111	30,111	30,111	30,111
Gwydir	30,862	30,862	30,862	30,862
Namoi	69,264	69,264	69,264	69,264
Peel	2,330	2,330	2,330	2,330
Lachlan	18,779	18,779	18,779	18,779
Macquarie	240,969	240,969	240,969	240,969
Far West	159,929	159,929	159,929	159,929
Murray	38,967	38,967	38,967	38,967
Murrumbidgee	47,842	47,842	47,842	47,842
North Coast	120,038	123,136	123,136	123,136
Hunter	522,439	526,810	526,810	526,810
South Coast	1,166,049	1,169,800	1,169,800	1,169,800
Total	**2,447,578**	**2,458,798**	**2,458,798**	**2,458,798**

13.3 Groundwater sources

WaterNSW's forecast of 2021-25 expected demand for groundwater sources is based on:

- For the Usage Charges:
  - forecast of expected demand from licence holders on a 2-part tariff and
  - forecast of expected demand from licence holders expected to transition from a 1-part to 2-part tariff over the 2021-25 Determination period.
- For Fixed Charges under the 1-part tariff:
  - 1-part entitlement volumes in the 2018-19 financial year adjusted for the entitlement volumes assigned to each licence holder expected to transition from a 1-part to 2-part tariff over the 2021-25 Determination period.
- For Fixed Charges under the 2-part tariff:

- 2-part entitlement volumes in the 2018-19 financial year adjusted for the entitlement volumes assigned to each licence holder expected to transition from a 1-part to 2-part tariff over the 2021-25 Determination period.

Like the unregulated usage forecast, WaterNSW's water take forecast for groundwater sources is based on an estimate of expected usage developed by the CIE for input into the DPIE/NRAR WAMC Price Submission.

A similar incremental adjustment was applied to our forecast of 1-part and 2-part entitlement volumes.

The 2021-25 forecast volumes are summarised below for the groundwater sources:

Table 56 – Groundwater forecast usage by valley (ML)

Groundwater Sources Forecast Usage				
	2021-22	**2022-23**	**2023-24**	**2024-25**
Inland (excluding Murrumbidgee)	725,994	725,994	725,994	725,994
Murrumbidgee	284,501	285,836	285,836	285,836
Coastal	40,197	44,358	48,518	48,518
Total	**1,050,692**	**1,056,188**	**1,060,348**	**1,060,348**

Table 57 – Groundwater 1 Part tariff entitlements by valley (ML)

Groundwater Sources Forecast 1 Part entitlements				
	FY22	**FY23**	**FY24**	**FY25**
Inland (excluding Murrumbidgee)	146,327	146,327	146,327	146,327
Murrumbidgee	16,146	13,294	13,294	13,294
Coastal	202,630	182,813	162,996	162,996
Total	**365,103**	**342,434**	**322,617**	**322,617**

Table 58 – Groundwater 2 Part tariff entitlements by valley (ML)

Groundwater Sources Forecast 2 Part entitlements				
	FY22	**FY23**	**FY24**	**FY25**
Inland (excluding Murrumbidgee)	1,059,386	1,059,386	1,059,386	1,059,386
Murrumbidgee	359,287	362,139	362,139	362,139
Coastal	180,683	200,500	220,317	220,317
Total	**1,599,356**	**1,622,025**	**1,641,842**	**1,641,842**

13.4 Forecast of licenses subject to the minimum annual charge

Customers are currently billed a minimum annual charge when the total customer bill for both fixed and variable charges is less than the MAC. The MAC applies to water access licence holders across unregulated, groundwater and regulated systems and is intended to recover most of the cost associated with account management services for small-sized water holdings. This includes the ongoing administrative cost of managing zero share water access licences.[39]

[39] Water users have a right to apply for a zero share water access licences under section 61 of the WM Act. Zero share water access licences are generally used to facilitate temporary water trading. Without the MAC, zero share water access licences would not be levied a fixed or variable charge.

As part of the price setting process, IPART is required to estimate the expected revenue from the minimum annual charge in calculating the fixed and variable charges.

In the 2016- Determination, IPART used the latest set of actual billing data to estimate the expected number of licences subject to the MAC over the 2016-Determination period. The base year used to derive this estimate was 2013-14 billing year, which was the latest set of actuals submitted by DPI as part of its 2015 Price Submission.

WaterNSW applies the same logic by using the latest set of actuals in 2018-19 to estimate the expected number of licences subject to the MAC over the 2022-2025 determination period, as shown below:

Table 59 – Number of customers subject to the Minimum Annual Charge

Number of MAC licences				
Water Source	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Regulated	8,352	8,352	8,352	8,352
Unregulated	10,269	10,269	10,269	10,269
Groundwater	5768	5768	5768	5768
Total	**24,389**	**24,389**	**24,389**	**24,389**

14. Customer Charges

The equitable allocation of costs and revenue recovery across our customer base is supported by analysis of the appropriate allocation of costs between WaterNSW and other agencies.

14.1 Introduction

WaterNSW wants to ensure that its approach to setting prices is clear and transparent for customers to understand.

The allocation of user revenue to customer charge categories by WaterNSW is a result of an analysis of the allocation of the 2016-2020 W code costs between WaterNSW and the agencies, which revealed the most equitable method of splitting WaterNSW's costs across the customer base.

As a first step, WaterNSW calculates customer charges with the aim to achieving cost reflective pricing. The overall level of customer charges is then reviewed with the aim of minimising price shocks for customers. The analysis revealed the most appropriate balance between the two objectives would be for WaterNSW to cap its share of the WAMC charges by 5% per annum until prices are cost reflective in each valley and water source.

The difference between the revenue that can be contributed by customers and the user share of the notional revenue requirement is the Community Service Obligation (CSO). This is the CSO required by WaterNSW to meet its regulatory requirements and service standards. Without a CSO, WaterNSW would be underfunded to meet its regulatory requirements.

14.2 Proposed tariff structure for the 2021 Determination

A key consideration for the 2021 Determination is whether, or to what extent, IPART's existing tariff structure that was set at a time that one organisation provided all WAMC functions (i.e. DPIE-W) remains relevant when three organisations now provide one or more WAMC functions.

WaterNSW considers that a key component of the 2021 Determination is to put in place steps that would facilitate the unbundling of WAMC charges at subsequent determinations to provide visibility and transparency of the revenues and charges of each respective organisation. The submission of separate pricing proposals by the entities is the first step of this journey that beings with providing visibility to customers and IPART of the costs of each of the three entities in providing WAMC services.

We propose four categories of customer charges that largely maintains the tariff structures from the 2016 Determination:

- **Minimum Annual Charge (MAC)** – this charge is proposed to be a fixed charge. It comprises the costs of account management and billing services for each licence. WaterNSW incurs this cost irrespective of each customer's utilisation of individual services. The charge is levied on a per licence basis reflecting WaterNSW's fixed costs of providing billing and account management for each individual licence holding. Customers are currently billed a minimum annual charge when the total customer bill for both fixed and variable charges is less than the value of the MAC.
- **Water Management Charge** – this charge is proposed to be a fixed and variable charge for two-part tariff customers and a fixed charge for one-part tariff customers. It recovers those costs of responding to customer and regulatory queries, water monitoring and

administering the complexity of the licensing regime. This has been allocated on a per entitlement/usage basis. This charge does not apply to customers who are subject to the MAC.

- **Fee for Service Charges** – these charges are levied for each transaction or application submitted to WaterNSW to administer the licensing regime under the WM Act, and where relevant the Water Act 1912. The transactions capture a variety of applications such as water trading and creating and amending licences, these are set out in section 14.6 below.
- **Miscellaneous Fee for Service Charges** – fee for service charges as outlined below:
    - Charges that apply to certain customers with WaterNSW owned meters at their water take points who are charged per meter;
    - Water take assessment charge levied on a per extraction site basis; and
    - Meter accuracy testing charges.

14.2.1 Achieving the Pricing Principles

Section 15 of the IPART Act prescribes a number of matters which must be taken into account by IPART in its determinations. They include:

- Protecting consumers from unreasonable price increase or inefficient practices;
- Ensuring monopoly service providers earn a fair rate of return on prudent and efficient investments;
- Encouraging regulated service providers to improve their economic efficiency and maintain or improve their service quality;
- Encouraging competition where possible;
- Ensuring that regulated service providers remain financially viable; and
- Maintaining ecologically sustainable development and protection of the environment.

IPART is also guided by the National Water Initiative (NWI) pricing principles and objectives endorsed by COAG, which include:

- Promoting the efficient and sustainable use of water resources and water infrastructure;
- Ensuring that infrastructure operators are financially viable;
- Providing sufficient revenue for service delivery; and
- Facilitating the function of water markets.

IPART is known to set efficient costs of providing water services in setting customer charges, as a starting point, with then considering customers' ability or capacity to pay.

Under this approach, IPART considers the overall level of customer charges to be a separate matter to the calculation of 'prudent and efficient' funding levels required to ensure the regulated entity remains financially viability (that is, the level of customer charges required to achieve full cost recovery).

Although most pricing submissions and IPART determinations do disclose the overall level of required revenue to achieve full cost recovery, they generally fail to disclose the overall level of customer charges which are necessary to achieve cost recovery. This is not transparent to the customer, Government or the regulators who develop, administer and contribute to the costs of, the regulatory regime in which regulated entities operate.

We propose that IPART disclose both the proposed customer charges and costs required to achieve full cost recovery. WaterNSW considers this approach to be consistent with the pricing

principles described above, in particular, the ability to monitor any progress in achieving the NWI principles and objectives set by COAG.

WaterNSW wants to be transparent to its customers, regulators and the Government on the true cost of providing monopoly water monitoring, licensing and billing services to our customer base.

WaterNSW has noticed a significant step increase in expenditure in comparing its revealed costs of providing licensing services to those costs which were reported by DPIE-W in the 2015 price submission and the IPART regulatory allowances set by IPART the WAMC Determination. WaterNSW concludes that the cost levels previously disclosed by DPIE-W its 2015 Pricing Submission cannot be accurate nor can they be used to establish an appropriate base-level of expenditure for this proposal. We note the conclusions of the NSW Ombudsman Water: compliance and enforcement – 17 August 2018 Page 4:

> *"Good governance involves ensuring – or at the very least attempting to ensure – that agencies are properly resourced. Not doing so is a failure to meet acceptable standards of good public administration."*

To serve the best interests of customers, and contribute to the NWI Pricing Principles and Objectives and the objectives in the IPART Act, WaterNSW considers that further analysis could be undertaken by IPART to determine the extent to which the three entities are able to recover the efficient costs of providing WAMC services over the 2021 Determination period.

14.3 Tariff structure in the 2016 Determination

In its review for the 2016 WAMC Determination, IPART accepted DPIE-W's proposed tariff categories incorporating a 1-part tariff (fixed charge), and a 2-part tariff (fixed and variable charges), with different charges rates across 11 valleys in regulated river systems, 8 regions for unregulated river systems and 2 regions for groundwater systems. IPART concluded that maintaining this geographical split in pricing would ensure prices are reasonably cost-reflective.

The pricing regions are shown below:

- 8 pricing regions for unregulated rivers
    - North West: Border, Gwydir, Namoi and Peel valleys
    - Central West: Lachlan and Macquarie valleys
    - Murray valley
    - Murrumbidgee valley
    - North Coast
    - South Coast
    - Hunter valley
    - Far West valleys.
- 3 pricing regions for groundwater
    - Inland
    - Coastal
    - Murrumbidgee (a subsidised charge based on the inland groundwater charge).

In the 2016 WAMC Determination, IPART adopted the following tariff structure for licences:

- Entitlement charge licences (subject to an annual entitlement price through 1-part or 2-part tariffs);
- Water take charge only licences (subject only to the water take price); and

- Minimum charge only licences (subject only to the minimum annual charge).

WaterNSW proposes the continuation of the 2016 Determination tariff structures into the upcoming 2021 Determination period.

14.3.1 Entitlement charge licences

IPART's decisions for entitlement charge licences were to set:

- **Where water take is metered**: 2-part tariffs, comprised of a fixed charge ($ per ML of entitlement or unit share) and a water take charge ($ per ML of water extracted) for regulated rivers, unregulated rivers and groundwater, where water take is measured. All users on regulated rivers are metered and are therefore subject to a 2-part tariff; and
- **Where water extraction is unmetered**: 1-part tariffs, comprised of a fixed charge ($ per ML of entitlement or unit share) for unregulated rivers and groundwater, where water take is not measured. Per ML, the 1-part tariff is the sum of both parts of the 2-part tariff – i.e., the fixed (entitlement) price and the variable (water take) price of the 2-part tariff. This means that the total bill on a 1-part tariff equals the total bill on a 2-part tariff with water take at 100% of entitlement.

This tariff structure incentivises one-part tariff customers to move to a cheaper two-part bill (and install a meter) based on a sum of fixed charges and actual usage charges. However, with the implementation of the metering reform process underway (see Appendix 1), query the ongoing relevance of this price-based incentive.

IPART's decision for entitlement charge licences were to set the fixed and usage charge under each 2-part tariff so that 70% of forecast revenue from the 2-part tariff is recovered via the fixed charge and 30% of this revenue is recovered via the usage charge.

In 2016, IPART maintained the 70:30 fixed-to-variable split from the previous determination as it considered that it had widespread stakeholder support and mitigated some of the impact on users in times of low water availability. Also, as a means of allocating risk between DPI Water and users, IPART considered that the 70:30 fixed to variable ratio was reasonable.[40]

The exception to the 70:30 split is North Coast regulated rivers, where the previous 92:08 fixed-to-variable ratio was maintained in the 2016 Determination.

14.3.2 Water management charges

Proposed water management charges for the 2021 Determination period are set out in the tables below by water type and valley. Both fixed and variable charges are proposed to increase by 5% per annum. Charges for 1-part tariff customers are the sum of the fixed and variable charges of 2-part tariff customers and are also proposed to increase by 5% per annum.

[40] See IPART 2016 WAMC Determination. Page 96.

Table 60 – Proposed water management charges for Regulated rivers ($2020-21)

	Entitlement Charge			Usage Charge		
	2020-21	2021-22	2024-25	2020-21	2021-22	2024-25
Border	2.28	2.39	2.77	1.78	1.87	2.16
Gwydir	1.62	1.70	1.97	1.40	1.47	1.70
Namoi	2.73	2.87	3.32	1.84	1.93	2.24
Peel	2.67	2.80	3.25	4.76	5.00	5.79
Lachlan	1.43	1.50	1.74	1.92	2.02	2.33
Macquarie	1.71	1.80	2.08	1.85	1.94	2.25
Murray	1.54	1.62	1.87	1.10	1.16	1.34
Murrumbidgee	1.41	1.48	1.71	0.94	0.99	1.14
Lowbidgee	1.41	1.48	1.71	0.94	0.99	1.14
North Coast	3.97	4.17	4.83	6.12	6.43	7.44
Hunter	3.12	3.28	3.79	2.14	2.25	2.60
South Coast	3.34	3.51	4.06	5.32	5.59	6.47

Table 61 – Proposed water management charges for Unregulated rivers ($2020-21)

	Entitlement Charge			Usage charge		
	2020-21	2021-22	2024-25	2020-21	2021-22	2024-25
Border	2.31	2.43	2.81	2.47	2.59	3.00
Gwydir	2.31	2.43	2.81	2.47	2.59	3.00
Namoi	2.31	2.43	2.81	2.47	2.59	3.00
Peel	2.31	2.43	2.81	2.47	2.59	3.00
Lachlan	2.69	2.82	3.27	2.91	3.06	3.54
Macquarie	2.69	2.82	3.27	2.91	3.06	3.54
Far West	4.13	4.34	5.02	2.53	2.66	3.08
Murray	2.64	2.77	3.21	4.21	4.42	5.12
Murrumbidgee	3.27	3.43	3.97	5.81	6.10	7.06
North Coast	4.59	4.82	5.58	4.93	5.18	5.99
Hunter	1.30	1.37	1.58	2.13	2.24	2.59
South Coast	1.75	1.84	2.13	1.49	1.56	1.81

Table 62 – Proposed water management charges for Groundwater sources ($2020-21)

	Entitlement Charge			Usage Charge		
	2020-21	2021-22	2024-25	2020-21	2021-22	2024-25
Inland	3.86	4.05	4.69	3.13	3.29	3.80
Murrumbidgee	2.56	2.69	3.11	2.08	2.18	2.53
Coastal	1.76	1.85	2.14	3.29	3.45	4.00

14.3.3 Minimum annual charge - current

Customers are currently billed a minimum annual charge when the total customer bill for both fixed and variable charges is less than the value of the MAC. The MAC applies to holders of water access licences across unregulated, groundwater and regulated systems.

The MAC is intended to recover most of the cost associated with account management services for small-sized water holdings, including the ongoing administrative costs of managing zero share water access licences.[41]

The account management costs used to compute the MAC in the current period includes 80% of compliance management costs, and 100% consents management and licence conversions costs, customer management costs, billing management costs and regulation systems management costs.

According to WaterNSW's estimates, the current MAC applies to approximately 24,000 licence holders.

The MAC was set under the 2016 Determination in conjunction with the fixed and variable charges for WAMC regulated services. The steps applied by IPART to calculate the MAC were as follows:

1. The MAC was calculated based on the ability for smaller customers to absorb any potential bill shocks. IPART:
    a. Determined the billing and accounting management cost used to quantify the MAC; and
    b. Assessed that the MAC should not be set at reflective levels and instead should be set at a glide path towards cost reflective pricing;

2. The estimated entitlement/usage volumes for those licences expected to be subject to the MAC were estimated. The number of licences expected to trigger the MAC was estimated based on their entitlement holdings and usage. The base year applied in the 2016 Determination was the 2013-14 billing year;

3. Various adjustments were made to the volumes and revenue used to set the fixed and variable charges. This includes:
    a. The estimated entitlement/usage volumes subject to the MAC were deducted from the entitlement/usage volumes used to set the fixed and variable charges; and
    b. The estimated revenue from the MAC was deducted from the revenue requirement used to set the fixed and variable charges.

WaterNSW notes that cost code revenues used to calculate the MAC were also applied to the fixed and variable charges. This approach ensures that any billing and account management costs not recovered from the MAC are instead recovered through the fixed and variable charges.

The 2015 DPI Water Price submission proposed a MAC of $150 per year over the 2016 Determination period without seeking a glide path to cost reflective pricing. In its proposal, DPI Water decided against seeking cost-reflective charges, which was estimated at $235.[42]

IPART instead decided to transition the MAC towards cost reflective pricing. The current MAC, as per the 2016 Determination, is shown in Table 58 below:

[41] Water users have a right to apply for a zero share water access licences under section 61 of the WM Act. Zero share water access licences are generally used to facilitate temporary water trading. Without the MAC, zero share water access licences would not be levied a fixed or variable charge.
[42] See IPART 2016 WAMC Determination, page 15.

Table 63 – Minimum annual charge from the 2016 Determination ($2015-16)

Water source – All	Current	2016-17	2017-18	2018-19	2019-20
Minimum annual charge	105.34	150	167	184	200

Source: IPART 2016 WAMC Final Report, page 99.

The $200 MAC shown in the table above was at the time of the 2016 Determination and therefore calculated in the dollars of the day ($2015-16). When inflated to 'real' dollars in 2020-21, the MAC becomes $213.74[43] (rounded to $214 in this pricing proposal for convenience).

WaterNSW's share of the current $214 MAC is $126, or 59% of the total charge, with DPIE-W and NRAR costs making up the balance. This is discussed in the section below.

14.3.4 Minimum annual charge - proposed

WaterNSW is proposing a minimum annual charge for the 2020 Determination with the following features:

- Maintains the methodology from the 2016 Determination for calculating the MAC;
- One MAC with specified contributions for WaterNSW, DPIE-W and NRAR; and
- Transition the MAC towards full cost recovery over the next 18[44] years, based on an average annual increase of 5% p.a. that balances the move to cost reflectivity with customer bill impacts.

The proposed MAC for the three entities in considered to result in a fair and equitable outcome for customers while transitioning to full cost recovery.

The methodology used to calculate the MAC, as cited in the 2015 DPI Water Pricing Submission, was as follows:

- Divide the total W code expenditures for:
  - 100% of W08-01 Regulations systems management;
  - 100% of W08-02 Consents management and licence conversion;
  - 80% of W08-03 Compliance management;
  - 100% of W10-01 Customer management; and
  - 80% of W10-03 Billing management; by
- The number of licences across regulated, unregulated and groundwater systems.

Based on the application of IPART's current methodology, WaterNSW believes the cost reflective MAC for the three entities would exceed $500 ($2020-21). While the immediate adoption of the fully cost reflective charge could be advocated on economic grounds, WaterNSW does not support this approach as it is likely to have significant impacts on smaller customers' bills. We therefore propose a transition period over which to achieve a fully cost reflective MAC, and thereby send an efficient pricing signal, with minimising impacts on customers' bills.

The table below illustrates the proposed MAC that increases by 5% per annum over the 2021 Determination period.

[43] See https://www.waternsw.com.au/customer-service/ordering-trading-and-pricing/pricing/2019-20-water-pricing#stay
[44] Based on an estimate that the cost reflective MAC is approximately $500.

WaterNSW calculates that a transition of approximately 18 years (or five four-year regulatory periods ending in 2038-39) is appropriate. WaterNSW's proposed MAC is outlined in Table 59 below.

Table 64 –Proposed component of the Minimum Annual Charge ($2020-21)

Water source – All	2020-21	2021-22	2022-23	2023-24	2024-25	Bill impact p.a.
Minimum Annual charge	214	224	236	247	260	5%

As illustrated in Table 61 from the 2016 Determination as reproduced above, IPART approved an annual average increase of approximately 20% (10% excluding the step increase in the first year). The proposed increase in the MAC for the three entities is consistent with IPART's previous approach to transitioning to cost reflectively and represents what we consider to be a fair balance between achieving cost reflectivity while minimising impacts on customers.

14.3.5 How the MAC should be applied over the 2021 Determination period

Under the current billing rules, customers are billed a minimum annual charge when the total customer bill for both fixed and variable charges is less than the value of the MAC. WaterNSW proposes a continuation of the current approach from the 2016 Determination to calculating and charging the MAC.

WaterNSW submits that the MAC should be triggered when the indicative customer bill for WAMC exceeds the value of the MAC.

14.4 Billing rules for special category licences

There are a number of special category licences in which specific billing rules apply because the specific nature of the water right. WaterNSW is proposing no change to the billing rules for the 2021 Determination period as shown below:

Table 65 – Billing rules for special categories of licence

Billing Rules	
Licence Category	**Tariff category**
Floodplain harvesting (regulated river)	Water take charge only
Major utility (Barnard) (regulated river)	Minimum charge only
Supplementary water (regulated river)	Water take charge only
Supplementary water environmental access (regulated river)	Water take charge only
Supplementary water (Lowbidgee) (regulated river)	Water take charge only
Floodplain harvesting (unregulated river)	Water take charge only
Major utility (Grahamstown) (unregulated river)	Minimum charge only
Supplementary Aboriginal environmental water access (unregulated river)	Water take charge only
Unregulated river (regulated supply)	Minimum charge only
Unregulated river (regulated supply – local water utility)	Minimum charge only
Unregulated river (special additional high flow)	Water take charge only
Salinity and water table management (groundwater)	Minimum charge only

14.5 WaterNSW cost allocation by valley

In its review for the WAMC Determination, IPART accepted DPIE-W's proposed tariff categories incorporating a 1-part tariff (fixed charge), and a 2-part tariff (fixed and variable charges), with different charges rates across 11 valleys in regulated river systems, 8 regions for unregulated river systems and 2 regions for groundwater systems. IPART concluded that maintaining this geographical split in pricing would ensure prices are reasonably cost-reflective.

The cost codes for water monitoring, policy and licensing functions were used to calculate the 1-part and 2-part tariffs with the exception of some cost codes which were used to calculate specific fee for service charges, such as water consent transactions (fee for service charges), meter service charges and the water take assessment charge. It is understood that, for the most part, DPIE-W personnel did not allocate their time directly to pricing regions.

Instead, operating expenditure was aggregated into a pool which was then distributed to pricing regions using a cost driver. In this way, operating expenditure was split into pricing regions to construct valley-based charges. The same approach was used to allocate capital expenditure into pricing regions in order to establish a RAB for each pricing region.

WaterNSW does not believe a more complicated cost allocation methodology necessarily results in more cost reflective prices. For example, multiple RABs have been established only by splitting the aggregated capital expenditure into valleys. The RABs have not been developed using a bottom up valley-based analysis of the true costs to serve in a particular valley. WaterNSW considers the current approach to modelling valley-based charges to be overly complicated with no improvement in achieving accurate cost reflective valley-based pricing.

For example, the costs of administering the more complicated aspects of the licensing regime are corporate support costs. That is, the cost of providing licensing advisory services do not differ depending on whether the licensing query was raised by a customer in the Southern Valleys or the Northern Valleys nor do they differ based on whether the query was raised in an unregulated river system or a groundwater system.

While WaterNSW supports the current valley-based regulatory reporting requirements to IPART under its Annual Information Returns to maintain continuity of reporting for the WAMC Determination, WaterNSW is unable to use its reported actual costs to date to form an opinion as to whether a customer in one geographic region should pay a premium for certain WAMC costs (e.g. licensing advisory services) compared to a customer in another geographical region.

14.6 Prices for Fee for Service Transaction charges

Under our proposal, WaterNSW's charges for performing Fee for Service Transaction Services are expected to increase over the upcoming 2021-25 Determination period in order to move them to cost reflective levels.

An increase in Transaction Charges is required to ensure that WaterNSW can recover the efficient costs of processing consent transaction applications in line with the requirements of the *Water Management Act 2004* and the National Water Initiative Pricing Principles and Objectives.

In the current period, WaterNSW has experience a funding shortfall of $3.7 million per annum on average for Transaction Services. We refer to our actual cost in recent years to demonstrate that some increase in charges is required over the 2021-25 Determination period. Without sufficient revenue streams, WaterNSW will be unable to provide the efficient delivery of Transaction Services on behalf of WAMC. Furthermore, setting prices at levels below cost reflectivity will result in cross-subsidisation across other charges and lead to potential inefficient over use of the service.

14.6.1 What are Fee for Service Transaction Services?

The Fee for Service Transaction Services are services that arise upon application by a customer for a specific type of water transaction. They fall into the following categories:

- Application for a new water access licence

  An access licence entitles its holder to specified shares in the available water within a specified water management area or from a specified water source (the share component), and to take water at specified times, at specified rates or in specified circumstances, or in any combination of these, and in specified areas or from specified locations (the extraction component).

- Water access licence dealings (or trades)

  A water access licence has the form of a proprietary right and can be transferred (i.e. sold to another person), subdivided, mortgaged and bequeathed. Facilitating each of these kinds of actions to a water access licence is a dealing.

- Water allocation assignments

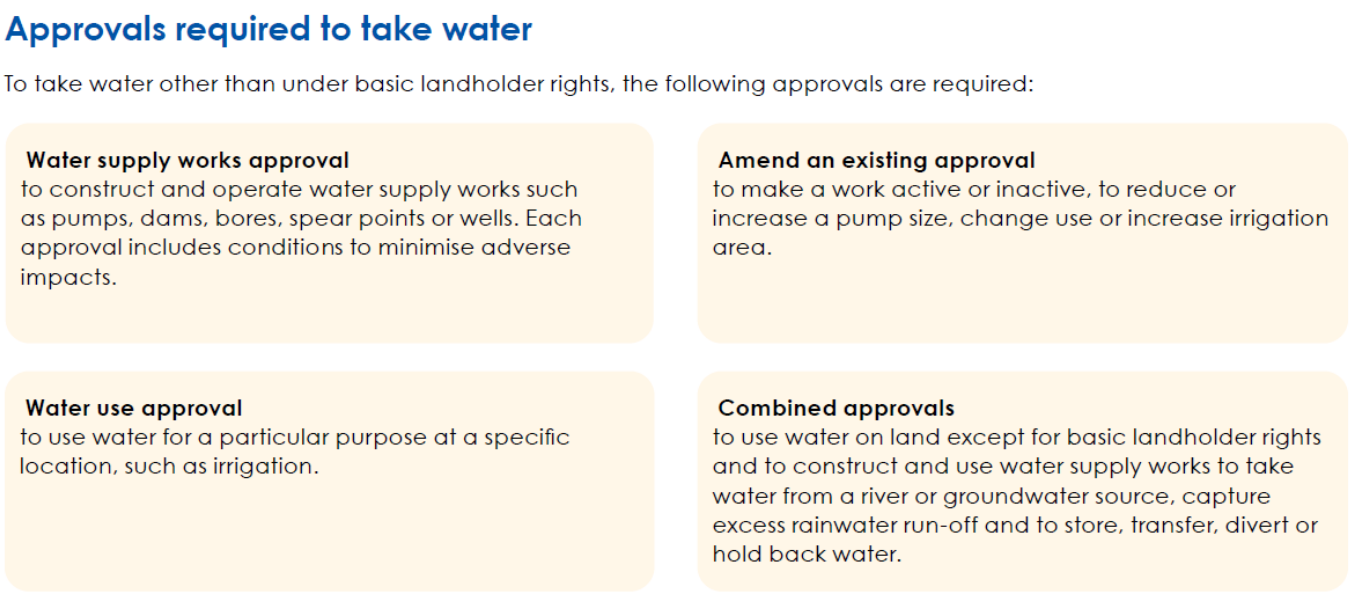
  At least annually, an amount of available water is allocated by DPIE-W to each kind of licence category in a particular location. The water allocation account for each licence is credited with an amount of water allocated. A water allocation assignment is the transfer of water in one licence's water allocation account to another licence's water allocation account. This is done without transferring the underlying water access licence.

- Approvals

  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. They typically apply for 10 years after which they can be extended on application. The holder of the approval changes if there is a change in the landholder.

Customers may require multiple approvals before they are permitted to take water in accordance with water management law. These are shown below:

Figure 26 – Approvals required to take water



14.6.2 How are costs recovered for these services?

Fee for Service Transaction Services incur costs for WaterNSW which are to be recovered under the 2021 Determination. As the costs arise due to the request of the person seeking the transaction, a cost reflective approach means the costs of the transaction should be imposed on the person seeking the transaction rather than the entire customer base[45].

14.6.3 2016 WAMC Determination

In past determinations, Fees for Service Transaction Services were calculated using a 'price x quantity' calculation based on both a forecast of labour hours per activity/transaction and hourly rates.

However, the basis upon which these costs have been derived is not easily understood. For example, overhead costs appear to have been excluded from the hourly rates used to calculate the fees in the 2016 Determination. Further, the labour hours assumed in the 2016 Determination vastly underestimate the effort that is required to process transaction applications to the required standard and in line with regulatory requirements.

As raised previously, we note that the 2016 Synergies report noted a mismatch between the staffing levels proposed by DPIE-W (formerly DOIW) and the proposed expenditure.

> *The projected increase in FTEs is at odds with the decline in forecast expenditure*
> *…*
> *The projected increase in FTEs assigned to water management services would imply that the proposed cost reduction would have to be achieved through means other than remuneration savings, or that they are not achievable.*

It became apparent to WaterNSW when we inherited the WAMC licensing functions in 2016 that the allowance for consent transactions was not sufficient to fund the actual cost of providing the service.

[45] In this way, WaterNSW's approach differs from that in the WAMC Determination which did not apply overhead and other inputs to the Fee for Service Transaction Services but sought to recover overheads from the entire customer base.

In 2016, WaterNSW established WAMC project codes in the finance system to record the cost of performing WAMC Transaction Services and to enable more robust cost tracking through the use of timesheet reporting and payroll costings in line with the IPART AIR reporting templates.

The table below presents the actual cost of providing Transaction Services as reported in our finance system and AIR reporting templates, including overhead. This is compared to the IPART consent transaction revenue requirement from the 2016 Determination.

Table 66 – Revenue compared to actual cost – Consent Transactions ($000s, $2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21
Consent transaction opex	4,709	8,199	7,200	5,833	7,228
IPART forecast consent transaction revenue	2,246	2,246	2,246	2,246	2,246
Actual Revenue	2,256	3,214	3,455	2,246	2,246
Variance opex to Actual revenue	**-2,452**	**-4,985**	**-3,745**	**-3,587**	**-4,982**

In 2016-17, the first year of the 2016 Determination period, WaterNSW reported $4.7 million in operating expenditure to process Consent Transaction applications. However, in the first 6 months of 2016-17, most of the licensing staff (ex DPI Water) allocated their time by default to the WAMC segment overhead category. We therefore consider the 2016-17 results to be non-representative of the costs of providing this service. We note that cost coding issues are not uncommon when transitioning to a new timesheet recording system that might have limited uptake in the first year of operation. Regular timesheet reporting and approvals have become more disciplined in 2018 and 2019 as reflected in the table above.

Operating expenditure in recent years shows that an annual budget averaging approximately $7 million per year is required to ensure the sufficient delivery of Consent Transaction Services. This is significantly higher than the IPART revenue requirement. Of note, the capital costs associated with consent transaction applications for example system costs have not been included in the figures presented above.

14.6.4 Approach to costing the 2021 Determination Transaction Services

WaterNSW submits that the finance system costs represent an accurate top down estimate of the actual (efficient) cost of providing Transaction Services.

To ensure that the expected revenue from Transaction Charges is sufficient to recover our actual cost, WaterNSW has applied a top-down cost estimation technique to calculate the uplift factor required to transition the consent transaction charges to cost reflective levels in the first year of the next 2021-25 Determination period.

Based on our calculation, all Transaction Charges, with one exception, are required to increase by 175% on average in order to be fully cost reflective and thereby avoid any revenue shortfall from these charges being recovered (and subsidised) by all customers through the existing water management charges.

WaterNSW also proposes to reduce the Transaction Charge for unregulated and groundwater water allocation assignments from the cost reflective price by 85%-87% to $50 per trade application to achieve greater consistency between the temporary trade fees determined under both the WAMC and the 2017 Rural Valley Determinations. WaterNSW submits that a significant reduction in the trade application fee would lift barriers to trade by removing a significant cost impost for licence holders with small sized entitlement holdings.

Where DPIE-W or NRAR may be require or seek to perform an associated or subsequent assessment, applicants are proposed to incur a separate charge from the respective agency providing the service. These could be charged by WaterNSW as a disbursement, or paid to the other agency directly. However, these charges have not been included in the WaterNSW transaction charges. This is discussed further in Section 14.6.5.1 'excluded expenses' below.

The table below presents our Proposed Fees for Transaction Services and the combined effect of applying a top-down cost estimation to calculate cost reflective charges while fixing trade application charges at $50 per application.

Table 67 – Proposed Fees for Transaction Services $2020-21

	FY21 Prices Online	FY21 Prices Paper	Proposed Prices FY22-FY25	Variance (%)	
Any new water access licence					
Zero share	308.56	344.64	885.72	187%	157%
Specific purpose	308.56	344.64	898.72	191%	161%
Controlled allocation	308.56	344.64	861.72	179%	150%
Water access licence dealings					
Dealings - regulated rivers	337.36	371.85	937.41	178%	152%
Unregulated Rivers and Groundwater (All applications unless specified below as Low Risk or Administrative)	1080.60	1116.69	2995.11	177%	168%
Unregulated Rivers and Groundwater – Low Risk	491.55	526.03	1357.21	176%	158%
Dealings - administrative	217.86	253.94	599.50	175%	136%
Water allocation assignments					
Unregulated rivers and Groundwater	337.36	371.85	50.00	-85%	-87%
Approvals					
New or amended works and/or use approval	2020.84	2056.92	5562.17	175%	170%
New or amended works and/or use approval – low risk	1075.78	1111.86	3013.75	180%	171%
New basic rights bore approval	389.34	425.42	1104.44	184%	160%
Amended approval – administrative	217.86	253.94	663.25	204%	161%
Extension of approval – lodged before expiry date	221.00	257.08	637.95	189%	148%
Extension of approval – lodged after expiry date	NA	428.47	1179.05	NA	175%
Other					
Application for new NSW Drillers Licence	346.50	346.50	953.49	175%	175%
Change in a Drillers Licence	150.00	150.00	412.77	175%	175%

Table 68 – Additional service charges (2020-21$)

Category	Cost
Advertising	$330.72

14.6.5 Cost categories

WaterNSW confirms that both the activities undertaken by its licensing staff and the cost in our finance system generally aligns with the 2016 Determination activity costs shown below:

- **Administration**

  Receiving and registering applications and processing application fees, checking applications for completeness and appropriateness (e.g. category of licence holder), requesting any further information, responding to queries from the applicant, referring new licences to the Natives Titles Office, approving decisions and posting the determination and conditions and, for bore approvals, recording bore construction data. Administration costs also includes the Cost of Handling of Objections. We note that objections are on the rise, as a result of ongoing water scarcity issues.

- **Rules Assessment**

  Checking against transactions water share plan rules, controlled allocation orders, local management rules and trading rules as appropriate, to determine whether an application can be approved. In some cases (all new or amended works and/or use approvals) a site visit is required. Rules Assessment costs also includes the Cost of Handling of Objections.

- **Impact Assessment**

  A case-by-case investigation to consider potential local impacts and whether those impacts require consent to be refused or granted subject to conditions. The impacts can be in respect of adjoining pumps or bores, Aboriginal heritage sites, native vegetation, threatened species, wetlands, land degradation, salinity, soil compaction, geomorphic instability, hydrology, water logging, acidity, contamination and water quality. The function also involves considering and resolving objections. Third party expert reports may also be required for certain approvals that do not comply with the relevant water sharing plan. Impact Assessable costs also includes the Cost of Handling of Objections.

- **Determination and Supervision**

  Supervision of staff and final determination of all transactions. The complexity of transactions determines the extent of this function. Determination and Supervision costs also includes the Cost of Handling of Objections.

- **Advertising**

  WaterNSW is proposing that an advertising charge be added to the fees for those categories of approvals for which advertising is required under clause 26 of the Water Management (General) Regulation 2018 (NSW). The requirements extend to placing advertisements in local and state-wide newspapers and inviting submissions on the proposed works/use. Generally, all new works and/or use approvals, together with some amended approvals and low risk approvals, have advertising requirements.

- **Land Registry Service Fees**

  New water access licences and water access licence dealings need to be lodged with NSW Land Registry Services (LRS). We note that it is likely that the current determination did not contemplate the recovery of LRS fees as a licensed approved private operator had not been appointed. It is understood these services were provided

free of charge to the Department prior to the privatisation of the LRS function. These fees are set by reference to the fees applicable for equivalent Torrens title dealings and searches[46,47] which themselves are set under Schedule 1 of the Real Property Regulation 2014 (NSW) and Schedule 1 of the Conveyancing (General) Regulation 2018 (NSW). Part 2 of Schedule 1 of each regulation inflates the fees annually commencing 1 July. In conducting due diligence on certain applications, WaterNSW incurs title search fees to ensure the applicant or the relevant parties are appropriately named in any application. The amounts payable are set out on the NSW Land Registry Services website at: http://www.nswlrs.com.au/land_titles/current_nsw_land_registry_fees.

- **Land Registry Services Liaison**

  Liaising with NSW Land Registry Services (LRS) for the registration of new water access licences and water access licence dealings.

14.6.5.1 Excluded expenses

Our Fee for Service Transaction Charges do not apply to applications lodged with NRAR such as applications submitted by large customers, Government entities or applications in relation to certain state significant projects.

WaterNSW Transaction Charges exclude any cost incurred by DPIE-W to finalise applications referred to DPIE-W under the 'stop the clock' mechanism, but lodged with WaterNSW. These include for example any technical assessment carried out by DPIE-W in relation to trade applications as well as the Hydrological Services provided by DPIE-W as specified in the *Deed of Business Transfer*. We note that the potential impact of groundwater extraction is managed through DPIE. Also, BLR assessments will have external DPIE-W hydrogeological assessment if the proposed bore site is within "proximity to a source of contamination". The cost of external assessments may represent a significant cost impost for the Department. The Department's procedure for these assessments is described in the following fact sheet:

https://www.industry.nsw.gov.au/__data/assets/pdf_file/0008/175931/Assessing-groundwater-applications-fact-sheet.pdf

WaterNSW suggests that IPART liaise directly with DPIE-W in relation to any cost that is expected to be incurred by DPIE-W over the upcoming 2021 Determination period as a result of the need to provide input into the application process. WaterNSW would expect such costs to be recovered under the DPIE-W / NRAR pricing proposal.

14.6.6 Exclusions – Unregulated Transaction Services

Unregulated services are those services provided by WAMC which are not related to the making available of water, the making available of water supply facilities or the supply of water.[48]

Several Transaction Charges have been excluded from IPART's oversight under previous WAMC Determinations. These are shown below along with WaterNSW position on whether the cost should be regulated by IPART.

[46] Less any increases referable to the Torrens Assurance Fund levy which will not apply to water transactions.
[47] By agreement between the Registrar-General and WaterNSW.
[48] https://www.legislation.nsw.gov.au/regulations/2004-638.pdf

Table 69 – Unregulated Transaction Services

Charge	Comments	WaterNSW position
Flood Works Approvals	Flood work approvals were not regulated by IPART because they are not related to water supply works and were instead driven by property protection against floods (2009 DPI Water Price Submission).	No Change. Charge should not be regulated by IPART.
Drillers licence/Water Act	Drillers Licences This includes application, renewal or change in a driller's licence. These are under the Water Act 1912 (NSW) Water Act 1912 application relate to those licences and water sources that are still regulated under the Water Act 1912. Both drillers licence applications and Water Act application are unregulated by IPART. This is because the Minister set a price which was lower than the IPART approved amount in its 2006 IPART Determination [footnote 115 of the IPART 2006 WAMC Determination].	Charge should be regulated by IPART. Transaction charges for applications under the *Water Management Act 2004* should also apply to applications under the *Water Act 1912*.

Solicitor Enquiries	Traditionally, fees for solicitors enquiries were not regulated by IPART under both the WAMC Determination and the State Water determination on the basis that the service is not a Government monopoly service.
	
	These services include:
	• Water Licence Financial Statements: WaterNSW provides a service to assist solicitors in making settlement adjustments for the sale of water access licences or water from a water access licence by providing a financial statement on a water licence.
	
	• Water Related Interest Searches: WaterNSW provides a service to assist solicitors acting on behalf of a purchaser to identify water related interests held under the Water Management Act 2000 for specific parcels of land. These searches:
	  ○ identify any approvals granted under the Water Management Act 2000 which may be associated with the property to be included in the sale and therefore transferred on settlement
	  ○ assist the prospective purchaser to evaluate the property as a commercial enterprise
	  ○ identify any charges or restrictions associated with the approvals if these entitlements are to be transferred to the new landholder.
	• Requests for special meter reading: WaterNSW provides a meter reading service to solicitors for general legal or conveyancing purposes
		No Change.
		
		Charge should not be regulated by IPART

14.6.7 Volumes and revenue

WaterNSW has forecast transaction volumes over the forthcoming determination using an average of transactions volumes from recent years as generally the best guide for expected volumes.

The exception is approval extensions which occur on a 5 to 10-yearly cycle which means WaterNSW is able to construct a forecast based on tracking when the existing approvals expire.

Overall, transaction volumes are forecast to be on average approximately 6000 per annum with approval extensions comprising approximately 30 to 50% of the volumes.

On this basis, WaterNSW expects to generate the revenue from the Fee for Service Transaction Services as illustrated below:

Table 70 – Expected revenue from Fee for Service Transaction Services (2020-21$)

	2021-22	2022-23	2023-24	2024-25	Total
Expected Revenue	7,228	7,228	7,228	7,228	28,912

14.6.8 Aboriginal water license fee waiver

Aboriginal water licence customers are the responsibility of NRAR in respect of licensing. However, WaterNSW will still be required to provide Fee for Service Transaction Services to this customer group for any dealings. WaterNSW intends to continue with the waiver of these charges by reference to the Treasurer's approval under section 18(2) of the IPART Act.[49]

14.7 Miscellaneous service charges

14.7.1 Introduction

Miscellaneous charges are levied by WaterNSW on a fee for service basis. They recover the cost of specific product offerings which form part of the provision of WaterNSW's water monitoring and licensing services functions.

WaterNSW's proposed miscellaneous service charges are shown in Table 71.

Table 71 – Categories of Miscellaneous Charges

Miscellaneous Charge	Description	When is the charge levied
Meter service charge	To recover the cost of operating and maintaining Government owned meters on a customer's extraction site.	An annual charge levied depending on the number of Government owned meter at the customer's extraction site/s.
Water take assessment charge	To recover the cost of physical meter reads for customer-owned meters and meter equivalents	An annual charge depending on the number of sites subject a physical meter read.
Meter accuracy deposit	A meter accuracy deposit payable as security to WaterNSW in response to a	Upon request from the customer to have their government owned meter tested or verified for accuracy.

[49] The Treasurer provided his approval by way of a letter to IPART dated 13 February 2014.

Miscellaneous Charge	Description	When is the charge levied
	request from a customer to have their Government owned meter tested for accuracy.	The deposit is forfeited to WaterNSW if the meter is found to be within accuracy standards. The relevant testing charge also applies. If the meter is found to be outside accuracy standards the deposit is returned to the customer. The relevant testing cost is borne by WaterNSW.
Verification and testing in situ	To recover the cost associated with performing a meter accuracy and verification test in situ.	Testing and verification charge. Levied upon request from the customer to have their Government meter tested or verified for accuracy. Charge only applies if the meter is found to be within accuracy standards in which case the charge applies, *and* the deposit is forfeited.
Lab verification and testing	To recover the cost associated with performing a meter accuracy or verification test through laboratory verification and testing.	Testing and verification charge. Levied upon request from the customer to have their Government meter tested or verified for accuracy. Charge only applies if the meter is found to be within accuracy standards in which case the charge applies, *and* the deposit is forfeited.

The costs of miscellaneous services are not socialised across the customer base. Instead, customers who receive the service are required to pay for the service. In this way, the costs of miscellaneous services are recovered only from those customers who are subject to the costs.

14.8 Meter service charge

14.8.1 Introduction

The Meter Service Charges (MSC) applies to customers with government-owned meters in groundwater and unregulated systems. The MSC intends to recover the efficient cost of operating and maintaining Government owned meters. The MSC varies depending on the size of the meter and whether or not the meter is connected to a telemetry device.

Various groundwater and unregulated government-owned meters were installed under the following projects:

- **NSW Metering Project**
  This project was established by the NSW Government using $21.5 million of funding made available by the Commonwealth. The stated aim of NSW Metering Project was to improve accuracy of water metering in the NSW Murray Darling Basin and to achieve consistency with the Commonwealth national metering standards. The then State Water was responsible for project managing its delivery, with responsibility for the procurement, installation, commissioning and testing of non-urban water meters. Most of the Commonwealth funding was directed at metering groundwater and unregulated streams. Funding was also provided to replace existing customer-owned meters with Government-owned meters on regulated river systems.

- **Hawkesbury Nepean Metering Project**
  As part of a Commonwealth Government investment package to install or upgrade meters in the to help restore the health of the river. It is understood that DPIE-W was responsible for installing or upgrading the meters in the Hawkesbury Nepean.

According to the funding and performance agreement between WAMC and State Water, it was intended that all groundwater and unregulated meters installed by State Water under the NSW Metering project would be owned by DPIE-W in the first instance and subsequently transferred across to State Water when this was legally possible.

The asset transfer of Government funded meters in the Murray Darling Basin and the Hawkesbury Nepean occurred in 2016, as part of the transfer to WaterNSW of functions previously undertaken by DPIE-W on behalf of WAMC.

As discussed in Appendix 1, metering reforms currently being considered by Government may see the transfer of ownership of Government owned meters to water users. However, while meters continue to be owned by WaterNSW, WaterNSW will continue to levy a meter service charge to recover the costs of maintaining those meters. The meter service charge would apply only for so long as the meters in groundwater and unregulated river systems continue to be owned by WaterNSW.

WaterNSW is proposing to update the MSC for groundwater and unregulated government owned meters using the cost inputs for the MSC for regulated government owned meters under the IPART Rural Valley Bulk Water Determination, as follows:

- Apply the costs inputs in the Meter Maintenance Contract with WaterNSW's outsourced service provider and which varies depending on the meter size categories in the WAMC Determination; and
- Apply the same MSC for telemetry and non-telemetry Government-owned meters in line with the Meter Maintenance Contract

The following tables set out WaterNSW's proposal on the meter service charge for groundwater and unregulated customers. Under our proposal, the meter service charge will remain flat over the upcoming determination period.

It should be noted that the cost for the meter service charge captures the current cost of maintaining the meters to the interim standards. Any additional cost of metering reform has been excluded from the meter service charge.

Given the uncertainty around the final policy and operational landscape and the associated costs of metering reform, WaterNSW has **excluded** the costs of non-urban metering reform from this pricing proposal. WaterNSW will provide cost forecasts to IPART during the review process, by end December 2020, for IPART's consideration and inclusion in the Final Determination.

Table 72 – Meter Maintenance Charge – telemetered meters (2020-21$)

Applies to Commonwealth Funded Meters Owned by WaterNSW						
Meter size	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**% Change FY21-22**
50-300	$514.31	$514.31	$514.31	$514.31	$514.31	0%
350-700	$534.41	$534.41	$534.41	$534.41	$534.41	0%
750-1000	$580.97	$580.97	$580.97	$580.97	$580.97	0%

Table 73 – Meter Maintenance Charge – non-telemetered meters (2020-21$)

Applies to Commonwealth Funded Meters Owned by WaterNSW						
Meter size	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**% Change FY21-22**
50-300	$403.47	$403.47	$403.47	$403.47	$403.47	0%
350-700	$419.24	$419.24	$419.24	$419.24	$419.24	0%
750-1000	$455.77	$455.77	$455.77	$455.77	$455.77	0%

14.8.2 Differences between RV and WAMC Meter Service Charge

In its 2015 WAMC Pricing Submission, DPIE-W requested that IPART apply the WaterNSW 2016-17 MSC for telemetered and non-telemetered sites, as per the 2014-17 Australian Competition and Consumer Commission (ACCC) Price Determination for the Murray Darling Basin (MDB) regulated river systems. This is because the meter maintenance function was outsourced to WaterNSW by DPIE-W for most Government funded meters in groundwater and unregulated systems.

The MSC for Government owned meters in regulated river systems were categorised by the ACCC using specific meter sizes, in increments of 100mm to 50mm in diameter.

In the 2016 Determination, IPART approved the MSC for WAMC groundwater and unregulated customers, with the following amendments:

- IPART disagreed with the specific charging structure proposed by DPIE-W and recommended by the IPART efficiency consultants. IPART decided to adopt a much flatter charging structure consisting of three size categories: 50-300mm, 350-700mm and 750-1000mm.
- IPART applied a 5% efficiency to the MSC proposed by DPIE-W.

While the 2016 WAMC Price Review was underway, WaterNSW outsourced the meter maintenance function for regulated, groundwater and unregulated meters in the Murray Darling Basin to the external firm.

The outsourced maintenance contract specified an annual cost for maintenance by specific meter sizes, in increments of 200 mm to 1000 mm in diameter. WaterNSW is of the understanding that the updated costs were not factored into the proposed MSC for WAMC.

In the 2017 Rural Valley Bulk Water Price Review, WaterNSW submitted an updated cost schedule on the MSC for Government owned meters on regulated river systems based on the Price Schedule in the outsourced maintenance contract.

WaterNSW also proposed to levy the same schedule of charges for both telemetered and non-telemetered site, in line with the outsourced maintenance contract,

IPART accepted WaterNSW's proposal to update the Rural Valley MSC using the cost inputs from the outsourced maintenance contract to 2019-20. However, IPART rejected the step increase which was proposed by WaterNSW into 2020-21. The step increase was based on the revised Price Schedule which applies in the event that WaterNSW decides to extend the outsourced maintenance contract for another term from 2020-21. The 2020-21 MSC was instead set by IPART at 2019-20 levels to provide an incentive for WaterNSW to test the market for meter maintenance services.

Aside from the difference in maintenance costs, we note that DPI Water omitted various cost elements in its WAMC MSC proposal compared to the Rural Valley Bulk Water MSC, including:

- Meter replacement charge to fund asset failures outside of warranty;
- Telemetry replacement charge to fund asset failures outside of warranty; and
- Some WaterNSW administration costs.

This was highlighted in the IPART consultant's report by Synergies at page 158, as reproduced below:

> *"…Indeed, we would expect that DPI Water's meter service charges would need to be at a premium to those published by the ACCC in 2014, as meters move out of their warranty period.*
>
> *However, the ACCC charges for the WaterNSW also included provision for future replacement or renewal of the meters, via a renewals annuity. DPI Water's costs do not include any renewals annuity provisions, which widens the gap between DPI Water's proposed 2017-18 charges and the ACCC..."*

The NSW Government's metering reforms will result in the transfer of ownership for the government owned meters to water users. As a result, WaterNSW believes it would be prudent to extend the contract a further year without going to tender. WaterNSW would not likely be able to attract suitable interest in a future tender in light of the uncertainty surrounding the potential contractual arrangements that may apply after the Government owned meters are transferred to water users.

Given that maintenance costs for both Rural Valley regulated meters and groundwater and unregulated meters for WAMC are derived from the same costs base, WaterNSW sees an opportunity to align the cost inputs for the MSC across both determinations, However, in light of the metering reforms currently being implemented by Government and the potential transfer of Government owned meters to water users, WaterNSW believes it is appropriate to retain the meter service charge at existing levels (in real terms) over the upcoming determination period.

14.9 Water Take Assessment Charge

14.9.1 Introduction

The WAMC Determination water take reading/assessment charge applies to water users in unregulated rivers and groundwater sources. The charge intends to recover the cost of physical meter reads for customer-owned meters and meter equivalents for the purpose of accurate account management, billing and reporting in line with the requirements of clause 6.3.1 of the WaterNSW IPART operating licence[50].

WaterNSW proposes a continuation of the water take reading/assessment charges in the 2021 Determination period. Our proposed water take assessment charge is shown below:

Table 74 – Water Take Assessment Charge (2020-21$)

Charge Type	2020-21	2021-22	2022-23	2023-24	2024-25	% Var
Water Take Charge	207.08	$416	$416	$416	$416	101%

[50] Water NSW must determine the volume of water Extracted by, or Supplied to, each of its Customers, at least annually, for the purpose of accurate account management, billing and reporting.

14.9.2 Background

Prior to 2017, DPI Water acting on behalf of WAMC contracted WaterNSW to read some groundwater and unregulated meters in inland NSW. Meter read functions were also carried out by DPI Water. WaterNSW did not inherit additional resources for these functions when it assumed responsibility for WAMC licensing and billing services in 2016.

The current water take reading/assessment charge is based on the cost incurred by DPIE under its service level agreement with WaterNSW prior to 2016.

The water take reading/assessment charge does not apply to regulated river customers. Meter reading costs in regulated river systems are recovered through the IPART 2017-2021 Rural Valley Determination fixed and variable charges. That is, the cost is recovered through the general operating expenditure allowances which are socialised through the bulk water tariffs.

Meter reading is undertaken on a fee for service basis. Under this charging structure, water users who receive the service pay for the service.

IPART listed several benefits in setting separate metering charges. For example:

- There is no risk that NOW (NSW Office of Water) will under or over recover its meter service costs, due to variations between the actual and forecast number of meter installations – as costs are only recovered from meters that are actually installed;
- Metering costs are recovered transparently, from the user that is subject to metering; and
- They are consistent with the 'impactor pays' principle.

The cost inputs and assumptions for the water take reading/assessment charge have changed significantly since the charge was introduced in the 2011 WAMC Determination, as shown in Table 75.

Table 75 – Water Take Reading/Assessment Charge Historical ($nominal)

	2011 IPART	2014-15 SLA Actuals	2016 IPART (15-16$)
Number of sites being read	Unavailable	7,918	4,197
Cost per reading (A)	$75	$97	$119
Readings per annum (frequency ratio) (B)	1.81	1.75	1.6
Meter information system cost per annum (C)	$56	N/A	N/A
Total*	$192	$169	$195**

* The water take reading/assessment charge is determined by A*B+C
** with 1.5% efficiency adjustment, as recommended by Synergies. IPART's charges are slightly lower at $193 per site per annum as the charge has been set on a present value neutral basis.

From 2011 through to 2016 the unit cost per meter read has increased, while the number of sites subject to an assessment has declined. DOI stated that it expected the number of site visits to decline over the 2016 Determination due to an expected increase in the uptake of telemetry and self-customer reads.

Table 75 sets out the number of sites subject to the water take assessment charges as reported in the IPART regulatory accounts.

Table 76 – Historical water take assessment – number of sites read

	2016 IPART	2016-17	2017-18	2018-19	2016-19 average
Number of sites read	4,197	1,688	2,436	1,680	1,935

From 2016, WaterNSW encouraged customers to report meter reads through online usage surveys. This reduced the need for a manual meter read.

These historical figures to do consider the potential impacts of the Government metering policy. The water take reading/assessment charge is based on the incremental cost of performing a manual read at each extraction site. Incremental charging arrangement may provide an additional source of revenue for WaterNSW should the number of manual licence assessments increase over the pricing determination, however the existing water take assessment charge is ill equipped to respond to the requirements of the NSW metering reforms, as we expect that the need for physical meter reads will diminish over time with the uptake of telemetry.

The actual revenue from the water take assessment charge has declined significantly over the current period compared to the 2016 Determination forecasts as shown below. The variance appears to be driven by a reduction in the number of actual physical meter reads relative to the assumptions used in the determination.

Table 77 – Revenue water take assessment charges ($2020-21)

	2016-17	2017-18	2018-19	2019-20
Number of sites read	1,688	2,436	1,680	1,935**
Actual Revenue	359,683	519,096	575,220	563,389
2016 Determination revenue forecast*	1,692,523	1,692,523	1,692,523	1,692,523
Variance	(1,332,840)	(1,173,427)	(1,117,303)	(1,129,134)

* see page 142 of the WAMC 2016-2020 Final Decision
** three year average of actual number of sites read 2016-17 to 2018-19

WaterNSW contemplates a situation where the cost of performing a water take assessment would vary depending on the risk profile of the site. A higher risk site may require increased effort and costs to manage, verify and assess take in accordance with the requirements of the IPART operating licence. The type of assessment may also differ depending on whether a telemetry unit or data logger is installed at the site.

14.9.3 Proposed water take assessment charge

WaterNSW has updated the water take assessment charge with revised cost inputs. The cost inputs are based on the current operating environment and do not take into account the potential impact of the NSW Government's metering reforms.

The charge has been quantified using a budget that contains an allocation of the WaterNSW Field Officer work force to the WAMC Determination, at a total average cost of $0.8 million per annum over 4 years inclusive of overhead.

This calculation produces an average charge of **$416 per site per annum**, assuming 1,935 sites are subject to an assessment each year using the 3 year average of actual data as reported in the IPART regulatory accounts.

The increase in the water take assessment charge is mostly driven by the allocation of a relatively fixed cost to a reduced base relative to the assumptions used in the 2016 Determination (1,935 expected sites based on a 3 average of actual reads vs 4,197 determination sites).

14.10 Meter accuracy reading deposit / charges

WaterNSW is proposing to apply the meter accuracy deposit / charges approved by IPART in its 2017 Determination of Bulk Water charges for WaterNSW. The proposed charges are set out in Table 78.

Table 78 – Proposed meter accuracy deposit / charges (2020-21$)

Category of Ancillary Charge	2020-21	2022-2025	% Var
Refundable meter accuracy deposit	1,871.75	1,750.00	-7%
Total charge (if meter is found to be within accuracy standards)			
Verification and testing in situ	$256.49	4,626.39 + 1,750 deposit	2386%
Lab verification and testing	1,871.75	6,922.88 + 1,750 deposit	363%
Meter reset fee after suspension of maintenance for a year or more, at customer request*	$256.49 + cost of parts	$256.49 + cost of parts	0%

* WaterNSW is proposing a continuation of the meter reset fee over the next determination period. An equivalent fee has not been set under the Rural Valley 2017 Bulk Water Determination.

15. Impacts of proposed prices

The equitable allocation of costs and revenue recovery across our customer base is supported by analysis of the appropriate allocation of costs between WaterNSW and other agencies.

15.1 Bill Impacts overview

This section presents the bill impact of WaterNSW's pricing proposal on water licence holders. The analysis is split into valleys and water source and compares the average bill in the 2020-21 financial year to the expected bill in each year of the 2021-25 regulatory period.

For the next determination period, 1 July 2021 to 30 June 2025, WNSW, DPIE-W and NRAR are proposing that WAMC fixed and variable charges for our regulated, unregulated, groundwater and minimum annual charge customers will be capped at a 5% increase per annum (in nominal terms).

In an environment of significantly increasing costs, this proposed price cap will be supported by a Community Service Obligation payment from the NSW Government, to protect our water customers from larger price increases, while ensuring our ability to continue to deliver WAMC services effectively.

Indicative customer bills based on average water usage are presented in Figure 27 below.

Figure 27 – Indicative customer bills (regulated, unregulated, groundwater and minimum annual charge customers 2020-21 and 2021-22 for WaterNSW, DPIE-W and NRAR charges) (2020-21$)

Capped increase of 5% per annum

Regulated Customers (1)	2020-21	2021-22
Namoi - Small	$383	$403
Namoi - Medium	$1,917	$2,013
Lachlan - Small	$258	$271
Lachlan - Medium	$1,291	$1,356
Murray - Small	$220	$231
Murray - Medium	$1,100	$1,155
Murrumbidgee - Small	$197	$207
Murrumbidgee - Medium	$987	$1,036

Unregulated Customers (2)	2020-21	2021-22
North - Small	$478	$502
North - Medium	$2,390	$2,510
Central - Small	$560	$588
Central - Medium	$2,800	$2,940
North Coast - Small	$952	$1,000
North Coast - Medium	$4,760	$4,998

Groundwater Customers (3)	2020-21	2021-22
Inland - Small	$699	$734
Inland - Medium	$3,495	$3,670
Coastal - Small	$505	$530
Coastal - Medium	$2,525	$2,651

Minimum annual charge Customers (4)	2020-21	2021-22
Total MAC	$214	$224

Bill impact resulting from the proposed DPIE / NRAR charges to allow customers to work out the combined impact of the pricing proposals of all entities that provide services on behalf of WAMC:
1- Regulated river customers are subject to a 2-part fixed and variable tariff. This analysis is provided for small customers holding 100MLs of entitlements, medium customers holding 500MLs of entitlement.
2- Unregulated river customers in the unregulated valleys of North Coast, Central (Lachlan Macquarie) and North (Border, Gwydir, Namoi, Peel). For this analysis (1 part tariff) the average fixed bill for small customers holding 100MLs of entitlements, medium customers holding 500MLs .
3- For this analysis (1 part tariff) the average fixed bill for small customers holding 100MLs of entitlements, medium customers holding 500MLs
4- The charge applies irrespective of the size of the license holding as long as the indicative fixed and variable bill does not exceed the value of the MAC.

Table 79 – Bill impacts for Regulated customers (2020-21$)

	2020-21	2021-22	2022-23	2023-24	2024-25	Bill impact p.a.
Small Customer (100ML of entitlements)						
Border	$335	$352	$369	$388	$407	5%
Gwydir	$246	$258	$271	$285	$299	5%
Namoi	$383	$403	$423	$444	$466	5%
Peel	$553	$580	$609	$640	$672	5%
Lachlan	$258	$271	$285	$299	$314	5%
Macquarie	$282	$296	$311	$326	$343	5%
Murray	$220	$231	$243	$255	$267	5%
Murrumbidgee	$197	$207	$218	$229	$240	5%
North Coast	$764	$802	$843	$885	$929	5%
Hunter	$440	$462	$486	$510	$535	5%
South Coast	$653	$686	$720	$756	$794	5%
Medium Customer (500ML of entitlements)						
Border	$1,674	$1,758	$1,846	$1,938	$2,035	5%
Gwydir	$1,230	$1,292	$1,356	$1,424	$1,495	5%
Namoi	$1,917	$2,013	$2,113	$2,219	$2,330	5%
Peel	$2,763	$2,901	$3,046	$3,199	$3,358	5%
Lachlan	$1,291	$1,356	$1,423	$1,494	$1,569	5%
Macquarie	$1,410	$1,481	$1,555	$1,632	$1,714	5%
Murray	$1,100	$1,155	$1,213	$1,273	$1,337	5%
Murrumbidgee	$987	$1,036	$1,088	$1,143	$1,200	5%
North Coast	$3,821	$4,012	$4,213	$4,423	$4,644	5%
Hunter	$2,202	$2,312	$2,428	$2,549	$2,677	5%
South Coast	$3,266	$3,429	$3,601	$3,781	$3,970	5%
Large customer (1000ML of entitlements)						
Border	$3,348	$3,515	$3,691	$3,876	$4,070	5%
Gwydir	$2,460	$2,583	$2,712	$2,848	$2,990	5%
Namoi	$3,834	$4,026	$4,227	$4,438	$4,660	5%
Peel	$5,526	$5,802	$6,092	$6,397	$6,717	5%
Lachlan	$2,582	$2,711	$2,847	$2,989	$3,138	5%
Macquarie	$2,820	$2,961	$3,109	$3,265	$3,428	5%
Murray	$2,200	$2,310	$2,426	$2,547	$2,674	5%
Murrumbidgee	$1,974	$2,073	$2,176	$2,285	$2,399	5%
North Coast	$7,642	$8,024	$8,425	$8,847	$9,289	5%
Hunter	$4,404	$4,624	$4,855	$5,098	$5,353	5%
South Coast	$6,532	$6,859	$7,202	$7,562	$7,940	5%

15.3 Unregulated customers

The table below sets out the bill impact of unregulated river customers in the unregulated valleys.

Unregulated river customers with a meter or meter equivalent are subject to a 2-part fixed and variable tariff. Unregulated river customers without a meter or meter equivalent are subject to a 1-part fixed charge.

For the analysis of the impact of the 2-part tariff, WaterNSW has assumed an average customer would use 60% of their allocation in any given year. This analysis is provided for small customers holding 100MLs of entitlements, medium customers holding 500MLs of entitlement and large customers holding 1,000MLs of entitlements.

For the analysis of the impact of the 1-part tariff, WaterNSW has calculated the average fixed bill for small customers holding 100MLs of entitlements, medium customers holding 500MLs of entitlement and large customers holding 1,000MLs of entitlements.

Table 80 – Bill impacts for Unregulated customers on a 1-part tariff (2020-21$)

	2020-21	2021-22	2022-23	2023-24	2024-25	Bill impact p.a.
Small Customer (100ML of entitlements)						
Border	$478	$502	$527	$553	$581	5%
Gwydir	$478	$502	$527	$553	$581	5%
Namoi	$478	$502	$527	$553	$581	5%
Peel	$478	$502	$527	$553	$581	5%
Lachlan	$560	$588	$617	$648	$681	5%
Macquarie	$560	$588	$617	$648	$681	5%
Far West	$666	$699	$734	$771	$810	5%
Murray	$685	$719	$755	$793	$833	5%
Murrumbidgee	$908	$953	$1,001	$1,051	$1,104	5%
North Coast	$952	$1,000	$1,050	$1,102	$1,157	5%
Hunter	$343	$360	$378	$397	$417	5%
South Coast	$324	$340	$357	$375	$394	5%
Medium Customer (500ML of entitlements)						
Border	$2,390	$2,510	$2,635	$2,767	$2,905	5%
Gwydir	$2,390	$2,510	$2,635	$2,767	$2,905	5%
Namoi	$2,390	$2,510	$2,635	$2,767	$2,905	5%
Peel	$2,390	$2,510	$2,635	$2,767	$2,905	5%
Lachlan	$2,800	$2,940	$3,087	$3,241	$3,403	5%
Macquarie	$2,800	$2,940	$3,087	$3,241	$3,403	5%
Far West	$3,330	$3,497	$3,671	$3,855	$4,048	5%
Murray	$3,425	$3,596	$3,776	$3,965	$4,163	5%
Murrumbidgee	$4,540	$4,767	$5,005	$5,256	$5,518	5%
North Coast	$4,760	$4,998	$5,248	$5,510	$5,786	5%
Hunter	$1,715	$1,801	$1,891	$1,985	$2,085	5%
South Coast	$1,620	$1,701	$1,786	$1,875	$1,969	5%
Large customer (1000ML of entitlements)						
Border	$4,780	$5,019	$5,270	$5,533	$5,810	5%
Gwydir	$4,780	$5,019	$5,270	$5,533	$5,810	5%
Namoi	$4,780	$5,019	$5,270	$5,533	$5,810	5%
Peel	$4,780	$5,019	$5,270	$5,533	$5,810	5%
Lachlan	$5,600	$5,880	$6,174	$6,483	$6,807	5%
Macquarie	$5,600	$5,880	$6,174	$6,483	$6,807	5%
Far West	$6,660	$6,993	$7,343	$7,710	$8,095	5%
Murray	$6,850	$7,193	$7,552	$7,930	$8,326	5%
Murrumbidgee	$9,080	$9,534	$10,011	$10,511	$11,037	5%
North Coast	$9,520	$9,996	$10,496	$11,021	$11,572	5%
Hunter	$3,430	$3,602	$3,782	$3,971	$4,169	5%
South Coast	$3,240	$3,402	$3,572	$3,751	$3,938	5%

Table 81 – Bill impacts for Unregulated customers on a 2-part tariff (2020-21$)

	2020-21	2021-22	2022-23	2023-24	2024-25	Bill impact p.a.
Small Customer (100ML of entitlements)						
Border	$379	$398	$418	$439	$461	5%
Gwydir	$379	$398	$418	$439	$461	5%
Namoi	$379	$398	$418	$439	$461	5%
Peel	$379	$398	$418	$439	$461	5%
Lachlan	$444	$466	$489	$514	$539	5%
Macquarie	$444	$466	$489	$514	$539	5%
Far West	$565	$593	$623	$654	$687	5%
Murray	$517	$542	$570	$598	$628	5%
Murrumbidgee	$676	$709	$745	$782	$821	5%
North Coast	$755	$793	$832	$874	$917	5%
Hunter	$258	$271	$284	$298	$313	5%
South Coast	$264	$278	$292	$306	$321	5%
Medium Customer (500ML of entitlements)						
Border	$1,896	$1,991	$2,090	$2,195	$2,305	5%
Gwydir	$1,896	$1,991	$2,090	$2,195	$2,305	5%
Namoi	$1,896	$1,991	$2,090	$2,195	$2,305	5%
Peel	$1,896	$1,991	$2,090	$2,195	$2,305	5%
Lachlan	$2,218	$2,329	$2,445	$2,568	$2,696	5%
Macquarie	$2,218	$2,329	$2,445	$2,568	$2,696	5%
Far West	$2,824	$2,965	$3,113	$3,269	$3,433	5%
Murray	$2,583	$2,712	$2,848	$2,990	$3,140	5%
Murrumbidgee	$3,378	$3,547	$3,724	$3,910	$4,106	5%
North Coast	$3,774	$3,963	$4,161	$4,369	$4,587	5%
Hunter	$1,289	$1,353	$1,421	$1,492	$1,567	5%
South Coast	$1,322	$1,388	$1,458	$1,530	$1,607	5%
Large customer (1000ML of entitlements)						
Border	$3,792	$3,982	$4,181	$4,390	$4,609	5%
Gwydir	$3,792	$3,982	$4,181	$4,390	$4,609	5%
Namoi	$3,792	$3,982	$4,181	$4,390	$4,609	5%
Peel	$3,792	$3,982	$4,181	$4,390	$4,609	5%
Lachlan	$4,436	$4,658	$4,891	$5,135	$5,392	5%
Macquarie	$4,436	$4,658	$4,891	$5,135	$5,392	5%
Far West	$5,648	$5,930	$6,227	$6,538	$6,865	5%
Murray	$5,166	$5,424	$5,696	$5,980	$6,279	5%
Murrumbidgee	$6,756	$7,094	$7,448	$7,821	$8,212	5%
North Coast	$7,548	$7,925	$8,322	$8,738	$9,175	5%
Hunter	$2,578	$2,707	$2,842	$2,984	$3,134	5%
South Coast	$2,644	$2,776	$2,915	$3,061	$3,214	5%

15.4 Groundwater customers

The table below sets out the bill impact of groundwater in the groundwater regions of Inland, Murrumbidgee and Coastal.

Groundwater customers with a meter or meter equivalent are subject to a 2-part fixed and variable tariff. Groundwater customers without a meter or meter equivalent are subject to a 1-part fixed charge.

For the analysis of the impact of the 2-part tariff, WaterNSW has assumed an average customer would use 60% of their allocation in any given year. This analysis is provided for small customers holding 100MLs of entitlements, medium customers holding 500MLs of entitlement and large customers holding 1,000MLs of entitlements.

For the analysis of the impact of the 1-part tariff, WaterNSW has calculated the average fixed bill for small customers holding 100MLs of entitlements, medium customers holding 500MLs of entitlement and large customers holding 1,000MLs of entitlements.

Table 82 – Bill impacts for Groundwater customers on a 1-part tariff (2020-21$)

	2020-21	2021-22	2022-23	2023-24	2024-25	Bill impact p.a.
Small Customer (100ML of entitlements)						
Inland	$699	$734	$771	$809	$850	5%
Murrumbidgee	$464	$487	$512	$537	$564	5%
Coastal	$505	$530	$557	$585	$614	5%
Medium Customer (500ML of entitlements)						
Inland	$3,495	$3,670	$3,853	$4,046	$4,248	5%
Murrumbidgee	$2,320	$2,436	$2,558	$2,686	$2,820	5%
Coastal	$2,525	$2,651	$2,784	$2,923	$3,069	5%
Large customer (1000ML of entitlements)						
Inland	$6,990	$7,340	$7,706	$8,092	$8,496	5%
Murrumbidgee	$4,640	$4,872	$5,116	$5,371	$5,640	5%
Coastal	$5,050	$5,303	$5,568	$5,846	$6,138	5%

Table 83 – Bill impacts for Groundwater customers on a 2-part tariff (2020-21$)

	2020-21	2021-22	2022-23	2023-24	2024-25	Bill impact p.a.
Small Customer (100ML of entitlements)						
Inland	$574	$602	$633	$664	$697	5%
Murrumbidgee	$381	$400	$420	$441	$463	5%
Coastal	$373	$392	$412	$432	$454	5%
Medium Customer (500ML of entitlements)						
Inland	$2,869	$3,012	$3,163	$3,321	$3,487	5%
Murrumbidgee	$1,904	$1,999	$2,099	$2,204	$2,314	5%
Coastal	$1,867	$1,960	$2,058	$2,161	$2,269	5%
Large customer (1000ML of entitlements)						
Inland	$5,738	$6,025	$6,326	$6,642	$6,975	5%
Murrumbidgee	$3,808	$3,998	$4,198	$4,408	$4,629	5%
Coastal	$3,734	$3,921	$4,117	$4,323	$4,539	5%

15.5 Minimum annual charge customers

The table below sets out the bill impact for small customers who are subject to the MAC. The charge applies irrespective of the size of the licence holding as long as the indicative fixed and variable bill does not exceed the value of the MAC.

Table 84 – Bill impacts for customers subject to the MAC (2020-21$)

	2020-21	2021-22	2022-23	2023-24	2024-25	Bill impact p.a.
All MAC customers	214	224	236	247	260	5%

16. Impacts on financeability

WaterNSW supports IPART's use of the financeability test and encourages IPART to ensure that its final determination supports an indicative credit rating that is 'investment grade' of Baa1 or above.

In 2018, IPART reviewed the financeability test it uses as part of its price regulation process. When making price determinations for regulated businesses, IPART uses a financeability test (the 2018 test) to assess how its pricing decisions are likely to affect the business's financial sustainability and ability to raise funds to manage its activities, over the regulatory period.[51]

IPART previously reviewed the financeability test in 2013[52] (the 2013 test) and made small changes in early 2015.[53] The general feedback IPART received from stakeholders during consultation for the 2018 test was that the 2013 financeability test worked well and that reviewing the approach to financeability is "*important in ensuring that IPART's approaches to regulation remain fit for purpose over time, reflect evolving regulatory best practice, and are well understood by all stakeholders*."[54]

The objectives of the financeability test are to:

- Ensure IPART's pricing decisions would allow an efficient investment grade rated business to raise finance during the regulatory period (benchmark test); and
- Assess whether the utility would meet this benchmark (actual test) during the regulatory period.

IPART's 2018 test maintains a number of elements from the 2013 test, including that IPART will continue to:

- Conduct a quantitative assessment of financeability
- Conduct a financeability test if:
  - the prices IPART regulates determines the revenues of the business, and
  - the business has, or is part of an entity with, a distinct capital structure;
- Conduct the test on the regulated portion of the business, as a default, and
- Retain a BBB[55] target credit rating.

IPART made a number of refinements in its 2018 test, including to:

- Incorporate both a benchmark test (assuming a real cost of debt), and an actual test (using the business's actual cost of debt);
- Set a single target ratio for each financial metric rather than a range (as per the 2013 test) to increase simplicity and eliminate the overlap of ratios;
- Adopt a clearer process for identifying a financeability concern; and
- Tailor the remedy for a financeability concern to its source.

In setting prices, IPART aims to ensure that utilities are financially sustainable so that they can recover their efficient costs over the long-term. Under IPART's building block model, IPART sets prices to recover the efficient costs of a benchmark business. This includes a market-based rate

[51] IPART Review of our financeability test – Final Report, November 2018. Page 1.
[52] Refer to https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/final_decision_-_financeability_tests_in_price_regulation_-_december_2013.pdf
[53] Refer to https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/fact_sheet_-_final_decision_-_financeability_ratios_-_april_2015.pdf
[54] Ibid. Page 1. The quotation provided refers to the SDP submission to the IPART Issues Paper, June 2018, page 1.
[55] According to IPART, an S&P Global credit rating of BBB is equivalent to a Moody's Baa2 credit rating. Note that we use a BBB credit rating when setting the Weighted Average Cost of Capital (WACC). Financeability Test Final Report November 2018, page 2.

of return for equity and debt holders. Robust financial health of utility businesses is generally considered to be in the best interests of customers.

If a service provider is not financially viable, it may not be able to guarantee services to customers and this may result in higher prices over the long term. Poor financial health may also lead to under-investment in assets and / or their maintenance, which could in turn lead to higher lifetime expenditure on assets (and consequently higher prices) and poorer quality services.

IPART's financeability test assesses the short-term financial sustainability of the utility – whether the utility will be able to raise the necessary debt financing, consistent with an investment grade-rated firm, during the regulatory period.

16.1.1 Target credit rating of BBB

IPART intends to use the same target credit rating in the financeability test as it uses when setting the WACC. According to IPART, this target credit rating ensures consistency with the WACC and achieves the objectives of the financeability test to assess whether the regulatory decisions are sufficient to maintain the financeability of a benchmark efficient business.

Based on the credit rating metrics calculated in IPART's water model (provided as an attachment to this pricing proposal), the revenues and prices proposed by WaterNSW would result in acceptable financial and credit rating metrics.

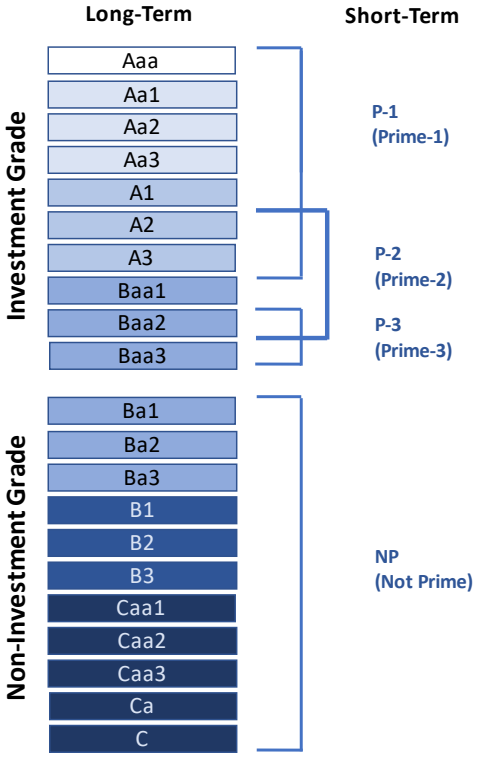
IPART uses the S&P Global BBB credit rating when setting the WACC. An S&P Global BBB credit rating is equivalent to a Moody's Baa2 credit rating and a Fitch Rating BBB credit rating.[56]

IPART's 2018 test sets a threshold (i.e., a minimum or maximum) value for each ratio that a BBB rated business would meet under IPART's building block approach. According to Moody's, any of the 'Baa' ratings suggests moderate credit risk, with firms "considered medium-grade and as such may possess speculative characteristics".[57]

As outlined in Figure 27 below, a credit rating in the Baa range is at the low end of what Moody's considers 'investment' grade.

[56] IPART *Review of our financeability test – Final Report, November 2018*. Page 35.
[57] Moody's Rating Scale and definitions, https://www.moodys.com/sites/products/ProductAttachments/AP075378_1_1408_KI.pdf

Figure 28 – Moody's rating scale



Source: Moody's rating scale[58]

WaterNSW supports IPART's use of the financeability test and encourages IPART to ensure that its final determination supports an indicative credit rating that is 'investment grade' of **Baa1 or above**.

[58] Moody's Rating Scale and definitions, https://www.moodys.com/sites/products/ProductAttachments/AP075378_1_1408_KI.pdf. Page 1.

17. Quality assurance

sapere research group

29 June 2020

Mr Stevan Munic
Regulatory Economist
WaterNSW
Level 13, 169 Macquarie Street
Parramatta, NSW 2150

Water Licensing and Monitoring Services from 1 July 2021
Quality Assurance Review Findings

Sapere Research Group ("**Sapere**" or "**we**") has undertaken quality assurance procedures over the WaterNSW Pricing Proposal to the Independent Pricing and Regulatory Tribunal: Regulated prices for Regulated prices for Water Licensing and Monitoring Services from 1 July 2021 (**Pricing Submission**) prepared by WaterNSW. This letter sets out the procedures we have undertaken and the findings of these procedures.

Scope Limitations
The scope of our engagement does not provide for an absolute opinion on the accuracy and completeness of information provided in the Pricing Submission.

We have not been requested, nor have we undertaken, an audit of the information in the Pricing Submission. Our findings are limited to the procedures we have undertaken.

Procedures
We have reviewed the Pricing Submission, in accordance with the following guidelines provided by IPART [Guidelines for Water Agency Pricing Submissions November 2018]:

1. Information in your pricing submission is consistent with the information return (AIR and SIR), your financial accounts, and reports against output measures, as relevant. Where there are variations in figures, these need to be explained.
2. Figures in your pricing submission are accurate and correctly sourced. The figures need to sum correctly. Your use of nominal or real dollars should also be explained in clear and simple terms so that stakeholders can follow the logic of their use.
3. Your pricing submission addresses all the information we have requested (such as in the SIP or the Issues Paper, these Guidelines, or in correspondence [for the purpose of this QA -- IPART's SIP letter]).
4. Your pricing submission includes proposed prices for all your regulated services.

Only procedures stated in this letter have been undertaken in our quality assurance review.

For the avoidance of any doubt, we highlight the following examples of aspects of the Pricing Submission which are not included in the scope of this quality assurance review:

1. reviewing non-financial information;
2. reviewing the methodology applied by WaterNSW;
3. reviewing supporting documents, which were previously developed for other purposes (e.g. Cost Allocation Manual);
4. checking the accuracy of all calculations in WaterNSW workings; and

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Ph +61 2 9234 0200

5. ensuring the accuracy of source data relied upon by WaterNSW.

Findings

In conducting the review, we identified matters which we believe WaterNSW has subsequently addressed.

We understand that to meet the performance measures reporting requirements for the Pricing Submission, WaterNSW will include an attachment of their performance against the measures set at the last review alongside the submission. This attachment and the customer complaints information in the submission will be updated later in September for the 2019-20 financial year results if required by IPART, which we understand has been acceptable practice for IPART in the past.

We understand that IPART requested a capex forecast from 2021-22 to 2030-31. However, to be consistent with reporting period specified in the Treasury Guidelines TPP 05-2 Reporting and Monitoring Policy for Government Businesses, a capex forecast is only available up to 2029-30[1]. We understand that this was accepted for the Greater Sydney submission and hence, we assume this limited forecast will also be acceptable in the Pricing Submission.

These qualifications aside, we conclude that we have no reason to believe that the WaterNSW's Pricing Submission does not comply.

Independence

The quality assurance procedures have been undertaken by staff members of Sapere that have not been involved in the preparation of the Pricing Submission.

[redacted]

Dr Richard Tooth
Director
Sapere Research Group Pty Ltd

Sydney
29th June 2020

1 https://www.treasury.nsw.gov.au/sites/default/files/pdf/TPP05-2_Reporting_and_Monitoring_Policy_for_Government_Businesses.pdf

18. CEO Declaration

In accordance with the Guidelines for Water Agency Pricing Submissions, November 2018 (the Guidelines), of the Independent Pricing and Regulatory Tribunal of New South Wales, I declare that:

a) the information provided in our pricing submission submitted on 30 June 2020 is the best available information of the financial and operational affairs of WaterNSW and has been checked in accordance with the Guidelines; and

b) there are no circumstances of which I am aware that would render the information provided to be misleading or inaccurate.

Certified by the Acting Chief Executive Officer:

_____

Andrew George
Acting Chief Executive Officer

Dated

Appendix 1 – Approach to non-urban metering reform

1 Purpose

Cost recovery for meter reading and related services under the WAMC and rural valleys determinations

The purpose of this Appendix is to explain the activities that WaterNSW is currently carrying out and will carry out on an ongoing basis as a result of the non-urban water metering reforms of the NSW Government.

2 Current services and charges

Currently, WaterNSW provides a range of metering-related services to customers in regulated rivers and, for the WAMC, in unregulated rivers. The metering related services and corresponding charges can be described as follows:

Table 85 – Metering-related services provided by WaterNSW

WAMC Determination 2016	Rural Valleys Determination 2017
Meter service charges apply to meters installed under the NSW metering scheme on unregulated rivers. This charge covers the cost of operating, maintaining and reading the Government owned meters, as well as the costs of information systems to process water meter data. The meter service charge is applied annually, and the charge varies according to whether the site is telemetered or manually read. There is a sliding scale of charges from 50 mm through to 1000mm.	**Meter service charges** apply to meters installed under the NSW metering scheme on regulated rivers. This charge covers the cost of operating, maintaining and reading the WaterNSW owned meters, as well as the costs of information systems to process water meter data. The meter service charge is applied annually and the charge varies according to whether the site is telemetered or manually read. There is a sliding scale of charges from 50 mm through to 1000mm.
Water take reading/assessment charges apply to water users in unregulated rivers and groundwater sources where meters are read, or water take is otherwise determined, by DPIE-W. The charge only applies to privately owned meters where the meter is not telemetered, and the customer does not supply the reading. The charge recovers DPIE-W's cost of measuring water take. According to IPART's determination, at the time DPI Water contracted WaterNSW to read meters in inland NSW on its behalf.	**Water reading and assessment charges** are recovered through bulk water charges (and are based on between two and four reads annually) for customers on regulated rivers.
Ancillary services charges are billed on a fee for service basis. These relate to meter laboratory verification, meter in-situ validation and meter restarts.	**Miscellaneous metering charges** are billed on a fee for service basis. These relate to verification and testing in situ and laboratory verification and testing.

3 Non-urban water metering reforms in NSW

The NSW Government is implementing a new metering framework for non-urban water take in NSW. The key objectives of the metering framework are that:

- The vast majority of licensed water take is accurately metered;
- Meters are accurate, tamper proof and auditable;
- Undue costs on smaller water users are minimised; and
- Metering requirements are practical and can be implemented effectively.

The major element of this framework is introduction of a mandatory metering condition in licences requiring metering equipment that meets specified standards plus telemetry (or 'telemetry ready' data loggers) to be installed, used and properly maintained on all water supply work approvals above a certain threshold.

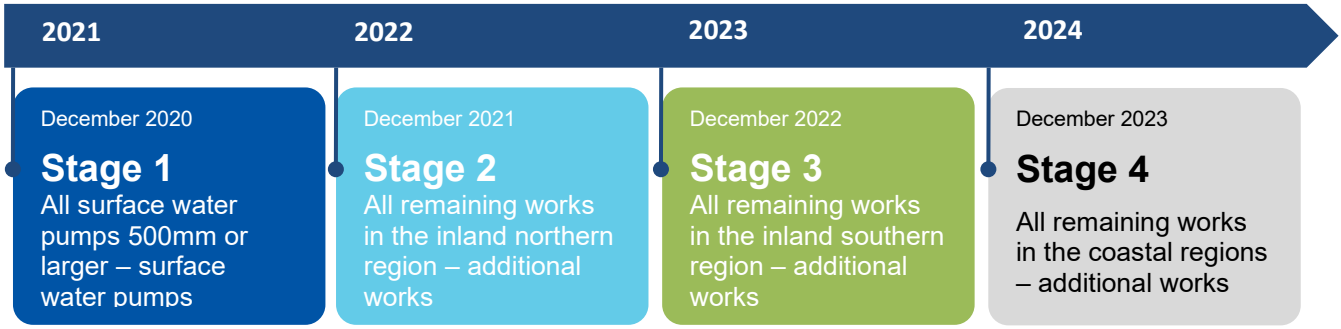
Under the new framework, water users with works that meet one or more of the metering thresholds will be required to have a meter:

- Already required to have a meter or measure water take;
- Infrastructure size;
- Multiple works; or
- At-risk groundwater source.

The *Water Management (General) Regulation (2018)* (Regulation) sets out the requirements that must be complied with by all holders of approvals, licences and entitlements who are subject to the mandatory metering condition. It also prescribes which approval holders are exempted from the mandatory metering condition, based on thresholds. The regulation contains new record-keeping rules for holders of approvals, licences and entitlements, and a new process for faulty meters.

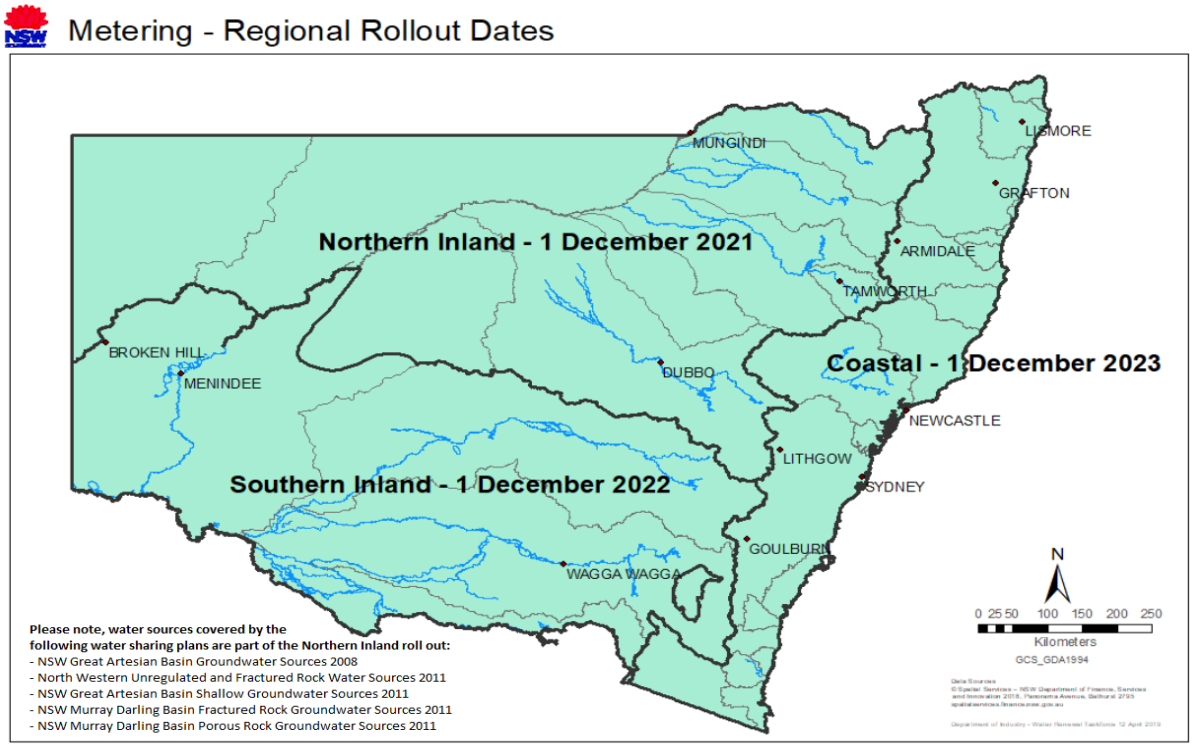
The new metering framework has commenced and will be rolled out over a five-year basis, starting with the largest consumers of water (i.e. the largest works) and then rolling out on a region by region basis. The remaining transition to the new metering requirements is as detailed in the figure below:[59]

Figure 29 - Transition timeline for non-urban metering reform



[59] These numbers are taken from the DPIE-water website.

Figure 30 – Non-urban metering reform – regional rollout dates



A summary of the non-urban metering regulatory framework is set out in **Appendix 1A**.

4 Impact of reforms on WaterNSW

The non-urban metering framework will have a significant impact on the WaterNSW business; including current services related to metering, and integration of new systems and data to carry out existing functions. A project has been in place to determine that impact; identify what needs to be done for implementation and then managed on an ongoing basis.

As part of the reforms, it is proposed that existing metering functions conferred on WaterNSW are amended and some new functions will be conferred. In addition some new licence conditions are also proposed. **Appendix 1B** provides a summary of those changes, as currently understood.

4.1 Current activities

Given the phased transition to the new provisions, the current metering related services (and associated business activities) that WaterNSW provides will continue for a period. As a result, the current charges and fees will be maintained in some form and repriced to reflect current costs of undertaking the activities, some of which will decline in volume over time.

The only activity which WaterNSW will cease to undertake at all as a result of the reforms is maintenance of certain Government owned meters. Based on current timeframes, the transfer of around 2,000 Government owned meters will occur from 1 December 2020 through to 1 December 2023. These meters will also require verification that they comply with the new metering obligations. Given the costs associated with this verification, DPIE-W is working with NSW Treasury to seek some Government funding towards verification (otherwise the owners of the meters will have to pay for this). Alternatively, other arrangements are being considered.

While WaterNSW currently undertakes meter reading, this activity will increase. As a result of the reforms approximately 21,000 new meters will need to be installed. Approximately 4,500 of these

new meters will also require telemetry. The remaining meters are not required to include telemetry. These meters will need to be manually read at least once a year to interrogate the data loggers and verify metering data provided by end users during the previous 12 months. The increased meter reading and interrogation activity will occur gradually, consistent with the timetable.

4.2 Implementation activities

The major implementation tasks that WaterNSW is undertaking to support the reforms are:

- Transfer of Government owned meters.
- Hosting of the Data Acquisition Service ("**DAS**") and its establishment for ongoing operation and maintenance to be managed by WaterNSW. The Department has procured a cloud-based DAS that will collect, and store data received from meters. From the DAS, data will be provided to DPIE-W and NRAR for their purposes. Individual water users will also be able to access their own information. WaterNSW will host and operate the DAS.
- The reforms include the creation of a new role, a Duly Qualified Person ("**DQP**") who is appropriately qualified to install and validate meters. WaterNSW has been developing a DQP Portal to enable DQPs to register new or replaced meters, telemetry if required, and fill-in online and submit the different DQP certificates listed below within seven days of installing or validating their work.
- Development of education and communications materials that will help explain to customers the nature of their obligations. Water users need to understand what they must do, by when and how they might comply or be exempted from compliance. This material needs to be reviewed from legal, regulatory and business operational perspectives. Staff need to undergo training in the new requirements.
- Informing customers of the new obligations and supporting them through the implementation process, for example, through increased inquiries, calls, site visits, and complaints. This will occur over the duration of the rollout. This involves development of materials such as mail outs, contact centre scripts, web text, FAQs, guidance for field officers, guidance and support for DQPs and others.
- Project management to oversee and undertake the necessary tasks so that the business is complying with relevant obligations and meeting expectations of the Minister, Department, other regulators and customers.

4.3 Ongoing activities

In addition to meter reading, the ongoing reform related activities for WaterNSW can be summarised as follows:

- Operating, maintaining and enhancing, over time, the DAS and DQP portal; and DQP training support.
- Co-ordinating and liaising with the DPIE-W and NRAR regarding the information that they need from the DAS and DQP portal for their own functions, as that evolves over time.
- Managing exemption requests, faulty meter notification process and other approvals.
- Managing changes to telemetry specifications.
- Third party telemetry options.

More detailed descriptions of the activities are set out in **Appendix 1C**.

Appendix 1A

Below is a summary of the provisions, prepared to help identify and provide support for the implementation activities and ongoing business impacts of the reforms for WaterNSW.

New or replacement meters to be installed

The meter reforms require that new or replacement metering equipment must be:

- Maintained in accordance with defined specifications. All surface water works except for pumps below 200 mm must be fitted with an accurate meter and compatible local telemetry device ("**LID**") that meets the functional and security requirements of the Data Acquisition Service – see below; and
- Validated by a duly qualified person every 5 years (or annually if open channel).

Users will pay for the cost of installing and maintaining metering equipment that meets the defined specifications. To enable secure transmission of meter data, a cloud-based DAS will collect, and store data received from compatible devices.

WaterNSW will not install and maintain customer meters.

Requirements for new meters and maintenance

Water users can keep their existing meter if it is pattern-approved and validated or confirmed as accurate. Meters that cannot comply must be replaced with a pattern-approved meter that is installed by a duly qualified person. It is likely that a significant proportion of existing meters will need to be replaced.

WaterNSW is currently preparing an online tool for DQPs to electronically submit relevant certificates. This includes certificates to confirm that existing meters meet the new specifications. WaterNSW is also undertaking some service inspections.

A number of meters will also need to be fitted with a listed local intelligent device (LIDs) and tamper-evident seals and, where applicable, telemetry. The Maintenance Specifications 2019 set out the maintenance that needs to be carried out in relation to metering equipment, the frequency of maintenance and whether the maintenance needs to be carried out by a duly qualified person or if it can be carried out by the holder of the approval or licence.

These maintenance requirements apply to all meters from the metering roll-out date, and they apply now to any new or replacement meter installed on or after 1 April 2019.

Data Acquisition Service

To enable the secure transmission of meter data, the department has procured a cloud-based DAS that will collect, and store data received from compatible LIDs. Data collected by the DAS will assist the NRAR, WaterNSW and the Department to undertake compliance and enforcement, river operations, billing and other water management activities. Water users will also be able to access their information via a private online dashboard.

Faulty meters and telemetry

All water users must report faulty metering equipment within 24 hours to WaterNSW. An offence applies for failing to report faulty metering equipment within 24 hours. Metering equipment includes telemetry.

Through hosting the DAS, WaterNSW will receive automatic notification of some faults with telemetry devices in field.

Under the new arrangements, faulty meters are to be reported to WaterNSW by customers including the alternative water take assessment procedures.

Duly qualified persons

DQPs, such as certified meter installers and certified practising hydrographers, play a key role in the metering rules. A DQP will be able to advise on how to comply with the rules and what meter, data logger and telemetry device is right for works that fall within the framework. Water users must use a DQP to carry out certain work in relation to their metering equipment, including installation, certain maintenance requirements, validation and checking the accuracy of an existing meter.

Installation of metering equipment includes both initial installation of the metering equipment and any re-installation if it is removed for maintenance. Metering equipment includes telemetry.

There are offences in the Act and regulations that apply to DQPs:

- For a person to make a statement or furnish information in connection with a metering record the person knows to be false or misleading under section 91J of the Act;
- For a person to fail to report metering equipment not working under section 91IA of the Act; and
- For a duly qualified person who fails to comply with the obligations of a DQP under clause 237(5) of the regulations.

WaterNSW has been developing a DQP Portal to enable DQPs to register new or replaced meters, telemetry if required, and fill-in online and submit the different DQP certificates listed below within seven days of installing or validating their work.

Under clauses 236, 237 and Schedule 8 of the regulations, there are four approved forms on metering that need to be submitted to the Minister, which in this case is WaterNSW (once functions are conferred):

a) DQP validation certificate,
b) DQP certificate of accuracy for existing meters (non-pattern approved),
c) DQP design certificate for open channel metering equipment and
d) Water user report to rely on transitional arrangement to keep existing metering equipment.

The forms must give effect to the policy and regulation requirements.
Communications with DQPs is done via the certifying bodies and member organisations. The certifying body for certified meter installers and validators is Irrigation Australia. The Australian Hydrographers Association is the body for certified practising hydrographers.

Irrigation Australia and the Australian Hydrographers Associations will be the NSW representatives participating in the Review of Metrological Assurance Framework (MAF). This review, which ends at the end of 2020 may impact on the content of the AS4747.

Tamper Evident Seals

Under the metering rules, metering equipment must have tamper evident seals to show whether the equipment has been interfered with. Metering equipment includes the meter itself plus any ancillary wiring, pipework, telemetry equipment or apparatus and any supporting structure. Only DQPs, NRAR officers or WaterNSW staff may install or break a tamper evident seal.

Under the metering rules, the NSW Government has appointed Irrigation Australia as the approved provider of all tamper-evident seals. The supply of tamper evident seals Order was signed on 16 March 2020. Only current duly qualified persons can purchase seals.

Exemption for inactive works

Inactive works are not required to have a meter. This applies to both surface and groundwater works. Before a work will be tagged as inactive, the water user needs to demonstrate the work is not physically capable of taking water.

To register a work as inactive, WaterNSW customers should apply through WaterNSW and local government water authorities and other Department customers should apply through the NRAR.

Appendix 1B

DPIE-W has proposed new operating licence conditions for WaterNSW:

6.19 Online portal for lodgement of documents relating to metering equipment

6.19.1 Water NSW must develop, operate and maintain an on-line portal to allow for the electronic lodgement of the following:
- a) a certificate provided under clause 237(1) or (2) of the Water Management Regulation 2000, as required by clause 238(2) of that Regulation,
- b) a report by a person who intends to rely on clause 8 of Schedule 8 of the Water Management Regulation 2000 setting out the steps taken in relation to the metering equipment, as required by clause 8(3) of that Regulation,
- c) written certification as to the matter set out in clause 9(2)(b) of Schedule 8 of the Water Management Regulation 2000,
- d) report from a person who intends to rely on clause 9 of Schedule 8 of the Water Management Regulation 2000, setting out the steps taken in relation to the metering equipment.

6.19.2 The portal must be operational by 1 December 2020.

6.20 Downloading of data from certain metering equipment

6.20.1 This clause applies to any metering equipment used in conjunction with the works described in clause 6(2) of Schedule 8 of the Water Management (General) Regulation 2018.

6.20.2 Water NSW must, at least once a year, download all data from the metering equipment to which this clause applies.

6.20.3 All such data must be entered into and retained in Water NSW's data systems.

6.20.4 All such data must be made available to DPIE and NRAR on request.

6.20.5 The obligations imposed by this clause take effect from 1 December 2021.

6.21 Data sharing and services agreement with DPIE and NRAR – NSW non-urban metering framework

6.21.1 Water NSW must develop and enter into a data sharing and services agreement with DPIE and NRAR as soon as practicable after 1 July 2020 or by a date approved by the Minister in writing (the Metering Data Sharing and Services Agreement).

[Note: The Metering Data Sharing and Services Agreement is in addition to the MWP Data Sharing Agreement described in clause 2.9.6 and the Data Access and Services Agreement described in clause 6.18.]

6.21.2 The Metering Data Sharing and Services Agreement is to record the terms and conditions on which WaterNSW will provide access to the data and services relating to the NSW non-urban metering framework to DPIE and to the NRAR.

6.21.3 Once Water NSW has entered into the Metering Data Sharing and Services Agreement it must comply with that Agreement. In particular, Water NSW must

provide access to the data and services under that Agreement to DPIE and NRAR, in accordance with that Agreement.

6.21.4 If by 1 July 2020, Water NSW, DPIE and NRAR have entered into an agreement as required by this clause, clause 6.21.3 applies to that agreement.

Appendix A of the WaterNSW operating licence lists the conferred functions. As a result of the new non-urban metering framework, new functions are proposed for conferral. These include the provisions in the table below:

Table 86 - New functions for conferred services as a result of non-urban reforms

237(1)	Approve the form and manner of a certificate relating to the design of metering equipment for an open channel for the purposes of clause 2(3) of Schedule 8 of the Water Management (General) Regulation 2018
237(2)	Approve the form and manner of a certificate relating to the matters in clause 237(2)(a) and (b)
237(3)	Approve the form and manner of a certificate certifying the matters set out in clause 237(3)
238(2)	Receive from the holder of an authority a copy of a certificate provided under clause 237(1) or (2)
244(2)(a) and (b) 244(2A)?	Approve the form and manner of the records referred to in clause 244(2)(a) and (b)
244(2B)	Approve the form and manner of giving of a record under clause 244(2)(a) and receive such a record
244A(2)	Receive report from holder of an authority as described in clause 244A(2)
244A(3)	Approve the form and manner of a report described in clause 244A(2)
250(2A)	Approve the form and manner of the record made under clause 250
250(2B)	Approve the form and manner of the record made under clause 250(1)(a), (b) or (c) and receive such record from the holder of an authority
250(2C)	Approve the form and manner of the record referred to in clause 250(2C) and receive such record from the holder of an authority
258(2)	Modify metering equipment owned by the Ministerial Corporation, in the circumstances described in clause 258(2)
258(3)	Exercise the function specified in section 372A(2) of the Water Management Act 2000 exclusively in relation to the equipment described in clause 258(3)
Sch 8, cl 8(3)	Receive a report from a person who intends to rely on clause 8 of Schedule 8 setting out the steps taken in relation to the metering equipment
Sch 8, cl 8(4)(b)	Approve the form and manner of a report referred to in clause 8(3) of Schedule 8

Sch 8, cl 9(5)	Receive report from a person who intends to rely on clause 9 of Schedule 8, setting out the steps taking in relation to the metering equipment
Sch 8, cl 6(b)	Approve the form and manner of a report referred to in clause 9(5) of Schedule 8

Appendix 1C

The following table provides current BAU activities that will/may cease, reduce or need to change significantly.

Table 87 – BAU activities that may cease, reduce or change due to metering reform

Activity	Description
Operating and maintaining meters	Operating and maintaining Government/WaterNSW owned meters will cease as they are transferred to landholders over a transition period that will extend to 1 December 2023.
Manual meter reading	Manual Meter reading and water assessment activities in the field will change as meters with telemetry are installed. Meters with telemetry will not need to be read manually. It is anticipated that of the approximately 21,000 additional meters that will be installed during the rollout, about 16,500 will still require water take to be assessed manually. Water users will need to report their water take but this will need to be verified annually. WaterNSW will be responsible for the verification. It will involve a visit to sites and download of data loggers. This activity needs to be conducted by a DQP as seals on cabinets will need to be broken and refixed. Currently WaterNSW has 17 DQPs. Additional DQPs will be required to manage increased numbers of verifications to be carried out. Allocating water take across multiple licences will continue and be likely to increase. Manual meter reading for verification will increase the number of site visits and field services provided by WaterNSW. It is estimated that 75% of all meters will be for customers taking water from unregulated and groundwater sources (WAMC)
Meter accuracy and testing	WaterNSW has the capability to provide this service – it is done on a fee for service basis.
Operating existing TMS x2 (ClearSCADA and Hydrotel)	Operating and maintaining telemetry system for Government/WaterNSW meters. Clearscada connected field telemetry devices have been earmarked to be grandfathered in the future as part of keeping the costs of the meter title transfer down. At this stage, Hydrotel is not planned to be grandfathered as part of the meter title transfer and will be used for the gauging stations

Implementation Activities

The following activities relating to the rollout of non-urban metering reform are planned.

Table 88 – Non-urban metering reform implementation activities

Activity	Description
Notifying customers of new licence conditions	• Revise licences and/or work approvals for the new conditions. This will need to be undertaken before each stage of the roll out commences, or when a new water sharing plan commences. • DPIE-W will prepare the licence conditions and WaterNSW will need to provide support in doing this. • WaterNSW must liaise with NRAR who will be conducting a similar exercise for the customers that it licences. • Prepare mailouts and related material to inform affected users of the new licence conditions.

Activity	Description
	• Respond to queries that come through to call centre and to staff in the field. • It is not clear at this stage how many additional mail outs will be required (over and above what is usually carried out). WaterNSW has assumed one additional mailout.
Transfer of government owned meters	• Identify meters for transfer and affected customers • Assess and verify that meters meet new requirements • Engage with customers regarding proposed change on metering requirements and ownership arrangements. • This will involve additional communications and responses to that contemplated above in respect of the new licence conditions • DPIE-W and NSW Treasury liaising on possible Government funding and timing models of this aspect of the reforms.

Host and operate DAS	• WaterNSW is the administrator of the DAS and telemetry system and DQP portal.
	• The Taskforce has engaged Parasyn to prepare comprehensive DAS system documentation covering the design and day-to-day operation of the DAS. This documentation will be completed by May 2020.
	• WaterNSW, as the eventual DAS administrator, will be custodian of this documentation. This documentation will form the basis for internal training sessions for WaterNSW, NRAR and DPIE-W.
	• The Government will own the data that it receives from water users. However, this will not prevent water users from accessing and using their data for their own purposes.
	• WaterNSW and DPIE-W to settle services agreement to confirm data access for DPIE-W and NRAR to carry out their functions. Also, this agreement with further services to facilitate ongoing operations and continuous improvement of the DAS and DQP Portal.
	• Tasks for completion:
	  ○ Finalise terms upon which WaterNSW accepts the DAS
	  ○ Determine protocols for storage, use and access to DAS
	  ○ Determine processes and protocols for provision of data to NRAR and Department
	  ○ Make enhancements to the DAS requested by DPIE or Reincluding the following known enhancements: confirm accurate meter locations, edit customer details, amalgamate multiple customer meters and sites, and introduce meter and LID repair and replacement capability and processes.
	  ○ Determine processes and protocols for New Equipment and Third-Party connections to the DAS
	• Implement systems and process for Third-Party connections to the DAS
	• Once agreement settled, WaterNSW will have ongoing relationship with Eagle.io.
	• Representatives of WaterNSW, NRAR and DPIE-W will constitute the Governance Committee. Its role and functions to be settled but will make decisions and recommendations on future improvements and changes to the specifications.
	• The ongoing role of the DAS Technical Working Group needs to be confirmed – it will report to the Governance Committee. WaterNSW will also be represented on the DAS Technical Working Group. It is expected that WaterNSW will provide support to the group on an ongoing basis.
	• Managing a DAS across multiple DQPs will result in additional resource requirements for the service centre, field and BSI teams.

Recording and reporting for take for telemetry and non-telemetry metering units	• Implement the new *DQP portal* for compliance validation for all works • Implement the new non-telemetry data logger extraction and upload to meter data management system. • Telemetry options available, with a preference for all meters to be telemetered. • Implement the new recording and reporting requirements for customers without telemetry, BLR and commence and cease to pump acknowledgements. Will require updates to WLS and iWAS as well as increased resourcing to manage customer registrations, training and trouble shooting.

Activity	Description
Update WaterNSW systems to accept telemetry data	• Given increased data from DAS, enable WaterNSW systems to receive the DAS data to ensure all systems are synchronized. • Make good use of the metering usage information for better river operations (CARM), update billing system to utilise telemetered data and for any new service charges that may apply in the future
Deliver faulty meter portal (91i)	• Develop solutions for customers to report faulty telemetry - currently there is a portal which contains an online form to receive data – this was done to meet 1 April timeframe. • Volume of faulty meters is higher than anticipated as is the time required to manage water user issues and manage the process. The portal will need to be developed in an application for W to be able to service this requirement effectively and sustainably. This will be complex due to differing solutions • Provide alternative paper-based forms if customers cannot access portal. • Develop protocols with NRAR to enable NRAR to audit whether water users have registered their metering equipment as faulty and are maintaining a logbook, • Volume expected to increase significantly due to number of meters being installed as well as an increase in telemetry only faults as well.
Deliver process for exemptions and update bore sizes	• Process exists for making a work inactive or changing the pump size on an approval • Develop a process for customers to request an exemption for compliance with metering obligations • Respond to approval amendments and meter master data updates when Validation Certificates are received.
Deliver a Duly Qualified person (DQP) requirements (DQP Portal)	• DQP portal has been delivered based on the requirement that portal replicating paper form. If additional functionality is required, such as recording time of submission further development will be required. • Deliver DQP portal based on DPIE and NRAR requirements including meter registration form, integration to IAL, WAS, accurate GPS location and reporting • Support ongoing development of a Best Practice Guide for Certified Meter Installers • Support training of DQPP including updates to training materials and assist in preparation of new training material • Deliver online / automated S91I capability including integrations • Deliver customer edit profile capabilities including integration to DAS • Deliver IAL integration to validate • Meet additional reporting requirements • Liaison and ongoing enhancement with Department and NRAR • Develop solution to store certificates in WLS
Develop process for installing tamper evident seal and reporting breaks to NRAR (part of the DQP portal)	• Capture Tamper seal numbers during equipment validation for Government owned meter transfer and report to NRAR exceptions. • On an ongoing basis this will be the responsibility of IAL. • Deal with inquiries/questions from water users. • Liaise with NRAR on notification for LID tamper detection events
Publish revised reasonable use guidelines (Being undertaken under a separate stream	• Support DPIE-W with information and advice as requested to remake reasonable use guidelines under section 336B of the Water Management Act. • As a result of any changes to the guidelines, upgrade systems as required. • Respond to queries and inquiries.
Mandate additional reporting requirements for metered but non - telemetered water users (reporting and recording requirements)	• Develop self-reporting and recording requirements and processes, and co-ordinate with DPIE-W and NRAR. • Upgrade iWAS and WAS to capture non-numerical data and enhanced reporting • Service centre will need to assist customers registering and being trained in the application. Infield training for more advanced users. • Respond to queries and inquiries • Monitor non-compliance with voluntary provision of water take data • In addition, it is expected that training on the reporting requirement will also be required, which could be a new skillset.

Activity	Description
Education, information – preparation of materials, and training	• Prepare materials on new obligations and how they comply (including drafting, development of collateral, legal and regulatory review) to inform and educate water users, DQPs and other service providers to cover the following: o new licence conditions o how the new rules are to be applied o when meter and telemetry is required, versus no telemetry o exemptions o reasonable use guidelines – revised o faulty meters o tamper evident seals o DAS o DQP and DQPP o Other new technology o Process for inquiries and complaints o Information packs for EWON and NSW Ombudsman • Settle appropriate communications channels and tailor material accordingly – e.g. Q&A and scripts for call centre, training for field staff, website information, letters, bill inserts • Train call centre and field staff, and contractors as needed. In preparing this material, liaise with DPIE-W and NRAR to co-ordinate responses and explanations.
Responding to inquiries and managing complaints	• Given the rollout of metering reforms over a few years there will be increased inquiries and demands on call centre, customer operations and field staff. There will be 4 separate compliance dates running from 1 December 2020 through to 1 December 2023. • Each group of customers will need to be informed about what the reforms mean to them across reporting and recording, metering, BLR, CTP etc. • All of these will result in multiple calls to the service centre and the field team as well as having impact on A&A • Queries could cover a range of areas including: o DQP o LID vendor o Meter vendor o DPIE/NRAR queries o Communications issues (i.e. telecommunications) • Increased inquiries and representations will also result in increased EWON and NSW Ombudsman activity, compared with BAU. • Based on the material prepared during implementation phase, o Prepare responses to queries that are likely to come from customers and co-ordinate with DPIE-W and NRAR for consistency o Manage issues – including responses, escalation o Respond to additional EWON/NSW Ombudsman complaints/inquiries. • There will be additional demands on customer operations team and additional resources will be required to support the transition

New BAU activities that will be ongoing

Activity	Description
Manage the Data Acquisition Service (DAS) that collects, stores and transmits water take data from telemetered sites across NSW	• Operating and manage the new DAS o receiving data from customers o providing data to customers o providing data to NRAR/Department • Ongoing connection of new telemetered process applications for base typing of new Local-Intelligence-Devices/incorporating advances in technology units to DAS and third-party telemetry. • Resources to work through allocation of usage across multiple licences, customer reconciliations and usage anomalies.

Recording and reporting for take for telemetry and non-telemetry metering units	• Downloading of metering data from loggers in the field • Uploading of metering data to meter data management system • Remote reading of Recording and Reporting will be covered in BAU DAS activity
Managing meter tamper / faulty meter reporting	• The increase of meters in the market will lead to a significant rise in faulty meters • Will need to design and resource a new, less intensive process.
Managing exemption requests (e.g. inactive work)	• Processes are in place for water users to apply to amend an approval: o to tag a work as an inactive work. Tagging ensures the work does not need to comply with the metering requirements. IT tagging solution live in WLS WaterNSW/NRAR application forms and assessment criteria published. o to ensure works in the ground are the same as what is on their works approval. For surface pumps: - if no size is shown on the approval the work will require meter and telemetry - if size on the approval is larger than what is on the ground metering requirements will apply on the size shown on the approval. • On-farm works, works used to re-distribute water within the property, do not need to be metered as the water take has already been accounted for by the work(s) that take water directly from the water source. • DPIE -water has advised that water in mining scenarios are more complex and will required more policy position to be finalised. • Once water users understand what is required there will be a significant increase in water users wanting to adjust their licence conditions to ensure that they can comply with the regulations. This will occur between 2020 until 2023 • Aiding and support to officials in the Department on relevant matters such as conditions related to tagging, advising the Minister on exercise of power to exempt
manage and maintain the DQP Portal that allows DQP to register LIDs and receive the various forms and certificates on non-urban water meter sites	• Develop, maintain the DQP portal to process registrations of listed local intelligence device (LID) so that it can be properly configured, installed and begin securely transmitting meter data to the DAS platform • Collect, store and check - The completed approved forms and certificates submitted via the DQQP by DQPs • Receive inputs from WaterNSW and NRAR on any potential changes to policy • WaterNSW to implement policy changes of the forms in the DQP portal, as advised by DPIE-W • Update and maintain the forms giving effect to the policy and regulation requirements o DQP validation certificate, o DQP certificate of accuracy for existing meters (non-pattern approved), o DQP design certificate for open channel metering equipment and o Water user report to rely on transitional arrangement to keep existing metering equipment. ▪ DQPs to submit the approved forms. ▪ Managing DQP interactions will be the formal responsibility of IAL. It is, however, anticipated that WaterNSW will be a knowledge and expertise centre, particularly given that WaterNSW has 17 experienced field officers (who are DQPs).
DQP and DQPP training	• The Taskforce has engaged eagle.io to prepare a comprehensive 'user guide' for DQPs. It will cover all the relevant systems, including the DQP Portal and the eagle.io platform and will provide step by step instructions for registering, purchasing and installing a LID. It also includes guidance material about listed LIDs and integration requirements for a range of meters. • This user guide will be published online and will form the basis for initial online training sessions with DQPs (dates and delivery mode TBC). Once a DQP has completed the initial training session, they will be granted access to the DQP Portal and so they can start installing LIDs on behalf of water users. This user guide will also form the basis for IAL to develop a formal training module for inclusion in its CMI course. IAL is currently preparing a quote for this work.

	• In addition, LID manufacturers will develop their own tailored training packages for DQPs, focusing on how to install their LIDs in a variety of situations. Some manufacturers may require DQPs to complete a training course before they are eligible to purchase their LIDs. • Irrigation Australia has a dedicated email address for DQPs to ask questions about the new DAS and NSW Government's telemetry requirements. Agencies will continue to work with Irrigation Australia to answer DQP questions and these questions will be used to update the frequently asked questions page. On an ongoing basis there will be continuous improvement of the DQPP. • WaterNSW to support this and provide regular update and answers to frequently asked questions by IAL and AHA so they can update DQP training material and general information to their members • WaterNSW customers are the authority holders rather than the DQPs. However, the DQP portal will be aimed at DQPs so some support will be required by WaterNSW to assist them in the registration process for meters and certificate submission processes.
Data management for DQPP and DAS	Storage and provision of DQPP and DAS data to DPIE-W and NRAR.
Third party telemetry	• There has been some interest from water users with existing 'on farm' telemetry systems (such as 'Goanna Ag' or 'Taggle') to be able to use these systems to discharge their telemetry-related requirements under the metering rules. • The department engaged independent expert, Isle Utilities, to undertake an initial desktop-based assessment and provide advice about the feasibility of water users connecting to the DAS – and satisfying their telemetry requirements under the metering rules - via these existing solutions. • The Department is developing a pathway for providers of 'third party telemetry' to have their systems or networks (as the case may be) recognised as enough to enable users to comply with the telemetry-related requirements under the metering rules. • It is expected that this pathway will be based on the following principles: o the onus is on the solution provider to put forward a solution and demonstrate it meets the criteria; o the solution needs to meet functional, security and data integrity outcomes o the solution provider is responsible for meeting any associated costs (e.g. they may need to have their solution independently audited periodically, they may It is expected that WaterNSW will support this on an ongoing basis.
Annual licence payment for DAS	• Fee charged by eagle.io as per existing NSW government contract for the DAS
Telemetry (telecommunication costs)	• Cost of telecommunications to LIDs • VPN costs • Eagle.io to WaterNSW communications link costs
Management of telemetry specification	• Potential updates required to the telemetry specification • Data logging specification • Manage market engagement for emerging technologies and any associated updates to the specifications
Management of LID approvals	• Provision of a service to potential LID vendors to enable more LIDs on the approved list • Management of the testing specification • Approving LIDs
LID lifecycle management	• Track product lifecycle for approved LID platforms • Security vulnerability tracking and notification
Cyber Security Management for DAS and DQPP	• Ensure continued compliance to WaterNSW cyber security policy

Appendix 2 – COVID-19: Implications for the economy, water utilities and WaterNSW

This attachment sets out WaterNSW's views on the potential impacts of COVID-19 for the economy, water utilities and WaterNSW as may apply during the 2021 Determination period.

1. Introduction

In the midst of a global pandemic, Australia has not faced a crisis of the magnitude of COVID-19 for generations. Governments locally and around the world are scrambling. Policy responses are sometimes confused and contradictory, and leaders are under huge pressure. A broadly consistent policy response to reducing the spread has been the enforcement of a degree of lockdown of the population. These measures have created challenges for the global economy. Although the outlook is subject to spectacularly wide bounds, this looks set to be the sharpest recession Australia has seen since the Great Depression of the 1930s.[60]

Currently, the degree and extent to which the measures to restrict the spread of virus will continue are unknown. Despite global efforts, a vaccine is likely to take more than a year to develop, noting that historically a human vaccine has never been successfully developed against a coronavirus.[61] Without a vaccine in sight and herd immunity considered an unacceptable pathway, there is uncertainty surrounding both how long current lockdown protocols will be in place in Australia and how agile the Australian and world economy will be in returning to business as usual once restrictions are lifted. This means there is significant uncertainty as to how long a full recovery will take, with projections varying from a couple years up to a decade.[62]

Utilities, which includes the water sector, are not immune to such wide-scale disruptions. Preliminary analysis at the start of lockdown protocols being put in place, suggests the short-term impact on the utilities sector will not be as harsh as in other sectors of the economy. However, the severity of impact on utilities may be delayed. For example, Deloitte Access Economics estimates utilities sector output will begin to decline in FY2021 and continue through FY2022. This compares to other industries, such as accommodation and food services, which are likely to see a sharp drop in FY2020 and start to recover by FY2022.

There is clearly great uncertainty as to what impact COVID-19 will have on water utilities. The following sections review the underlying uncertainty the pandemic has created and assesses:

- The latest macroeconomic indicators and forecasts;
- The implications the trends in macroeconomic indicators have for the current framework IPART uses to regulate the water sector; and
- The likely impacts on the revenue and expenditure drivers for regulated water utilities in the short term (within the 2020 calendar year) and medium term (within the next five years), and the implications for WaterNSW.

1. Macroeconomic impacts – key indicators and trends

Supplies of goods and services are being constrained as more and more nations are implementing lock downs. There have been notable disruptions in manufacturing, affecting cars,

[60] Deloitte Access Economics, March 2020, *Business Outlook*.
[61] NY Times, 20 April 2020, *The Coronavirus in America: The Year Ahead* <https://www.nytimes.com/2020/04/18/health/coronavirus-america-future.html>; Australian Financial Review, 3 April 2020, *Why a coronavirus vaccine may never be found.*
[62] Deloitte Access Economics, March 2020, *Business Outlook*; ABC, 6 April 2020, *Coronavirus fallout could take Australian economy decade to recover from, KPMG says.*

high tech goods, pharma, through to transport, retail and tourism sectors. But the even bigger problem is the lack of demand as citizens and businesses are hunkering down.

In Australia, the key recent impacts on production and employment are as follows:

- In late March, Deloitte Access Economics forecast Gross Domestic Product (GDP) would fall 6.7% in FY2021. A 5.8% recovery is expected in the following year; however, this growth is forecast to decline in succeeding years.[63] More recent information suggests the economic downturn could be significantly worse.[64]
- 17% of small to medium enterprises (SMEs) have stopped trading.[65]
- 6% of construction businesses and 8% of manufacturing businesses have stopped trading.[66]
- In April, the number of people who were currently working paid hours decreased by 8% from the month before.[67] The unemployment rate is forecast to be 9.7% in FY2021, a significant increase from 5.1% in FY2019. This is expected to slowly recede to 5.6% by FY2024.[68]
- Australia's population growth has fallen as a result of migrant workers returning overseas. The number of temporary visa holders has already decreased by 260,000 (10%) and may reduce another 16% by end of 2020.[69]

Australian prices and financial markets are responding:

- Inflation is expected to continue to plateau at record lows, with headline CPI forecast to drop to 0.9% in FY2021 and only a meagre recovery in following years. [70]
- The Reserve Bank of Australia (RBA) has cut its cash interest rate to its lowest level in three decades (0.25%), and it's begun anchoring longer term interest rates at low levels too. This is in line with central banks across the globe.
- The Australian dollar has fallen to an 18 year low, with the US exchange rate at US$0.57 per AUD $1 on 16 March – falling further than it did during the global financial crisis. The Australian dollar is expected to recover to pre-COVID-19 levels over the next five years. [71]

Global conditions are similar, if not worse, with two key trading partners impacted:

- China's economy contracted 6.8% in the first quarter compared to a year earlier[72]
- In the US, GDP is forecast to shrink 34% in the second quarter of this year, with unemployment expected to reach 15%.[73]

It is uncertain how long the current economic downturn will persist, with optimistic forecasts suggesting recovery in 2021 and pessimistic forecasts pushing recovery back another half a decade. [74]

[63] Deloitte Access Economics, March 2020, *Business Outlook*.
[64] Grattan Institute, 19 April 2020, *Shutdown: estimating the COVID-19 employment shock*
[65] ABS, 7 April 2020, *Business Impacts of COVID-19*.
[66] ABS, 7 April 2020, *Business Impacts of COVID-19*.
[67] Note that proportion of people 'currently working paid hours' is not compared to the employment rate as it includes those that may have left the labour force or may still be employed but not have hours resourced. Source: ABS, 20 April 2020, Household Impacts of COVID-19.
[68] Deloitte Access Economics, March 2020, *Business Outlook*.
[69] Adam Creighton from Australian Financial Review, 15 April 2020, *COVID-19: Nation's great exodus revealed.*
[70] Deloitte Access Economics, March 2020, *Business Outlook*.
[71] Deloitte Access Economics, March 2020, *Business Outlook.*
[72] BBC, 17 April 2020, *China's virus-hit economy shrinks for the first time in decades.*
[73] Bloomberg, 31 March 2020, *Goldman Sachs Sees 34% Plunge in U.S. GDP and 15% Unemployment*; Business Insider, 6 April 2020, *Credit Suisse says the US economy will shrink 33.5% next quarter, the biggest drop in history.*
[74] Deloitte Access Economics, March 2020, *Business Outlook.*

2. Implications for IPART's regulatory framework

These changes in macroeconomic indicators resulting from the pandemic have implications for the regulatory framework that IPART uses to determine water business revenues and prices. In particular:

- The estimated rate of inflation used in the cost of capital and forecast prices and expenditures; and
- Efficiency adjustments, both 'catch-up efficiencies' and 'continuing' efficiencies, in which the concept of a 'frontier company' is used as a benchmark for water businesses' efficient expenditure.

2.1 Inflation impacts on real returns

In determining cashflows for regulated water utilities, IPART uses the standard approach adopted by regulators in other sectors in Australia and in the UK of applying a real rate of return to an indexed regulatory asset base (RAB).

IPART in estimating the real rate of return for utilities, currently applies an expected inflation rate of 2.3%.[75] This is much higher than what the prevailing inflation rate over recent times. For example, in FY2018 headline CPI was 1.7%.[76]

As discussed in the CEG report on WACC, inflation compensation and financeability (provided as Attachment 2), in the review of bulk water prices for Greater Sydney, the difference between actual inflation rates and the current rate of expected inflation used by IPART has already been highlighted as creating a financeability risk for water businesses. This is because over-estimated inflation rates will result in an under-estimated real WACC, resulting in real returns that are lower than expected. The analysis conducted by IPART already highlights the issues this creates for cash flow risk in its own assessment of the funds from operations (FFO) over debt ratio,[77] which tests whether we have generated sufficient free cash flow to repay our debts.

The expected low inflation rates resulting from the global pandemic will only serve to exacerbate the cash flow risk and financeability issues already identified. This further highlights the need for IPART to revise its approach to estimating the expected inflation rate, as the impact on financeability will be much greater, the lower the expected inflation rate is compared to IPART's 2.3% estimate.

2.2 Achieving efficiency improvements in an economic downturn

The 'frontier company' approach that IPART's consultant for the Greater Sydney Determination review, Atkins-Cardno, assumes that there will be ongoing productivity improvements in the operation of the business over time. The productivity improvements are predicated on underlying growth and improvements in the economy that should flow through to the sector.

The severe economic slowdown being experienced, with at least a 6.7% contraction expected in FY2021, brings into question whether the frontier company approach is a valid or applicable in the current environment. The slowdown will challenge our ability to achieve the efficiency targets outlined in IPART's Draft Report.

Efficiency improvements at the productivity frontier are underscored by the assumption that efficiency can be achieved through increased scale or technological change. With a slow-down in new connections growth, economies of scale will be difficult to attain. Similarly, investment in technological improvements are likely to be stifled in a time of economic downturn.

[75] See IPART Greater Sydney Final Determination, 16 June 2020.
[76] Deloitte Access Economics, March 2020, *Business Outlook.*
[77] IPART, March 2020, *Draft Report: Review of prices for WaterNSW Greater Sydney*, p.84

In addition, this new operating environment is likely to impact our productivity as:

- Social distancing protocols result in slower manufacturing plant operations, this may require expenditure on larger operating space to keep employees adequately separated while keeping operations timely; and
- Our employees transition to working from home and adjust to home distractions (particularly parents dealing with closed schools).

There have been technology constraints as the capacity of the virtual private network in place prior to the lockdown had to be increased to support the volume of people now having to be online and working out of office.

There are risks to productivity as efficiency enhancing IT programs may be delayed to the extent there are any constraints in supply on ICT capacity with increased demand being placed on the resources across the State.

3. Expenditure drivers

The range of economic disruptions and government policies will have a mixed and uncertain effect on both water supply needs and the cost to deliver those needs. In particular:

- Changes in water usage behaviour in lockdown and growth in new water connections in the future; and
- New operational requirements on businesses, which may be moderated by downwards pressure on labour and electricity costs

The expected timing of major infrastructure projects and the cost of engineering, procurement and construction (EPC) and imported materials.

3.1 Water demand

3.1.1 Short term

The key consideration in the short-term is how structural and behavioural changes will impact existing water consumption.

As people continue to work and live from home under lockdown measures, residential water demand is likely to increase, as seen in other utility sectors such as electricity[78]. This may be slightly moderated by migrants returning to their overseas home.

Small and medium enterprise (SME) water demand is likely to decline as trading is halted, particularly in non-essential services such as hospitality and entertainment.

It is unknown how commercial and industrial (C&I) water demand will change as some businesses are closed while others ramp-up in response to bulk buying.

In the electricity sector, non-residential demand decreased 8% after lock-down measures were introduced.[79] However, unlike electricity, the increased frequency and rigour of cleaning may also increase water usage for those businesses that continue to operate.

[78] Residential electricity demand increased 14% following the lock-down measures in the Jemena distribution zone. Source: Energy Networks Australia, 16 April 2020, *Commercial down v residential up: COVID-19's electricity impact.*
[79] Energy Networks Australia, 16 April 2020, *Commercial down v residential up: COVID-19's electricity impact.*

3.1.2 Medium term

In addition to behavioural changes on water usage, we must consider how changes in growth will impact future connections and increased water consumption.

It is uncertain how long current lock down protocols and isolation behaviours will last, it is possible that the short-term impacts on water usage will continue well into the medium term.

The economic downturn may result in slower growth in new connections, particularly if immigration (a major source of Australia's population growth) does not pick back up.

However, it is still currently expected that construction of major developments and infrastructure will continue as planned, in particular the investment in Western Sydney and the Aerotropolis. This is in line with the NSW Government's commitment to continue to deliver its infrastructure pipeline.[80]

In the medium term we may see a phased return of SMEs if lockdown measures are lifted, although this will likely be dampened by the extent of economic downturn and cautiousness of people returning to normal routines. Potentially C&I businesses will recover from short-term impacts in a year's time, but will then see production decline in following years as the economic downturn sets in.[81]

3.2 Operating expenditure

3.2.1 Short term

New operational requirements

This new operating environment has brought on new expectations of businesses such as more frequent and rigorous cleaning of workplaces. In addition, working out of office has required investment in improved ICT such as greater virtual private network (VPN) capacity. This is in addition to maintaining office building costs.

In addition to sharp increase in unemployment, with the number of people with work already falling by 8%, a number of large employers have announced short-term wage reduction measures. Payment difficulties experienced by customers of Sydney Water, may also create issues for on-payment to WaterNSW.

Supply of resources

High unemployment rates and short-term wage reduction measures may put downward pressure on wages, particularly for low-skilled jobs with quick turnover. However, upward pressure on wages may occur if a major disruption to labour supply occurs. This may be a result of widespread virus infections and/or mass emigration as foreign workers return home.

Despite increasing unemployment, there are certain supply chain risks that may arise.

The wide-spread demand for particular services, including cleaning and IT, is likely to put upwards pressure on prices for these services.

The constraints on IT costs and on resources in the utilities sector, has been highlighted in energy by the market bodies recently announcing a one year delay in implementing the fundamental five minute settlement market rule change scheduled for 1 July 2021. This has been

[80] Dominic Perrotet, NSW Government Treasurer, *Letter to the construction and engineering sectors of NSW*.
[81] Deloitte Access Economics, March 2020, *Business Outlook*

driven in part by concerns about businesses' ability to absorb large costs and scale up IT capability in the current environment.[82]

Other local businesses are likely to experience reduced demand from the private sector. This could lead to lower prices as businesses compete for fewer clients. However, prices may potentially increase as a result of greater market concentration following business closures.

3.2.2 Medium term

New operational requirements

It is likely that the short-term disruptions considered above will continue well into the medium term. Even if health concerns ease, certain requirements like improved ICT may continue to be pertinent, as working from home becomes the 'new normal' and businesses look to prepare in case of future office disruptions.

We will also need to consider how we're protected as we navigate these new risks, including changes to workplace safety and workplace interruptions. It is likely that we will require insurance extensions if we wish to be protected from the impacts of the next pandemic.[83]

Supply of resources

It is likely that some proportion of businesses will never recover after the shutdown period ends, despite Government support payments and wage subsidies.

It is therefore likely that the short-term impacts considered above will continue into the medium term. Unemployed workers may be able to transition to low skilled jobs, such as cleaning, relatively quickly. However, it will take time before unemployed labour can transition to skilled areas, such as IT. Overall, higher unemployment is likely to prevail to some degree,[84] putting downwards pressure on labour costs as employment contracts are refreshed in the coming years.

As more businesses continue to fail over the medium-term, there is however the risk of market concentration of suppliers, which may put additional upwards pressure on our prices.

In addition, grid electricity prices may decline if gas prices remain low[85] and demand continues to be subdued.[86]

3.3 Capital expenditure

Timing

Despite the potential slowdown in new growth areas as result of declining population growth, the NSW Government's commitment to deliver major developments and infrastructure means we are still expected to undertake capital expenditure related to Government projects, such as the Aerotropolis development region.

As highlighted by the NSW Treasurer, continuing capital investments where possible will be vital to supporting the local economy during the economic downturn.

[82] AEMC, *COVID-19 power plan launched to support energy sector through pandemic,* media release 9 April < https://www.aemc.gov.au/news-centre/media-releases/covid-19-power-plan-launched-support-energy-sector-through-pandemic?utm_medium=email&utm_campaign=New+AEMC+Update+-+9+April+2020&utm_content=aemc.gov.au%2Fnews-centre%2Fmedia-releases%2Fcovid-19-power-plan-launched-support-energy-sector-through-pandemic&utm_source=www.vision6.com.au>
[83] Foez Dewan from McCabe Curwood, 17 March 2020, *Will my Business Insurance cover me for the impact of COVID-19?*
[84] Deloitte Access Economics, March 2020, *Business Outlook.*
[85] Gas prices are closely linked to oil prices which are currently at all-time lows (reaching negative prices on 21 April). It is unknown when and to what extent oil prices will be able to recover.
[86] Note that electricity prices are not expected to reduce in the short term as retailers and large energy users are often entered into hedged contracts and a delay is expected as retailers refresh their contracts with revised price forecasts.

Cost

We are uncertain how the cost of planned capital investments will be impacted.

As mentioned above, local businesses are likely to experience reduced demand from the private sector, this includes businesses in EPC. This could lead to lower EPC costs as businesses compete for fewer clients in the short term, potentially followed by higher prices due to greater market concentration following business closures in the medium term.

While a lower exchange rate will increase our international competitiveness, it will make imported inputs more expensive and reduce the competitiveness of local businesses relying on overseas materials or equipment. In addition, greater restrictions and regulatory oversight of international trade and shipping, including the cancellation of most air flights, will likely constrain international logistics and may impose further higher prices for imported goods. As such, imported equipment and assets are expected to increase in costs.

4. Summary of COVID-19 impacts

The rapid changes in macroeconomic indicators that the world is currently experiencing are already impacting water utilities and posing unique challenges for the regulatory framework that IPART operates. In particular, the duration of any lockdown and the related impact this will have on the economy and the water sector is still unclear.

We already face significant risk to our financeability over the regulatory period as a result of the disconnect between IPART's assumed inflation rate and actual inflation. This issue is likely to be worse given the expected lower levels of inflation now prevailing. Further, it is questionable whether the efficient frontier used by the reviewer is still applicable given the downturn currently being experienced in the economy. We have seen our input costs increasing in a number of areas, and there are also potential declines to productivity as our workforce adapts to new working arrangements

Meanwhile, the impact of COVID-19 on water demand remains uncertain, with behavioural changes and economic growth factors yet to be revealed in actual consumption. As we have noted, accurately forecasting demand and costs in the current environment for the upcoming four year regulatory period presents considerable challenges.

Overall, we urge IPART to take these unprecedented levels of uncertainty into account in preparing its Draft and Final Determinations.

Appendix 3 – W-codes

Licensing Services

The WAMC Determination is referrable to the following W-codes:

- **W01-01 Surface water quantity monitoring**
  The provision of a surface water quantity monitoring system; including design, station calibration, data collection, processing, encoding, quality assurance and archiving from the networks of water monitoring stations; the delivery of near real time height and/or flow data from all telemetered stations to the corporate database; and the maintenance and operation of surface water monitoring stations.
- **W01-02 Surface water data management and reporting**
  The data management and reporting of surface water quantity, quality and biological information; including compilation, secure storage, management and publishing of data to customers, stakeholders and the general public.
- **W01-03 Surface water quality monitoring**
  The provision of a surface water quality monitoring program; including design, sample collection, laboratory testing and analysis, test result quality assurance to accepted standards, and test result encoding to make it available for data management and reporting.
- **W01-04 Surface water algal monitoring**
  The provision of a surface water algal monitoring program; including design, sample collection, laboratory analysis, algal identification and enumeration to accepted standards, and result encoding for provision to regional coordinating committees.
- **W01-01 Groundwater quantity monitoring**
  The provision of a groundwater level, pressure and flow monitoring system; including design, site calibration, data collection, entry, audit, quality assurance, archiving, and information provision; and the maintenance and operation of groundwater monitoring bores.
- **W01-02 Groundwater quality monitoring**
  The provision of a groundwater quality monitoring program; including design, sample collection, laboratory testing and analysis, test result quality assurance to accepted standards, and test result encoding to make it available for data management and reporting
- **W05-02 Blue-green algae management**
  The provision of an algal risk management system; including oversight, coordination and training, the issue of algal alerts and the development of algal risk management plans.
- **W05-03 Environmental water management**
  The development and collaborative governance of environmental flow strategies and assessments; and the use of environmental water to achieve environmental outcomes.
- **W08-01: Regulation Systems Management**
  The management, operation, development and maintenance of the register for access licences, approvals, trading and environmental water.
- **W08-02: Consents management and licence conversion**
  The transcribing of water sharing provisions into licence conditions and the conversion of licences to the WM Act.
- **W09-01: Water Consent transactions**

Transactions undertaken on a fee for service basis; including dealings, assessments, changes to conditions and new applications for water licences and approvals.

- **W10-01: Customer management**

  All customer liaison activities including responding to calls to licencing and compliance information lines; and producing communication and education materials such as website content and participation in customer forums.

- **W10-02: Business Governance and support**

  The business systems and processes that support organisation-wide activities; including asset management, annual reporting and pricing submissions to IPART.

- **W10-03: Billing Management**

  The management of billing requirements and subcontracted billing, revenue collection and debtor management service delivery, and responding to queries on billing activities.

Updated W-code descriptions

WaterNSW has updated the W-code descriptions to better reflect WaterNSW's delivery of its functions. The updated W-code descriptions are set out below.

Table 89 - Updated W-code descriptions as proposed by WaterNSW

W01	**Surface water monitoring**		**The collection and provision of quantity, quality, algal and ecological information for monitoring, use, assessment and management of surface water.**
W01-01	Surface water quantity monitoring	The provision of a surface water quantity monitoring system; including design, station calibration, data collection, processing, encoding, quality assurance and archiving from the networks of water monitoring stations; the delivery of near real time height and/or flow data from all telemetered stations to the corporate database; and the maintenance and operation of surface water monitoring stations.	The collection of near real time data from Rivers, Streams, Creeks, Canals and Storages including the post data processing, quality control and data archiving from the networks of water monitoring stations across the State in order to support the delivery of discrete and near real time data (15-minute sampling for telemetered sites) provision to corporate database and data presentation platforms for customers. Surface Water Quantity Monitoring includes: • maintenance and operation of monitoring structures, and equipment installed at water monitoring stations. • monitoring network design and review. • site selection, Site establishment, operation and maintenance. • instrumentation selection/testing, Instrumentation installation. • instrument operation and maintenance including Instrument calibration and repair. • management of instrument/equipment/asset database • special event monitoring including floods, environmental releases, etc. • collection of various routine field measurements and real-time Data collection. • data processing (primarily to stream flow). • data quality control, and data archiving from the networks of water monitoring stations. • delivery of near time height and/or flow data (15-minute sampling) from all telemetered sites to corporate database.
W01-02	Surface water data management and reporting	The data management and reporting of surface water quantity, quality and biological information; including compilation, secure storage, management and publishing of data to customers, stakeholders and the general public.	Data management The maintenance and operation of WaterNSW Water Data Storage Systems for customers to ensure a fit for purpose data platform that provides a digital platform: • for the storage and maintenance of the quality and quantity water data archive • for the storage and maintenance of the operational water data and archive

W01	**Surface water monitoring**		**The collection and provision of quantity, quality, algal and ecological information for monitoring, use, assessment and management of surface water.**
			• to disseminate operational and quality-controlled data to customers. Surface water data management and reporting includes: • data management and quality control in accordance with national and industry guidelines • data quality control audits and reporting in accordance with National and Industry guidelines • data management in accordance with quality management systems. Systems management • database integrity and security management • operation of development, test, production and disaster recovery environments • operation and maintenance of associated IT hardware • system support and system application training • management and operation of associated server, communications and peripheral hardware required to operate the surface water data management systems • management of software licences. Data dissemination and reporting • maintenance of corporate data access • provision of real time data • bulk data reporting and data provision • data request handling, for example Ministerial, natural resource management agencies, planning and development proposals, research requests.
W01-03	Surface water quality monitoring	The provision of a surface water quality monitoring program; including design, sample collection, laboratory testing and analysis, test result quality assurance to accepted standards, and test result encoding to make it available for data management and reporting.	Monitoring program management The collection of discrete and near real time quality data from waterways, including the post data processing, quality control and data archiving from the networks of water monitoring stations across the State. Surface Water Quality Monitoring includes: • monitoring network design and review • routine monitoring for compliance • sample collection to national and industry standards • special event monitoring including blackwater events, environmental releases, and water quality investigations when required • monitoring for cold water pollution compliance when required

W01	**Surface water monitoring**		**The collection and provision of quantity, quality, algal and ecological information for monitoring, use, assessment and management of surface water.**
			• monitoring for environmental flow outcomes when required • monitoring site selection and establishment • data management and quality control in accordance with national and industry guidelines • data quality control audits and reporting in accordance with national and industry guidelines • data management in accordance with quality management systems. Laboratory analysis • operation and management of physical and chemical analytical services • QA/QC of analytical methodology.
W01-04	Surface water algal monitoring	The provision of a surface water algal monitoring program; including design, sample collection, laboratory analysis, algal identification and enumeration to accepted standards, and result encoding for provision to regional coordinating committees.	To provide data on the presence and extent of potentially toxic algal blooms in NSW waterways, including: • monitoring to ensure that blue-green algae is monitored in major rivers not managed or monitored by other agencies • collect water samples for algal analysis following established standards • laboratory analysis for algal identification and enumeration • ongoing coding and management of the quality of data to be recorded. Laboratory analysis • Operation and management of algal analytical services • QA/QC of analytical methodology.

W02	**Groundwater monitoring**		The collection and provision of water level, pressure, flow and quality information for monitoring, use, assessment and management of groundwater.
W02-01	Groundwater quantity monitoring	The provision of a groundwater level, pressure and flow monitoring system; including design, site calibration, data collection, entry, audit, quality assurance, archiving, and information provision; and the maintenance and operation of groundwater monitoring bores.	The collection of discreet and near real time data from bores including the post data processing, quality control and data archiving from the networks of ground water monitoring stations across the State. Groundwater Quantity Monitoring includes: • maintenance and operation of monitoring structures, and equipment installed at ground water monitoring stations • site establishment, operation and maintenance • instrumentation selection/testing, Instrumentation installation • instrument operation and maintenance including Instrument calibration and repair • management of instrument/equipment/asset database

			• special event monitoring. • collection of various routine field measurements and real-time Data collection. • data processing (Level pressure and flow monitoring). • data quality control, and data archiving from the networks of water monitoring stations. • delivery of near time height and/or flow data (15-minute sampling) from all telemetered sites to corporate database.
W02-02	Groundwater quality monitoring	The provision of a groundwater quality monitoring program; including design, sample collection, laboratory testing and analysis, test result quality assurance to accepted standards, and test result encoding to make it available for data management and reporting	The collection of discreet and near real time data from bores including the post data processing, quality control and data archiving from the networks of groundwater water monitoring stations across the State in order to support the delivery of discrete and near real time data (15-minute sampling from telemetered sites) provision to corporate database and data presentation platforms for customers. Ground Water Quality Monitoring includes: • routine monitoring for compliance • special event monitoring including water quality investigations, pollution investigation, coal seam gas investigations • monitoring compliance when required • monitoring for Environmental outcomes when required • data management and quality control in accordance with national and industry guidelines • data quality control audits and reporting in accordance with national and industry guidelines • data management in accordance with quality management systems. Laboratory analysis • Operation and management of physical and chemical analytical services • QA/QC of analytical methodology
W02-03	Groundwater data management and reporting	The data management and reporting of groundwater quantity and quality information; including compilation, secure storage, management and publishing of data to customers, stakeholders and the general public.	Groundwater data management Data management The of Maintenance and operation of WaterNSW Water Data Storage Systems for customers to ensure a fit for purpose data platform that provides a digital platform: • for the storage and maintenance of the Quality and Quantity water data archive • for the storage and maintenance of the Operational Water Data and archive • to disseminate Operational and quality-controlled data to customers Surface water data management and reporting includes; • data management and quality control in accordance with national and industry guidelines • data quality control audits and reporting in accordance with national and industry guidelines • data management in accordance with quality management systems.

			Systems management • database integrity and security management • operation of development, test, production and disaster recovery environments • operation and maintenance of associated IT hardware • system support and system application training • management and operation of associated server, communications and peripheral hardware required to operate the surface water data management systems • management of software licences. Data dissemination and reporting • maintenance of corporate data access • provision of real time data • bulk data reporting and data provision • data request handling, for example Ministerial, natural resource management agencies, planning and development proposals, research requests.
W05	**Water management implementation**		**The implementation of procedures and systems to deliver the provisions of water management plans, blue-green algal management and environmental water management, the assessment and evaluation of these plans, and compliance with long-term extraction limits.**
W05-02	Blue-green algae management	The provision of an algal risk management system; including oversight, coordination and training, the issue of algal alerts and the development of algal risk management plans.	This activity involves oversight of the algal risk management framework for fresh and marine waters, which has been developed to ensure that the risk from potentially toxic algal blooms is managed appropriately. The activities includes: • coordination of the Regional Algal Coordinating Committees (RACC) • development and review of regional algal contingency plans • issue of algal alerts as required, provision of regular updates to stakeholders, and maintenance of the algal website and information line • provision of signage to water management authorities (including councils) and liaison with other agencies affected by an algal bloom • identification and encouragement of scientific research to provide new information to enhance algal management.
W05-03	Environmental water management	The development and collaborative governance of environmental flow strategies and assessments; and the	Activities required to provide environmental water outcomes including:

W05	**Water management implementation**		**The implementation of procedures and systems to deliver the provisions of water management plans, blue-green algal management and environmental water management, the assessment and evaluation of these plans, and compliance with long-term extraction limits.**
		use of environmental water to achieve environmental outcomes.	• contribution to assessment and implementation of adaptive environmental water provisions • environmental flow advisory committees, and flow reference panels and management.

W08	**Water management implementation**		**The implementation of procedures and systems to deliver the provisions of water management plans, blue-green algal management and environmental water management, the assessment and evaluation of these plans, and compliance with long-term extraction limits.**
W08-01	Regulation systems management	The management, operation, development and maintenance of the register for access licences, approvals, trading and environmental water.	Activities include: • management of the public register for access licences, approvals, trading and environmental water • systems development, maintenance and system upgrades • monitoring of systems performance • development of and maintenance of online tools, online applications and online payments, and smartphone tracking applications • development of application forms and guidelines • develop and maintain system manual and standard operating procedures • records management • updating customer records in database • uploading conditions onto licensing system • production of monthly performance reports for consent transactions • notification of conditions
W08-02	Consents management and licence conversion	The transcribing of water sharing provisions into licence conditions and the conversion of licences to the Water Management Act.	Activities include: • cleansing of licences for conversion and volumetric conversion to WMA • development of discretionary conditions • managing security interests. • updating customer information (that is change of addresses, ownership, etc) for land events • land Registry Services dealings • process surrendered or cancelled water access licences.

W08	Water management implementation (disaggregated)		The implementation of procedures and systems to deliver the provisions of water management plans, blue-green algal management and environmental water management, the assessment and evaluation of these plans, and compliance with long-term extraction limits.	
W08-01W	Regulation systems management by WaterNSW	The management, operation, development and maintenance of the register for access licences, approvals, trading and environmental water.	• Management of the public register for access licences, approvals, trading and environmental water. • Systems development, maintenance and system upgrades. • Monitoring of systems performance. • Development of and maintenance of online tools, online applications and online payments, and smartphone tracking applications. • Develop and maintain system manual and standard operating procedures. • Notification of conditions • Uploading discretionary conditions onto licensing system.	**1 - WaterNSW (for all customers/system-wide function)**
W08-01N	Regulation systems management by NRAR	The management, operation, development and maintenance of the register for access licences, approvals, trading and environmental water.	• Uploading mandatory conditions onto licensing system.	**2 - NRAR (for all customers/system-wide function)**
W08-01WC	Delivery of services to WaterNSW customers	The management, operation, development and maintenance of the register for access licences, approvals, trading and environmental water.	• Development of application forms and guidelines for WaterNSW customers • Records management for WaterNSW customers • Updating WaterNSW customer records in database.	**3 - WaterNSW (for WaterNSW customers only)**

			• Production of monthly performance reports for consent transactions to WaterNSW customers	
W08-01NC	Delivery of services to NRAR customers	The management, operation, development and maintenance of the register for access licences, approvals, trading and environmental water.	• Development of application forms and guidelines for NRAR customers • Records management for NRAR customers • Updating NRAR customer records in database. • Production of monthly performance reports for consent transactions to NRAR customers	**4 - NRAR (for NRAR customers only)**
W08-02W	Consents management and licence conversion by WaterNSW	The transcribing of water sharing provisions into licence conditions and the conversion of licences to the Water Management Act.	• Cleansing of licences following conversion to WMA. • Managing security interests. • Updating customer information (that is change of addresses, ownership, etc) for Land Events. • All LRS dealings (save for the issuance of zero share and specific purpose Water Access Licences to NRAR customers) Water Sharing Plans in addition to conditions, for example: • Water Sharing Plan name change • Water Management Zone changes • Water Source changes • Linking those changes to licence holders Those changes are made in WLS and tested by WaterNSW.	**1 - WaterNSW (for all customers/system-wide function)**

W08-02N	Consents management and licence conversion by NRAR	The transcribing of water sharing provisions into licence conditions and the conversion of licences to the Water Management Act.	• Transcribing water sharing provisions into licence conditions. · Initial conversion of Water Act licences to WMA approvals and WALS	**2 - NRAR (for all customers/system-wide function)**
W08-02WC	Consents management for WaterNSW customers	The transcribing of water sharing provisions into licence conditions and the conversion of licences to the Water Management Act.	• Development of discretionary conditions for WaterNSW customers • Determining the volume to be applied to existing non-volumetric Water Act licences so they can be converted to new WMA WALs for WaterNSW customers • Process surrendered or cancelled water access licences for WaterNSW customers	**3 - WaterNSW (for WaterNSW customers only)**
W08-02NC	Consents management for NRAR customers	The transcribing of water sharing provisions into licence conditions and the conversion of licences to the Water Management Act.	• Development of discretionary conditions for NRAR customers. • Determining the volume to be applied to existing non-volumetric Water Act licences so they can be converted to new WMA WALs for NRAR customers • Issuance of zero share and specific purpose Water Access Licences to NRAR customers • Process surrendered or cancelled water access licences for NRAR customers.	**4 - NRAR (for NRAR customers only)**

W09	**Water consents transactions**		**The technical requirements for, and administration of, water consents transactions.**
W09-01	Water consents transactions	Transactions undertaken on a fee for service basis; including dealings, assessments, changes to conditions and	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 and aquifer interference activities. Transactions include:

		new applications for water licences and approvals.	• new access licences • basic landholder right bores • water supply works and use approvals • extension approvals • water dealings including water allocation assignments.	

W09	**Water consents transactions (disaggregated)**	The technical requirements for, and administration of, water consents transactions.		
W09-01W	Water consents transactions for all customers performed by WaterNSW	Transactions undertaken on a fee for service basis; including dealings, assessments, changes to conditions and new applications for water licences and approvals.	Transactions include: • Water dealings including water allocation assignments.	**1 - WaterNSW (for all customers/system-wide function)**
W09-01WC	Water consents transactions for WaterNSW customers	Transactions undertaken on a fee for service basis; including dealings, assessments, changes to conditions and new applications for water licences and approvals.	Transactions include: • New access licences. • Basic landholder right bores. • Water supply works and use approvals. • Extension approvals.	**3 - WaterNSW (for WaterNSW customers only)**
W09-01NC	Water consents transactions for NRAR customers	Transactions undertaken on a fee for service basis; including dealings, assessments, changes to conditions and new applications for water licences and approvals.	Transactions include: • New access licences. • Basic landholder right bores. • Water supply works and use approvals. • Extension approvals.	**4 - NRAR (for NRAR customers only)**

W10	Business and customer services		The customer, business and revenue collection services supporting the operation of WAMC
W10-01	Customer management	All customer liaison activities; including responding to calls to licensing and compliance information lines; and producing communication and education materials such as website content and participation in customer forums.	Customer service includes: • client liaison • calls to licensing information lines • presentation to water user groups on WSP rules and licensing/approval processes • inspections that do not result in an application • updating website with licensing and compliance advice • development and implementation of communication and education strategies to achieve voluntary compliance • development of billing flyers to update water users on licensing information • managing compliments and complaints • surveying customers to identify service improvements • responding to water related ministerial correspondence • all customer liaison activities • customer groups including CAGs, irrigator groups and other customer forum activities • customer management system.
W10-02	Business governance and support	The business systems and processes that support organisation-wide activities; including asset management, annual reporting and pricing submissions to IPART.	Support for the water resource management business including: • systems and processes supporting organisation-wide asset strategy and management. • other organisation-wide business support strategies and systems • strategic, organisational, administrative, procurement, office facilities, financial, budgetary, human resource and corporate governance requirements and reporting • annual reporting and preparation of pricing submissions to IPART • business-wide asset management • business support systems
W10-03	Billing management	The management of billing requirements and subcontracted billing, revenue collection and debtor management service delivery, and responding to queries on billing activities.	Activities include: • billing administration, revenue collection • maintenance of pricing database • responding to queries, correspondence and briefing requests • coordinating debtor management.

W10	Business and customer services (disaggregated)	The customer, business and revenue collection services supporting the operation of WAMC.
		Customer service includes:

W10-01W	Customer management services for all customers (WaterNSW)	All customer liaison activities; including responding to calls to licensing and compliance information lines; and producing communication and education materials such as website content and participation in customer forums.	• Development of billing flyers to update water users on licensing information. • Customer management system.	**1 - WaterNSW (for all customers/system-wide function)**
W10-01N	Customer management services for all customers (NRAR)	All customer liaison activities; including responding to calls to licensing and compliance information lines; and producing communication and education materials such as website content and participation in customer forums.	Customer service includes: • Calls to compliance information lines. • Presentation to water users groups on WSP rules.	**2 - NRAR (for all customers/system-wide function)**
W10-01WC	Customer management (WaterNSW customers)	All customer liaison activities; including responding to calls to licensing and compliance information lines; and producing communication and education materials such as website content and participation in customer forums.	Customer service includes: • Client liaison. • Calls to licensing information lines. • Presentation to water users groups licensing/approval processes. • Inspections that do not result in an application. • Updating website with licensing advice. • Development and implementation of communication and education strategies to achieve voluntary compliance. • Managing compliments and complaints. • Surveying customers to identify service improvements. • Responding to water related ministerial correspondence. • Customer groups including CSCs, irrigator groups and other customer forum activities.	**3 - WaterNSW (for WaterNSW customers only)**
			Customer service includes:	

W10-01NC	Customer management (NRAR customers)	All customer liaison activities; including responding to calls to licensing and compliance information lines; and producing communication and education materials such as website content and participation in customer forums.	• Client liaison. • Calls to licensing information lines. • Presentation to water users groups licensing/approval processes. • Inspections that do not result in an application. • Updating website with licensing advice. • Development and implementation of communication and education strategies to achieve voluntary compliance. • Managing compliments and complaints. • Surveying customers to identify service improvements. • Responding to water related ministerial correspondence. • Customer groups including CSCs, irrigator groups and other customer forum activities.	**4 - NRAR (for NRAR customers only)**

Appendix 4 – Rate of return, inflation and financeability

Our proposed 'placeholder' rate of return for the 2021 Determination period is 3.2% for each year during the period based on IPART's post-tax real framework, with annual updates to the cost of debt.

Proposed method and rate of return

The return on capital covers the cost of servicing our debt and provides a return to our shareholders for their equity investment in our business. It is calculated by multiplying the value of our regulated asset base by the rate of return on capital. WaterNSW is proposing to apply the Weighted Average Cost of Capital (WACC) methodology for determining the rate of return on capital.

The WACC is the minimum ('benchmark') financial return an investor requires from an investment given its risk before committing additional capital. It is the sum of weighted average returns expected from the two types of capital invested – debt and equity.

In determining the appropriate rate of return, economic regulators strive to provide an allowance as reasonably accurate as possible to ensure that customers do not pay more than necessary and that the regulated firms will be financially viable and have the incentive to invest in the efficient level of productive assets.

In this section, we outline an approach to calculating the WACC based on IPART's standard methodology. As part of IPART's methodology, market data will be updated closer to the Draft and Final Determinations. Therefore the WACC proposed in this section is considered a '**placeholder**' as it will be updated during the review process. Our proposed approach to inflation is provided below.

Why is it important?

The return on capital makes up approximately 31 per cent of the revenue allowance that we need to provide WAMC services. WaterNSW notes that the nature of the WAMC services provided are less capital intensive than other segments of our business.

If the rate of return is set too low, we may not be able to secure the funds needed to invest in water monitoring and licensing services, which could negatively impact on water quality and customer service levels. If it is set too high, our customers could pay too much for our services.

IPART's method for determining the appropriate WACC

We have estimated the rate of return by applying IPART's method for estimating and determining the WACC as published in the IPART Final WACC Report in 2018 (2018 WACC Methodology)[87] and as outlined in IPART's consultation on the debt margin as part of the Greater Sydney Determination process for bulk water in Greater Sydney.[88] We propose that IPART adopts this methodology in its 2021 Determination for WaterNSW's water monitoring and licensing services.

[87] See *IPART Review of our WACC method – Final Report 20018*. https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-administrative-legislative-requirements-sea-wacc-methodology-2017/final-report-review-of-our-wacc-method-february-2018.pdf

[88] See IPART https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/regulatory-framework-regulatory-policy-sea-weighted-average-cost-of-capital-wacc-models/wacc-publications/fact-sheet-wacc-consultation-on-debt-margin-april-2020.pdf

IPART's 2018 WACC Methodology is based on a 'post-tax real' framework. The methodology includes sector-wide parameters and applies financial market information as published by IPART in its Bi-annual WACC Update from February 2020[89]. The methodology requires annual updates to the cost of debt during the regulatory period using updated market information. Whether the revenue impact of the annual cost of debt updates is addressed at each annual price change or held and adjusted at the subsequent determination is a separate decision point that is addressed below.

We consider that IPART's methodology (subject to our concerns regarding IPART's approach to forecasting inflation outlined below), is a reasonable proxy for our benchmark cost of capital and is in the best interests of customers for the 2021 WaterNSW water monitoring and licensing Determination.

Cost of debt

IPART has indicated it will:

- Initially set the historic cost of debt as a 10-year average, with the interest rate for each annual tranche estimated over a consistent 40-day period;
- Update the historic cost of debt from the beginning of the second year of the regulatory period, by averaging the interest rates of each annual tranche of debt; and
- Calculate the change in the historic cost of debt in line with the following Equation 2:

WaterNSW supports IPART's methodology for calculating the current cost of debt as outlined above. We seek to engage with IPART during the review process as to whether applying a transition for the current cost of debt is appropriate in the circumstances.

How to pass through annual changes

Under IPART's new trailing average approach for estimating the historic and current costs of debt, IPART needs to update its decision on the cost of debt each year.[90]

IPART will decide whether to apply annual price adjustments or a true-up on a case-by-case basis, as part of its review process. In making this decision, IPART will have regard to any evidence the regulated firm or its customers put forward to support one approach or the other, with neither option a default.

While WaterNSW's general preference is to seek annual updates to the cost of debt, we note that given the nature of the WAMC charges and the capped prices proposed, we consider a 'true-up" for changes to the cost of debt to be appropriate for this review.

Cost of equity

The cost of equity is calculated using the Capital Asset Pricing Model (CAPM). The average cost of equity across the entire market comprises a **risk-free rate** (representing the rate an investor would receive for zero risk to their capital) plus a premium that reflects the additional systematic risk a marginal equity investor bears (representing the average premium the investor would be willing to accept for a less-than-certain return). This is premium is known as the market risk premium ("**MRP**").

[89] See https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Regulatory-policy/WACC/Market-Update/Spreadsheet-WACC-model-February-2019

[90] IPART *Review of our WACC method – Final Report, February 2018*. Page 38.

The CAPM requires the use of an '**equity beta**', which measures the sensitivity of a business's return compared to upturns and downturns in overall market returns. More specifically, the CAPM is applied using econometrically estimated equity betas combined with the risk free rate (or more accurately, the required return on a zero beta portfolio) being proxied by yields on nominal government bonds.

Under its 2018 WACC Methodology, IPART will continue to determine the cost of equity as the midpoint between its estimates of the current and historic cost of equity at the start of the regulatory period, and to not update this cost during the regulatory period.

If there are market extremes occurring (as measured by IPART's Uncertainty Index) IPART may consider moving away from the mid-point. Water NSW notes that in April 2020 IPART advised that its Uncertainty Index was operating outside the 'normal' control limit of +/- 1 standard deviation from the long term mean.

Gearing

IPART typically adopts a mid-point gearing level (debt to debt-plus-equity ratio) of 60% for regulated water businesses. WaterNSW considers that the assumptions underpinning the gearing level from the 2016 Determination remain appropriate and a gearing level of **60%** should be maintained for the 2021-25 Determination.

Equity beta

IPART currently uses the Sharpe Lintner (SL) CAPM to calculate the cost of equity. According to this model, only systematic risk affects the expected return required by the marginal equity investor. This is because the marginal investor would hold a well-diversified portfolio of equities, and a diversification strategy can remove firm-specific risk.

Equity beta is generally measured as the covariance between a firm's share price and that that of the market:

- An equity beta of one implies that the firm's stock is the same as for the market as a whole at each point in time. This, simplistically, suggests the firm has a similar risk profile to the market as a whole;
- An equity beta below one implies that the firm's rate of return is less sensitive to upturns and downturns than the market overall; and
- An equity beta above one implies that the firm's rate of return is more sensitive to upturns and downturns than the market overall.

The SLCAPM is applied using econometrically estimated equity betas combined with the risk free rate (or more accurately, the required return on a zero beta portfolio) being proxied by yields on nominal government bonds.

IPART's determined equity beta for the water industry applied in the 2016 Determination is **0.7**. IPART has proposed to revise its approach to calculating the equity beta (see our 22 May 2020 response to the IPART consultation on equity beta) which we anticipate will be applied to the 2021-25 Determination.

WaterNSW proposes an **equity beta of 0.7** for the 2021 Determination period.

IPART's proposed approach to beta calculation

On 1 April 2019, and as part of the WaterNSW Greater Sydney Determination process, IPART published a Fact Sheet[91] asking stakeholders to comment on a new method of using market data to estimate the equity beta used in the return on equity calculation.

This new method implements the decisions IPART made in its 2018 WACC Review to improve the way it estimates the equity beta. IPART stated that:

> *To illustrate how this method would work, we have estimated a water industry beta using our new method. However, we have not applied this estimate in the three current water price reviews, as we are still developing this process and we have not yet consulted with stakeholders on the new method. Instead, we have applied our existing water industry beta in those reviews. We note that our current standard water industry beta (0.7), is similar to the estimate derived here (0.74). We would have regard to the equity beta estimated with this method along with other evidence on beta in our future WACC decisions.*[92]

As part of the Greater Sydney Determination process, IPART is reviewing its criteria for proxy selection, and its list of comparator companies that meets its criteria at the start of the price review and will give stakeholders the opportunity to propose additional comparable industries that meet its criteria, but not individual stocks. Comments on IPART's approach to applying the new equity beta were provided to IPART on 22 May 2020 and have not been considered further in this pricing proposal.

In calculating the equity beta, IPART has stated it will:

- Continue to use the SLCAPM as its foundation model;
- Use the broadest possible selection, but exclude thinly traded stocks to improve its selection of proxy companies;
- Amend its proxy selection process to make it more transparent, predictable and replicable for stakeholders; and
- Continue to use the Vasicek adjustment, but no longer use the Blume adjustment to refine its approach to mitigating estimation bias in raw Ordinary Least Squares (OLS) beta estimates.

We support these improvements from IPART's 2013 method.

WaterNSW requests the opportunity to comment on IPART's approach to proxy selection during the course of the 2021 Determination.

Market Risk Premium

Under the 2018 WACC Methodology, IPART will continue to measure the **historic MRP as a range with a midpoint of 6%**.

IPART has, however, modified its earlier approach and measures for estimating the current MRP.

While IPART will still estimate the current MRP value using six different methods and then select a single point estimate, IPART will modify one of the methods – the market indicator method – by replacing two of the indicators previously used (the dividend yield and the risk-free rate) with a single new indicator (earnings yield less the risk-free rate).

IPART will also modify the way its selects a single point estimate for the current MRP to:

[91] IPART Fact Sheet on equity beta. https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-administrative-legislative-requirements-sea-wacc-methodology-2017/fact-sheet-estimate-equity-beta-1-april-2019.pdf
[92] Ibid. Page 2.

- Combine the estimates derived by the five dividend discount model (DDM) methods into a single DDM MRP by calculating the median estimate; and
- Calculate the weighted average of this median DDM MRP and the market indicator MRP, giving a two-third weight to the former and a one-third weight to the latter[93].

WaterNSW proposes a **current 'placeholder' MRP of 9.7%** based on the application of IPART's March 2020 market observations as outlined in IPART's April 2020 consultation on the debt margin.

Value of imputation credits

The observed equity returns that IPART uses to estimate the market risk premium are taken after corporate tax. However, the observed equity returns do not take account of the franking credit benefits that Australian investors receive. To take account of this benefit, IPART's current MRP estimates make an implicit adjustment for dividend imputation. This adjustment assumes a value of imputation credits (gamma) of 0.25, in line with IPART's standard WACC method.

The value of imputation credits effectively reduces projected revenues, so they more closely reflect the impact of franking credit benefits that Australian investors receive. The higher the value of imputation credits (ranging from 0 to 1, or 0 per cent to 100 per cent) in a determination, the lower the revenues the business can expect to receive in compensation for paying corporate income tax.

Gamma is directly applied by IPART in its post-tax framework by reducing the corporate tax allowance for the impact of the imputation credits (see Section 10 'Tax allowance' for further detail).

IPART's 2018 WACC Methodology specified the **value of gamma as 0.25** and this has been applied by WaterNSW in determining the revenues and prices contained in this pricing proposal.

Our WACC proposal

WaterNSW proposes that IPART apply its 2018 WACC Methodology for the 2021 Determination period which results in a placeholder **post-tax real WACC of 3.2%**.

The current placeholder WACC represents a significant reduction from the WACC of 4.9% in the current 2016 Determination that reflects, amongst other things, a materially lower interest rate environment. This lower WACC is good news for customers as it results in downward pressure on regulated prices.

The following Table 89 provides WaterNSW's proposed 'placeholder' WACC used in our calculation of proposed revenues and prices in this pricing proposal.

[93] IPART *Review of our WACC method – Final Report, February 2018*. Page 48.

Table 90 – Proposed WACC for the 2021 Determination period

WACC Parameter	Current market data	LT averages	Midpoint average
Nominal risk free rate	0.9	3.1%	2.0%
Inflation	2.30%	2.30%	2.3%
Debt margin	2.1%	2.6%	2.3%
Debt to total assets	60%	60%	60%
Market risk premium (current / long-term)	9.7%	6.0%	7.8%
Gamma	0.25	0.25	0.25
Equity beta	0.7	0.7	0.7
Cost of equity (nominal post-tax)^	7.7%	7.3%	7.5%
Cost of debt (nominal pre-tax)^	3.0%	5.7%	4.3%
Nominal Vanilla WACC^			5.6%
Post-tax real WACC^			**3.2%**

Our **proposed WACC of 3.2%** is based on the values provided in IPART's March 2020 consultation the debt margin. [94]

Inflation forecasting risk impacting our financeability

Market-based measures of expected inflation have fallen dramatically over the last few months and the breakeven inflation series suggests that bond market participants are pricing in close to zero inflation on average over the next four years. Maintaining IPART's current approach for inflation that results in a value of 2.3% is simply not sustainable and puts WaterNSW at significant financial risk when considering the current low inflation forecasts arising from COVID 19 impacts.

We propose that IPART puts in place a mechanism to eliminate the impact of inflation forecast error on the compensation provided for WaterNSW's services. This includes lowering the inflation forecast in IPART's revenue model (e.g. to 1.7%) or by including a new building block in the model that captures the cost difference between an inflation forecast of 2.3% and 1.7%.

Should IPART not adopt these proposals, an uplift to the equity beta would be required to address the increased risk for WaterNSW equity investors.

The following issues relating to WACC, inflation and financeability and the resulting implications, as well as how IPART can take these into account in its final determination for WaterNSW:

- The exceptional impact of the COVID 19 pandemic on the economy as a whole and financial markets more specifically;
- The associated heightened level of uncertainty that exists around all WACC parameters but, in particular, the uncertainty associated with the forecast of inflation used by IPART to derive a real WACC;
- How the uncertainty around the inflation forecast can best be mitigated, and in so doing, reduce or eliminate the prospect of extreme windfall gains or losses accruing to stakeholders as a result of regulatory forecast error;

[94] See https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/regulatory-framework-regulatory-policy-sea-weighted-average-cost-of-capital-wacc-models/wacc-publications/fact-sheet-wacc-consultation-on-debt-margin-april-2020.pdf. We note that IPART's Final Determination for Greater Sydney bulk water services released on 16 June 2020 contained a WACC of 3.4%. Given the timing of the release of the Final Determination and recognising the proposed WACC is a placeholder that will be updated prior to the WAMC Final Determination, we have maintained the use of a 3.2% WACC for this pricing proposal.

- The implications for the financeability of WaterNSW's business were IPART to not adapt its regulatory framework and methodology to the new economic circumstances; and
- How heightened uncertainty should be reflected in the WACC.

In relation to how uncertainty around the inflation can be best mitigated, we note that market based measures of expected inflation have fallen dramatically over the last month. They are now a full 2.0% below the current IPART method that produces an inflation forecast of 2.3%. Our response is summarised below and is supported by an expert report by CEG provided as part our Greater Sydney response to IPART's 2020 Draft Determination.[95]

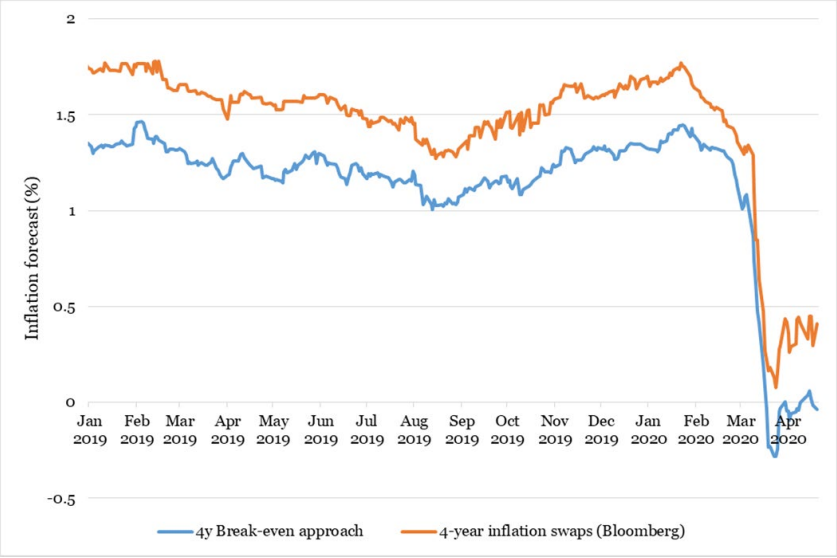
IPART indicated in the 2020 Greater Sydney Final Report that it will adopt an inflation estimate of **2.30%**[96] per annum for deflating the post-tax nominal WACC to a post-tax real WACC.

WaterNSW notes that there is inflation risk associated with IPART's approach to forecasting inflation when calculating the post-tax real WACC, if outturn inflation varies from IPART's forecast. WaterNSW notes that IPART's inflation forecasts (and other regulators' forecasts generally) have been systemically higher than outturn inflation, which results in insufficient cash flows in the determination to achieve IPART's 'notional' real post-tax WACC. This has significant implications for the financeability of WaterNSW's investment program.

Systemic over-forecasting of the WACC results in prices set at artificially low levels that are insufficient to achieve the post-tax nominal WACC calculated by IPART, thereby placing pressure on the credit metrics and financeability of the businesses. WaterNSW has been bearing the forecasting risk given the largely asymmetric nature of the estimating process.

As illustrated in Figure 30 below, market based measures of expected inflation have fallen dramatically over the last month. They are now a full 2.0% below the current IPART method estimate of 2.3%. In addition, the breakeven inflation series suggests that bond market participants are pricing in close to zero inflation on average over the next four years. Whether one considers these market estimates of inflation will be borne out in reality, they are, at a minimum, indicative of extremely high levels of uncertainty about the future path of inflation.

Figure 31 – 4-year breakeven inflation and inflation swaps



[95] See CEG report titled *WACC, inflation compensation and financeability for WaterNSW* provided as Attachment 2. This report was originally provided as Attachment 1 to WaterNSW's 27 April 2020 response to IPART's Draft Greater Sydney Determination and is unchanged from that version.
[96] See IPART Final Determination for Greater Sydney bulk water prices 16 June 2020. Page 166.

Should IPART fail to adapt its approach to the new economic circumstances, then it is highly likely that its forecast for inflation, based on its previously published method, will be materially different to actual inflation, thus creating material windfall gains and losses for stakeholders if market based estimates turn out to be correct.

Even if IPART's forecast for inflation is assumed to be accurate, there will still be a financeability problem for WaterNSW - a problem which will be extremely aggravated if, as is highly likely, IPART's inflation forecast does not accurately forecast actual inflation.

At a high level WaterNSW proposes that IPART should:

- Put in place a mechanism to eliminate the impact of inflation forecast error on the compensation provided for WaterNSW's services (i.e. a true-up); and
- Put in place a mechanism by which revenues in the upcoming regulatory period are increased, in a present value neutral manner, to improve the financeability of WaterNSW's business.

We view the current approach of businesses solely bearing IPART's inflation forecasting risk as unreasonable and inequitable and **should not be borne by either party**. Critically, WaterNSW is not suggesting that customers solely bear the risk of IPART's forecasting inaccuracies. This could be achieved by passing through the difference between IPART's forecasts and actual inflation used in the setting of the real WACC.

We note that some forecasting risk is already shared between WaterNSW and customers through the indexation of the RAB, where actual inflation is applied. Extending a similar approach to IPART's inflation forecasts used in setting the real WACC would be a straightforward and internally consistent exercise.

Specifically, if there was a difference between actual and forecast inflation during a given year of the 2021 Determination period, prices in subsequent years of the 2021 Determination period would be adjusted upwards/downwards as appropriate to eliminate the NPV impact of the forecast error.

In terms of the effect of heightened uncertainty on the WACC, we consider that if the policies set out above are implemented then no uplift is warranted. However, if these proposed policies are not adopted then, **an uplift of around 60bp to the WACC as a minimum** is warranted.

Appendix 5 – Legislative framework

This appendix provides an overview of the WaterNSW statutory framework, statutory objectives and operating licence requirements as they relate to WAMC services.

Statutory overview

The *Water NSW Act 2014 (NSW)* (WaterNSW Act) came into effect on 1 January 2015 allowing for the continuation of the legal entity of State Water Corporation to become WaterNSW and to assume the functions of the former Sydney Catchment Authority[97]. Also on 1 January 2015, WaterNSW replaced State Water Corporation in Schedule 5 of the *State Owned Corporations Act 1989 (NSW)* (SOC Act), making WaterNSW a statutory state owned corporation under that Act.

WaterNSW further increased its scope on 1 July 2016 when the *Water NSW Amendment (Staff Transfers) Act 2016* took effect to facilitate the transfer of employees of the then Department of Primary Industries - Water to WaterNSW. This enabled WaterNSW to carry out conferred functions in relation to water transactions and licensing.

The WaterNSW Act provides at section 11:

> *The Governor may, on the recommendation of the portfolio Minister, grant one or more operating licences to Water NSW to authorise it, in accordance with this Act, to carry out the listed functions specified in the licence, and such other functions as may be conferred or imposed on it by the licence, in the areas and circumstances (if any) specified in the licence.*

It further provides at sub-section 12(4):

> *The terms and conditions of an operating licence may confer on Water NSW any specified functions of:*
>
> *(a) the Minister administering the Water Management Act 2000 under that Act or the Water Act 1912, or*
>
> *(b) the Ministerial Corporation under any Act or law.*

From 1 July 2016, Schedule A of WaterNSW's operating licence 2017-2022 (the Operating Licence) conferred functions on WaterNSW under section 12(4) of the WaterNSW Act. The functions conferred on WaterNSW include functions arising under:

a) the *Water Management Act 2000 (NSW)* (**WM Act**) and the *Water Management (General) Regulations 2011 (NSW)*

b) the Water Act 1912 (NSW) (1912 Act)

c) functions of the Minister under a Management Plan

d) the *Access Licence Dealing Principles Order 2004 (NSW)*

e) the *New South Wales – Queensland Border Rivers Act 1947 (NSW)* (**BRs Act**).

[97] On 1 January 2015 the assets, rights and liabilities of the former Sydney Catchment Authority were transferred to WaterNSW.

These conferred functions are original functions of either the relevant Minister or the Water Administration Ministerial Corporation (WAMC)[98].

At the time of the 2016 WAMC Determination, as all the relevant functions were functions of WAMC or conferred on WAMC, these functions were all described as "WAMC" functions or services (even though some were Ministerial functions conferred on WAMC).

In the same way, WaterNSW is now seeking that all functions conferred on it and that are the subject of this pricing proposal are, going forward, described as "WaterNSW" functions or services.

WaterNSW notes some of its conferred functions are also carried out by either DPIE-W or NRAR. Either:

- The same function for different customers groups (some customers to be served by DPIE-W and some by WaterNSW). For example, DPIE-W will perform licensing functions (other than dealings) for approximately 300 customers that meet specific criteria such as irrigation corporations and mines; or
- The same activity for different purposes. For example, site visits; although NRAR now undertakes compliance monitoring and enforcement, WaterNSW retains some of the same activities where they serve a billing or revenue protection purpose.

In addition to staff undertaking water licensing functions, the transfer of staff the subject of the *Water NSW Amendment (Staff Transfers) Act 2016* included staff undertaking water monitoring activities. WaterNSW is authorised to undertake these activities directly under section 7 of the WaterNSW Act or through the conferral of the functions of WAMC under section 372(1) of the WM Act, see below.

Statutory objectives

The principal objectives of WaterNSW set out in section 6 of the WaterNSW Act are:

a) to capture, store and release water in an efficient, effective, safe and financially responsible manner, and

b) to supply water in compliance with appropriate standards of quality, and

c) to ensure that declared catchment areas and water management works in such areas are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment, and

d) to provide for the planning, design, modelling and construction of water storages and other water management works, and

e) to maintain and operate the works of Water NSW efficiently and economically and in accordance with sound commercial principles.

The other objectives of WaterNSW, set out in section 6(2) of the WaterNSW Act are of equal importance but are not as important as the principal objectives of WaterNSW. They are:

a) to be a successful business and, to that end:

[98] Conferred functions under:
- The WM Act includes functions of both the Minister, predominately, and WAMC
- The 1912 Act are predominately functions of WAMC (noting that the applicability of the 1912 Act is diminishing)
- The *Access Licence Dealing Principles Order 2004 (NSW)* relates to applications which require the Minister's consent under Chapter 3 of The WM Act
- The BRs Act are functions of WAMC.

(i) to operate at least as efficiently as any comparable business, and

(ii) to maximise the net worth of the State's investment in Water NSW,

b) to exhibit a sense of social responsibility by having regard to the interests of the community in which it operates,

c) to exhibit a sense of responsibility towards regional development and decentralisation in the way in which it operates,

d) where its activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development contained in section 6 (2) of the Protection of the Environment Administration Act 1991.

Operating Licence

WaterNSW operates in accordance with its Operating Licence. The Operating Licence authorises WaterNSW, within its Area of Operations (the whole of the State of NSW) to undertake the majority of its listed functions set out in section 7 of the WaterNSW Act:

a) to capture and store water and to release water:

i) to persons entitled to take the water, including release to regional towns; and

ii) for any other lawful purpose, including the release of environmental water;

b) to supply water to Sydney Water;

c) to supply water to water supply authorities and to local councils or county councils prescribed by the Regulations;

d) to supply water to persons referred to in section 7(1)(d) of the Water NSW Act;

e) to supply water to other persons and bodies, but under terms and conditions that prevent the person or body concerned from supplying the water for consumption by others within the State unless the person or body is authorised to do so by or under an Act;

f) to construct, maintain and operate Water Management Works (including providing or constructing systems or services for supplying water);

g) to protect and enhance the quality and quantity of water in Declared Catchment Areas;

h) to manage and protect Declared Catchment Areas and Water Management Works vested in or under the control of Water NSW that are used within or for the purposes of such areas;

i) to undertake research on catchments generally, and in particular on the health of Declared Catchment Areas; and

j) to undertake an educative role within the community.

Relevantly, “Water Management Works” as referenced in paragraph (f) above has the same definition as in the WM Act, namely a water supply work, a drainage work or a flood work, and includes any part of such a work. A water supply work is defined in the WM Act as:

(a) without limiting paragraphs (b)–(g), a work (such as a water pump or water bore) for the purpose of taking water from a water source, or

(b) a work (such as a tank or dam) for the purpose of capturing or storing water, or

(c) a work (such as a water pipe or irrigation channel) for the purpose of conveying water to the point at which it is to be used, or

(d) any work (such as a bank or levee) that has, or could have, the effect of diverting water flowing to or from a water source, or

(e) any work (such as a weir) that has, or could have, the effect of impounding water in a water source,

including a reticulated system of such works, and includes all associated pipes, sluices, valves, metering equipment and other equipment, but does not include:

(f) any work (other than a water supply work under the control or management of the Sydney Water Corporation, the Hunter Water Corporation or a local water utility) that receives water from a water supply work under the control or management of the Sydney Water Corporation, the Hunter Water Corporation or a local water utility, or

(g) any work declared by the regulations not to be a water supply work.

A drainage work is defined in the WM Act as:

a work (such as a pump, pipe or channel) for the purpose of draining water from land, including a reticulated system of such works, and includes all associated pipes, sluices, sluice gates, valves, metering equipment and other equipment, but does not include:

(a) any sewage work (within the meaning of Part 2 of Chapter 6), or

(b) any work declared by the regulations not to be a drainage work.

A flood work is defined in the WM Act as:

a work (such as a barrage, causeway, cutting or embankment):

(a) that is situated:
(i) in or in the vicinity of a river, estuary or lake, or
(ii) within a floodplain, and

(b) that is of such a size or configuration that, regardless of the purpose for which it is constructed or used, it is likely to have an effect on:
(i) the flow of water to or from a river, estuary or lake, or
(ii) the distribution or flow of floodwater in times of flood,

and includes all associated pipes, valves, metering equipment and other equipment, but does not include any work declared by the regulations not to be a flood work.

The Operating Licence also contains the conferred functions that are the subject of this pricing proposal. The overwhelming majority of these are Ministerial functions related to the licensing services. Of relevance to water monitoring services is the conferral of WAMC functions contained in section 372(1) of the WM Act as follows:

(a) to construct, maintain and operate water management works,

(a1) to construct, maintain and operate gauging stations and other monitoring equipment,

(b) to conduct research, collect information and develop technology in relation to water management,

(c) to acquire rights to water, whether within or beyond New South Wales.

The *Independent Pricing and Regulatory Tribunal (Water Services) Order 2004 (NSW)* defines a monopoly service as:

Any service provided by WNSW or WAMC, to the extent to which the service involves:

(a) the making available of water, or

(b) the making available of the SWC's or WAMC's water supply facilities, or

(c) the supplying of water, whether by means of the WAMC's or SWC's water supply facilities or otherwise,

is declared to be a government monopoly service.

In the 2016 Determination Final Report[99], IPART noted:

"In interpreting this clause for this (and past) determination, we have included activities related to the assessment, allocation, planning, monitoring and reporting of water resources, as far as these activities are undertaken to ensure supply to users.

We also had regard to the objectives of the National Water Initiative (NWI), and the guidance this agreement provides on setting prices for water management services. For example, we have complied with the NWI's direction to exclude (when setting prices) any costs related to Ministerial and Parliamentary services and refinement of overarching policy frameworks from efficient costs".

[99] Page 36.

Appendix 6 – Proposed output measures

IPART advised that it intends to continue using the IPART output measures for the IPART price determinations. In the Special Information Request letter, IPART asked that both DPIE/NRAR and WaterNSW outline its position on additional or revised output measures for the 2021 determination period.

WaterNSW understands that DPIE-W/NRAR seeks the continuation of the current framework on output measures over the upcoming 2021 determination period. We support the proposition that the three agencies should be subject to performance metrics that promote efficient operational performance that is achievable within the IPART funding envelope.

WaterNSW looks forward to working with IPART and DPIE/NRAR to develop a suite of output measures that are both fit for purposes and relevant to the changing needs of the WAMC business and the water industry.

We note that WaterNSW is subject to an IPART operating licence regime which does not apply to DPIE and NRAR as government agencies. We consider that it would be appropriate for IPART to consider opportunities to avoid creating cumulative or overlapping regulatory burdens across the output measures framework and the IPART licensing regime.

We ask that IPART consider the appropriate legal mechanism by which to impose output measures on the three agencies that carry out functions on behalf of WAMC.