



ICRC
independent competition and regulatory commission

CONFIDENTIAL

Review of the ACT Water Abstraction Charge pricing methodology

February 2024



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We have responsibility for a broad range of regulatory and utility administrative matters. We are responsible under the ICRC Act for regulating and advising government about pricing and other matters for monopoly, near-monopoly and ministerially declared regulated industries, and providing advice on competitive neutrality complaints and government-regulated activities. We also have responsibility for arbitrating infrastructure access disputes under the ICRC Act.

We are responsible for managing the utility licence framework in the ACT, established under the *Utilities Act 2000* (Utilities Act). We are responsible for the licensing determination process, monitoring licensees' compliance with their legislative and licence obligations and determination of utility industry codes.

Our objectives are set out in section 7 and 19L of the ICRC Act and section 3 of the Utilities Act. In discharging our objectives and functions, we provide independent robust analysis and advice.

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Executive summary

Water is essential to everyday life and for maintaining a sustainable environment. In the ACT, high-quality drinking water is available at the turn of a tap and it is easy to forget that water is a scarce natural resource, both for consumptive use and for maintaining the health of our waterways.

Enormous efforts have been put in at the national and jurisdictional level across Australia to reform the water sector over the past 30 years. Commencing with the 1994 COAG reforms, the water sector has seen the introduction of the National Water Initiative, the Water Act 2007 and the Murray-Darling Basin Plan, all aimed at the sustainable management of our water resources.

However, despite these extensive reforms, most urban water charges continue to omit the costs associated with water sustainability. Instead, governments have relied on non-price demand mechanisms or supply augmentation to manage water scarcity and environmental externalities. These alternatives can be costly, particularly when implemented as a reactive response to short-term conditions.

The ACT Government sought to include water sustainability costs into ACT water charges using the approach developed by the commission in 2003. However, since its introduction, the approach has not been reviewed or developed in 20 years to ensure consistency with national legislative requirements or ACT policy objectives.

Water charges in the ACT should include the costs associated with achieving water sustainability. The concept of sustainability underpins the national legislative framework for water and there are specific requirements in the legislation to include environmental externalities in water charges where feasible. The inclusion of such costs provides a signal to consumers about the value of the scarce resource they are using, it provides the appropriate incentives to consider alternative options such as recycled water, and the resulting funds can be used directly to address water sustainability, including environmental damage caused by urban water consumption.

We recommend that the water charges comprise two separate components.

- A water sustainability charge: we recommend that a water sustainability charge reflect both the estimated economic value of water as a scarce resource and an estimate of negative environmental externalities associated with extracting water for consumptive purposes.
- A water planning and management charge: this charge reflects the costs associated with planning and managing water and catchment areas in the ACT. These costs are directly related to the provision of potable water and are not included in Icon Water's regulated costs.

For this review, we propose using a methodology similar to that used in our 2003 review, with changes to reflect the legislative requirements that have since been introduced. In future, we recommend that the methodology be reviewed more regularly, perhaps every 5 years in line with the water price investigation process. This way, the methodology can be developed and refined over time to better reflect the costs of achieving a sustainable water supply in the ACT.

Implementation of our recommended methodology results in hypothetical charges for 2023-24, levied on the volume of water extracted, of 16.4 cents per kL for water planning and management and 26.5 cents per

kL for water sustainability. The corresponding placeholder estimates for 2024-25 are 23.2 cents per kL and 28.9 cents per kL for water planning and management and water sustainability, respectively. We estimate a small but improved level of water affordability compared with current rates.

We recommend that both charges are applied to potable water, while only the sustainability charge is applied to non-potable surface water and ground water. For stormwater and recycled water, we recommend that neither charge is applied. We consider the use of both water sources to be beneficial to the environment and to improving water sustainability in the ACT. Imposing a sustainability charge would provide the perverse incentive of discouraging use of these water sources. Our recommended estimates are summarised in Table 1. Water charges based on the current approach are also presented for comparison.

Table 1: Recommended water charges for 2023-24 and 2024-25, cents per kL, nominal

	WPM charge	Water sustainability charge	2023-24 current approach	2023-24 proposed approach	2024-25 current approach	2024-25 proposed approach
Potable water	✓	✓	69.0	42.9	71.1	52.1
Non-potable water						
Surface water	✗	✓	33.4	26.5	34.4	28.9
Ground water	✗	✓	33.4	26.5	34.4	28.9
Stormwater	✗	✗	33.4	0.0	34.4	0.0
Recycled water	✗	✗	33.4	0.0	34.4	0.0

We recommend that the sustainability charge be used to compliment other supply and demand mechanisms such as augmentation of current supplies, investment in alternative supply options, extraction limits, water restrictions and community education and awareness programs. These alternatives all impose costs, and the use of a sustainability charge can reduce or delay these costs. Having a full complement of tools available to maintain a sustainable supply of water in the ACT is more important than ever as we face the substantial challenges ahead associated with population growth and climate change.

1. Introduction

On 30 October 2023, the ACT Government requested the commission to undertake a review of the pricing methodology for determining the ACT Water Abstraction Charge (WAC). The context provided for the review includes:

- Agreement by the ACT Executive in August 2022 to a program of priority reform activities for the management of the ACT's water. This included improving accountability and transparency of current funding arrangements, including the WAC, a regulatory water charge for potable and non-potable water levied by the ACT Government.
- Advice EPSDD received in 2022 from a consultant on the appropriateness of current WAC reporting and that the cost components of the current WAC are potentially inconsistent with eligible costs in the Water Charge Rules.
- A request by the Minister for Water, Energy and Emissions Reduction to take into consideration the outcomes of this review in the Government's response to a report prepared by Treasury in 2021 on non-potable water pricing.
- Recognition that the ACT has entered into a series of intergovernmental agreements since the commission's review of the WAC in 2003 and the WAC has not been reviewed to ensure it remains fit for purpose and adheres to these agreements¹.

The scope of work for this review identifies the following key issues for consideration:

1. Consider the WAC for potable and non-potable water and determine:
 - a. If the current WAC rate and individual components that comprise the pricing methodology for the WAC are compliant with the Water Act 2007 (Cwlth), with its [water charging objectives and principles](#), [Water Charge Rules 2010](#) and [National Water Initiative Pricing principles](#); and
 - b. If the Charge is effective in supporting the Territory's water policy outcomes.
2. Consider alternative methods taken by other Australian jurisdictions regarding:
 - a. the applicability of these methods, or elements of these methods, to setting water charges for the stated water policy outcomes in the ACT;
 - b. relevant prior considerations by the Urban Water Sub-Committee (National Water Reforms) on water charge methodology, particularly regarding environmental externalities and water scarcity; and
 - c. any other economic considerations deemed to be informative relative to setting water charges.
3. Based on findings in 1 and 2, recommend a methodology for setting the Territory's fees and charges for potable water and non-potable water that:

¹ ACT Government 2023

- a. considers the appropriateness and feasibility of including environmental externalities and water scarcity in fees and charges for water take, its effectiveness for achieving the water policy outcome, and the implications to water affordability or the like from such an inclusion;
 - b. include provision(s) which ensure transparency and accountability in price setting and reporting, particularly to assist in setting out all components of the water charges;
 - c. provide a suitable process for the periodic review of the methodology to ensure that charges meet their intended purposes, with the ICRC to advise on an appropriate cadence for reviews that ensure the charges remain cost reflective and continue to meet water policy outcome; and
 - d. considers any other economic matters to ensure a robust methodology.
4. Test the method to assess financial impact on water users by:
- a. applying the proposed pricing method to derive a hypothetical water charge for the 2023-24 financial year and comparing it with the WAC applied in 2023-24; and
 - b. applying the method to derive the potable and non-potable water charge for the forward 2024-25 financial year.

The work is to be undertaken under section 12 of the ICRC Act 1997. The commission is to provide advice in the form of a final report, including any findings and recommendations, to the Treasurer and the Minister for Water, Energy and Emissions Reduction. This document is the final report providing the requested advice.

The remainder of this report is structured as follows:

- Section 2 provides a summary of the commission's 2003 WAC review and changes to the WAC rate that have occurred since to assess whether they are compliant with the current national legislative framework and effective in supporting the Territory's water policy outcomes.
- Section 3 reviews the approach taken in other Australian jurisdictions to estimating components of the WAC to help guide our recommendations.
- Section 4 sets out our recommended approach for calculating the WAC going forward, considering our previous methodology, changes in the water market that have occurred since our last review and the methods used by other Australian jurisdictions.
- Section 5 applies our proposed pricing methodology to derive a hypothetical water charge for 2023-24. We also apply our proposed methodology to derive the potable and non-potable water charges for 2024-25.
- Section 6 examines the financial impacts of our proposed methodology, including the impacts for water users.
- Attachment 1 identifies the major water reforms that have taken place since our 2003 review, including Commonwealth agreements and ACT water policy, to understand the implications for the WAC methodology going forward.
- Attachment 2 identifies the activities relevant for calculating water planning and management costs.
- Attachment 3 provides responses to the issues raised in the 2022 consultancy advice received by EPSDD.

2. Current WAC methodology and rates

The methodology for calculating the WAC was last reviewed by the commission in 2003. Since that time, the ACT Government has increased the WAC rate significantly for potable water, independent of the methodology that the commission recommended in 2003. This section summarises the 2003 WAC review undertaken by the commission and the change in WAC rates that have occurred since to provide a view on whether they are compliant with the current legislative framework and effective in supporting the Territory's water policy outcomes.

2.1 2003 WAC review

In 2003, the Treasurer issued a reference to the commission to investigate and provide advice on an appropriate level for the WAC. The reference also required that the commission advise on an appropriate methodology for the calculation of the WAC in future years.

In this review, it was determined that the WAC should, to the extent possible, reflect actual costs that are incurred by the ACT Government and the costs that are reflected in the imposts that are borne as a result of the ACT's abstraction of water for consumptive purposes (excluding those incurred by Icon Water, at the time ACTEW)². The commission concluded that the methodology for calculating the WAC must satisfy four criteria: transparency, reliability, flexibility and legality.

The commission identified three possible costs of water not covered by the regulatory arrangements applying to Icon Water:

- catchment management costs directly incurred by the ACT Government
- environmental costs associated with consumptive water use
- the scarcity value of water

The commission's decision was to spread catchment management costs over the total amount of water abstracted to arrive at a cost per kilolitre (kL). For environmental costs and the scarcity value of water (referred to in the commission's report as flow costs), the commission's decision was to limit these costs to flows not returned to the system. It reported that of the 65 gegalitres (GL) of water abstracted, only 35 GL are returned through the water treatment facility, with the remainder lost to the water system each year.

2.1.1 Catchment management costs

For catchment management costs, the commission decided to spread any one-off capital expenditure items over three years instead of establishing a regulatory asset base and calculating the return on and return of capital (as is done for Icon Water's pricing determination). The commission identified Government water supply expenditures at \$5.3 million, which it divided through by 65 GL of annual water abstracted to arrive

² ICRC 2003

at a catchment management cost of 8.2 cent per kL. The commission noted that this estimate excluded bushfire recovery costs, which it expected to add an additional 2 cents per kL.

2.1.2 Scarcity value

The commission considered that because water not used in the ACT can flow downstream and be used for other purposes which have economic value, such as irrigation, there is a scarcity value associated with consumptive use of water in the ACT and it is reasonable to reflect this in the WAC. It concluded that the scarcity value can be determined from traded water prices.

The commission took the weighted average of trading prices for temporary entitlements for the previous two years. At the time, there was no market for tradable water that included the ACT and therefore the commission considered that water abstracted downstream from the ACT (ie along the Murrumbidgee River) was the best proxy for the scarcity value of water in the ACT. Based on data from the Water Exchange, the weighted average price of water for 2001-02 and 2002-03 was \$96 per ML for the 2003-04 year. Multiplying this by the share of total abstracted water not returned to the system (ie 30GL/65GL or 46%) gave a scarcity value of \$44 per ML or 4.4 cents per kL.

2.1.3 Environmental costs

The commission identified environmental costs as the most difficult cost to measure and concluded that only those costs relating to environmental flows should be included in the WAC. Specifically, the commission only included environmental costs associated with the effect on the flow of water downstream associated with altering the timing and magnitude of downstream flows by retaining water in dams and not returning all the water we abstract to the downstream water system. The commission used the Murray Darling Basin Commission's estimate of the average downstream cost of maintaining or augmenting river flows as a proxy for this environmental cost. While the Conservation Council at the time argued for a broader interpretation of environmental costs, which recognised that ecosystems have an inherent value, the commission concluded it was not appropriate to include these given the measurement difficulties.

According to MDBC estimates, the average cost to preserve or permanently recover one ML of water in the system was \$2,000. The commission multiplied this by the average interest rate on ten-year government bonds in September 2003, which was 5.54%. This gave an annualised environmental cost of \$111 per ML. Multiplying this by the share of total abstracted water not returned to the system gave an annual environmental cost of \$51 per ML or 5.1 cents per kL.

2.1.4 Total WAC

Based on the above estimates, the commission arrived at a total WAC estimate of 17.7 cents per kL, which it suggested could increase to approximately 20 cents per kL, taking into account costs associated with the bushfire recovery.

2.1.5 Application of the WAC to non-potable water

In its draft report, the commission concluded that the WAC for non-potable water (formal reuse water and water extracted from dams and similar holdings) should reflect the flow costs but not the catchment management costs. However, in the final report, the commission considered that given the stage 3 water restrictions that were in place at the time, even a reduced WAC may send the wrong signal to consumers of reused water and may even discourage use. Therefore, while the commission noted the theoretical advantages of applying a WAC to reuse water and urban storm water used within urban areas, it concluded that the application of the WAC to this water was inappropriate in the current climate.

2.1.6 Administration of the charge

The commission recommended that the WAC be passed directly on to consumers as a separate charge and should be applied on a per kL basis to all potable water charged for by Icon Water, at the same constant rate per kL for all customers. The commission also set out the methodology and data sources that should be used in updating the WAC annually.

2.2 WAC rates and revenue

As discussed above, the commission's 2003 review resulted in a potable WAC estimate of 20 cents per kL, including estimated costs associated with recovery from the January 2003 bushfires. From 1 January 2004, the ACT Government increased the WAC from 10 cents per kL to the commission's proposed rate of 20 cents per kL. The same rate was set for both potable and non-potable water.

The commission's 2003 review set out a methodology and data sources for updating the WAC annually. However, to the commission's knowledge, this approach was not adopted by the ACT Government in determining annual WAC charges.

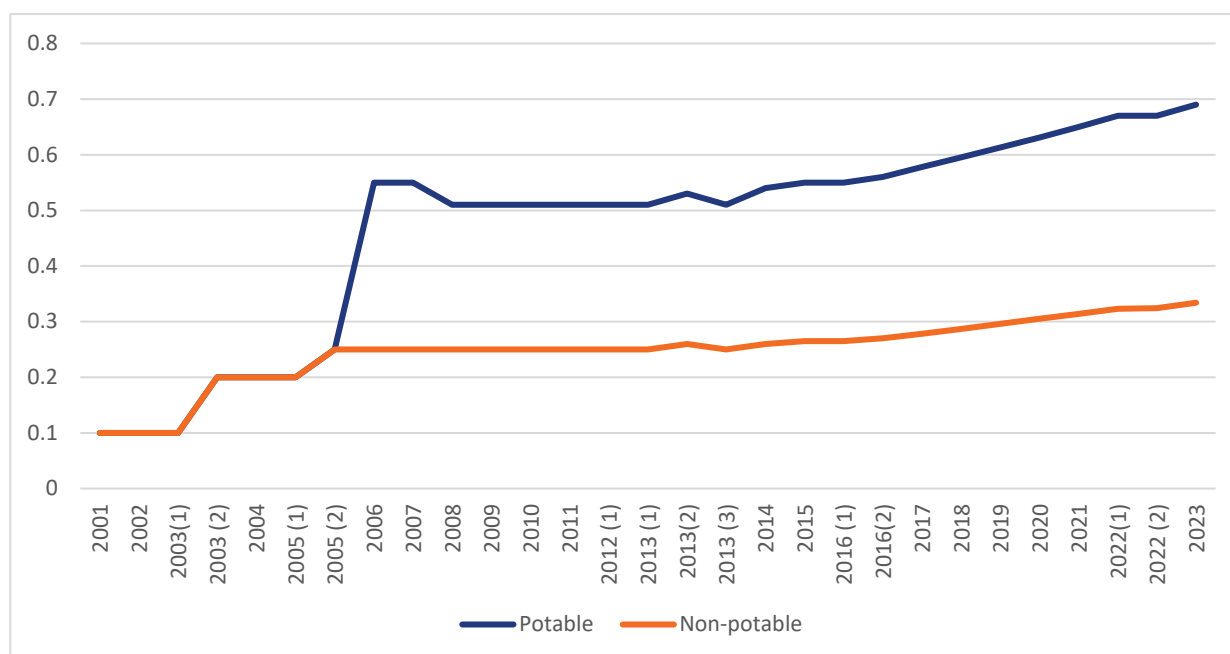
The WAC has increased significantly since our 2003 review, with the most notable increase being in 2006-07 when the potable WAC was increased 120% from 25 cents to 55 cents per kL (see Figure 1). In 2006-07, no change was made to the non-potable WAC, which remained at 25 cents per kL. The gap between the potable and non-potable WAC, introduced in 2006-07, has remained a feature of the WAC, with the non-potable WAC being set just below half the potable WAC since this time. In 2023-24, the WAC is set at 69 cents per kL for potable water and 33.4 cents per kL for non-potable water.

The ACT Government provides reasoning for increases in the annual WAC charges in explanatory statements to its fee determinations. For example, in explaining the large increase in the WAC in 2006-07, the explanatory statement stated:

This increase in the WAC represents the decision of Government to charge a price for water that more fully reflects its true economic value. This value represents an appropriate price for a scarce resource and is likely to achieve a more economically sustainable approach to water consumption within the Territory.

ACT GOVERNMENT 2006

The WAC raises considerable revenue. For 2023-24, the commission included an allowance of \$35.9 million for the WAC in potable water prices based on a potable WAC rate of 69 cents per kL and estimated forecast releases of 51,982 ML. At the current rate of increase in the WAC, the commission expects that the potable WAC rate will be 78 cents per kL by the end of the current regulatory period for water, raising \$41.9 million in revenue in 2027-28. The revenue recovered from the potable WAC, represents 11% of Icon Water's total regulated revenue allowance for 2023-24.

Figure 1: WAC rates, 2001-02 to 2023-24, \$nominal

Source: Water Resources (Fees) Determination, Disallowable Instrument, from 2001 to 2023.

2.3 Compliance with current legislation

During the 20 years since our last WAC review, there have been significant water reforms introduced across Australia, largely in recognition of the environmental damage caused by water extractions. In 2004, the National Water Initiative (NWI) was introduced, providing a framework and principles to underpin the sustainable management of our water resources. The Water Act 2007 introduced a framework to manage water resources in the Murray Darling Basin (MDB) and established the MDB Authority to develop a plan to return extractions to environmentally sustainable levels. The Basin Plan, which was adopted in 2012, establishes the volume of water that can be extracted from the Basin (the 'environmentally sustainable level of take') and the volume of water required to be recovered by 30 June 2024. The first review of the plan is to take place in 2026.

The Water Act 2007 also provides for the Water Charge Rules, which provide transparency in charges and costs for customers of monopoly water infrastructure providers across the Basin. The ACCC monitors regulated charges and compliance and enforces these rules. The ACCC's role in the water sector is largely focused on irrigation infrastructure operators and bulk water suppliers, as other water infrastructure operators are regulated by state agencies and fall outside the coverage of the Water Charge Rules. However, the ACCC does monitor and report on the charges and costs of water planning and management in MDB jurisdictions, including the ACT.

The ACT Water Strategy 2014-44 is consistent with national water objectives and compliant with the Basin Plan. The vision for water management in the ACT over the 30-year period covered by the strategy is 'A community working together, managing water wisely to support a vibrant, sustainable and thriving region'. For this review, the most relevant of the three key outcomes of the water strategy is a sustainable water supply used efficiently.

Appendix 1 provides details of the national and ACT water reforms that have been introduced since our last WAC review in 2003 and the implications for our recommended methodology.

2.3.1 2003 WAC review

It is our view that the methodology set out in our 2003 review is consistent with the NWI pricing principles, Water Act 2007 and Water Charge Rules 2010, with the exception of the calculation of catchment management costs (referred to in the current legislation more broadly as water planning and management or WPM costs). The methodology is also effective in supporting the Territory's water policy outcomes.

Regarding WPM costs, the NWI pricing principles set out the WPM activities that can be included in water charges and the activities that should be excluded. The NWI pricing principles also set out the methodology for converting capital expenditure to annual costs. Given that the NWI pricing principles were not in place at the time of our 2003 review, the commission's methodology may include some costs in the WAC charge that should be excluded such as the costs associated with developing water policy. In addition, the methodology proposed in our 2003 review for converting WPM capital expenditure to annual costs was to spread the capital expenditure over 3 years. The NWI pricing principles set out a different approach to annualising capital expenditure.

There is clear guidance in both the NWI and Water Act 2007 for including environmental externalities in water charges where feasible (see Box 1). The commission's 2003 methodology included an estimate of negative externalities associated with diverting water from the MDB. A cost-based methodology was proposed to approximate the value of the negative externalities by using an estimate of the cost of permanently returning water to the MDB system. In our view, this methodology is compliant with both the NWI and Water Act 2007.

Box 1: Environmental externalities in the NWI and Water Act 2007

Under the NWI, the States and Territories agree to:

- i) continue to manage environmental externalities through a range of regulatory measures (such as through setting extraction limits in water management plans and by specifying the conditions for the use of water in water use licences);
- ii) continue to examine the feasibility of using market based mechanisms such as pricing to account for positive and negative environmental externalities associated with water use; and
- iii) implement pricing that includes externalities where found to be feasible

Similarly, the Water Act 2007 (Part 3) requires the cost of environmental externalities to be included in water charges where feasible:

- 1) Market-based mechanisms (such as pricing to account for positive and negative environmental externalities associated with water use) are to be pursued where feasible.
- 2) The cost of environmental externalities is to be included in water charges where found to be feasible.

In terms of the scarcity value included in our 2003 methodology, there are no specific pricing principles or guidance in the relevant national legislation that require the inclusion of a scarcity value in water charges. Similarly, there is nothing in the current legislative framework that prevents the inclusion of a scarcity value in water prices. Water sustainability is clearly one of the key objectives underlying legislative reforms over the past 20 years and recognising its value as a scarce resource in water charges assists in curbing demand and encouraging the use of more sustainable water sources. Our 2003 methodology involved estimating the scarcity value of water using traded water allocation prices outside urban areas. In our view, this is not only appropriate but consistent with the objectives of the current water legislation.

The methodology proposed in our 2003 WAC review is also likely to be effective in supporting the Territory's water policy outcomes. Specifically, the inclusion of environmental costs and a scarcity value in water charges provides a signal to water consumers about the true economic value of their water usage. Consumers will only use water to the extent that the value they place on usage exceeds the underlying cost of supplying water, including its economic value as a scarce resource and the negative environmental externalities that arise because of consumption. While our 2003 methodology only provides an approximation of these costs, the inclusion of these costs should still ensure more efficient use of water in the ACT compared with the alternative of excluding them from water charges.

2.3.2 Current WAC rate

While the current WAC rate may be effective in supporting the Territory's water policy outcomes, it is not transparent in how it complies with the national legislative framework.

The ACT Water Strategy 2014-44 includes as one of its key outcomes; a sustainable water supply, used efficiently. Demand side management is part of the ACT Government's strategy to achieve this outcome and scarcity pricing is identified as a strategy to be explored in promoting efficient water use. On this basis, an increase in the WAC to more fully reflect its true economic value is likely to be effective in supporting the Territory's water policy outcomes by reducing demand for potable water usage and providing improved signals for alternative water supply options.

However, there is not adequate explanation of the methodology used to calculate the charge or details of the underlying cost components of the charge. While the substantial increase in the WAC may have been appropriate during the drought, it was not subsequently reduced to reflect changes in water availability. It is also unclear what costs the ACT Government is including in the WPM component of the WAC and whether this reflects the current legislative framework.

3. Approaches used in other Australian jurisdictions

A review of approaches used in other Australian jurisdictions reveals that most jurisdictions across Australia allow for the recovery of WPM costs, some jurisdictions impose charges towards environmental costs, but no jurisdiction applies a specific environmental externality charge. While we could not find any jurisdiction that included a scarcity value in urban water charges, flexible water usage pricing has been implemented for Sydney Water and Hunter Water, which signals to customers the increased costs of providing water during drought. The scarcity value of water is also reflected in the traded price of water outside urban areas.

3.1 Water planning and management costs

All MDB jurisdictions across Australia allow for the recovery of at least some of the costs of associated with water planning and water catchment management, through bulk water charges and the pass-through of state government fees. For example, Melbourne Water, Water NSW and SEQ Water provide bulk water to retail water companies within their respective states. They usually own and operate water supply assets such as dams, weirs and transport pipelines as well as having responsibility for some water planning and catchment management. State regulators include the water planning and management costs undertaken by bulk water providers in determining bulk water charges. In addition, state government costs are also passed through to water users.

For example, in NSW the Independent Pricing and Regulatory Tribunal (IPART) regulates the prices that can be charged for bulk water supply by Water NSW and the water management services delivered on behalf of the Water Administration Ministerial Corporation (WAMC). In both cases, IPART determines charges using a building block methodology.

The Queensland Government undertakes a range of activities to sustainably manage state's water resources. To cover a portion of the costs associated with water management and planning, fees and charges are applied to certain aspects under the Water Act 2000. The fees include application and administrative fees, water charges, royalties for riverine quarry material, and drainage rates.³

In South Australia, the Essential Services Commission of South Australia (ESCOSA) issues advice on new water licence fees to be set by the Treasurer under the Water Industry Act 2012. Under the Water Industry Act 2012 of South Australia, the water retailers are bound to a fixed water industry licence fee to cover the base and additional costs attributable to activities associated with departmental and agency costs. The base costs also include the costs borne by the Department of Environment and Water (DEW) which have wide ranging functions, including water planning. Over the 2020-24 period, the proposed prescribed costs for DEW are \$2.3 million, contributing to total prescribed costs of \$33.4 million.⁴ These prescribed costs are included in ESCOSA's final determination operating expenditure allowance for SA Water⁵.

³ Queensland Government, 2023

⁴ ESCOSA 2019, p.3

⁵ ESCOSA 2020, p.149

3.2 Environmental costs

South Australia and Victoria appear to be the only other Australian jurisdictions that operate schemes to recover environmental costs. This is consistent with the findings of the Productivity Commission (PC) in its 2017 review of the NWI.⁶ The PC found that all jurisdictions had continued to use measures such as extraction limits and/or water licence conditions in their management of environmental externalities. It found that the Northern Territory, Tasmania and Western Australia had made no progress toward using charges to recover the cost of environmental externalities from users and there had been no change to this position since 2014.

In South Australia there are two levies related to environmental costs – the water levy and landscape levy. The water levy is legislated and governed under the Landscape South Australia Act 2019 and is payable by all licence holders within the South Australian proportion of the Murray-Darling Basin. The water levies are used to fund water planning and management activities, including water resource management, floodplain and wetland management, landscape planning, research, and management programs.⁷ The levy is collected by the Department of Environment and Water and does not apply where the water is taken for domestic purposes or for the watering of farming not subject to intensive farming.

The landscape levy, previously known as the Natural Resource Management levy, is charged to all ratepayers across the state. The levy acknowledges that all landowners are responsible for sustaining and managing the state's landscapes for the benefit of the community. The levy is collected by local councils but raised by regional landscape boards to fund programs indicated in the annual business plan for landscape management and deliver its commitments under the Regional Landscape Plan.⁸

South Australia did operate another levy, Save the Murray Levy, between 2003 and 2015, which cost residential and business customers approximately \$40 and \$182 per year, respectively.⁹ The levy funded works and measures to improve the health of the river in South Australia and the decision to abolish it was in recognition that the original purpose of the fund, to allow South Australia to lead the campaign to Save the River Murray, had been achieved.

In Victoria, the Victorian Government introduced an Environmental Contribution Levy (ECL) in 2004 as a funding mechanism for the Victorian Government's *Our Water Our Future* policy which identified several water reforms and environmental initiatives aimed at improving the sustainability of the water supply and usage. The intention of the levy was both as funding for water management initiatives following years of environmental degradation and prolonged drought, and to provide price signals to Victorian water users about the impact of their water consumption on the environment¹⁰.

The ECL is collected from water supply authorities under the *Water Industry Act 1994*. The first tranche of environment contributions commenced in 2004. The current and fifth tranche of contributions began on 1 July 2020 and is expected to raise \$694 million over 4 years¹¹. The Essential Services Commission (ESC) of Victoria allows the environmental contributions to be included in the operational expenses allowance of regulated water companies. The environmental contributions are set by the Victorian Government and calculated as 5% of revenue for urban water businesses and 2% of revenue for rural water businesses¹².

⁶ Productivity Commission 2017, p.425-427

⁷ Government of South Australia 2020

⁸ [landscape-levy-factsheet-2021.pdf \(environment.sa.gov.au\)](#)

⁹ Government of South Australia 2023

¹⁰ Victorian Auditor General 2014, p.vii

¹¹ Victoria State Government 2023

¹² Victorian Auditor General 2014, p.ix

In 2014 the Victorian Auditor General undertook an audit of the administration and governance arrangements for the ECL, whether funded initiatives had achieved intended outcomes and the transparency and public reporting of the levy. The audit found that while the Department of Environment and Primary Industries' administration of individual projects had been sound, there were deficiencies in the management of the ECL. It found there were weaknesses in the processes for selecting and prioritising proposed projects, articulating the levy's strategic priorities and costs and evaluation of the effectiveness of the levy and public reporting of the ECL. In response to the audit, the secretary of the Department of the Environment and Primary Industries accepted all the report's recommendations¹³.

The PC reports that in NSW, the costs incurred by water utilities in meeting regulatory measures designed to address environmental externalities are scrutinised by IPART and passed through to users in price determinations.¹⁴ Overall, it finds that no jurisdiction is applying a specific 'environmental externality' charge. It notes that the levies of Victoria, South Australia and the ACT raise funds for a variety of purposes, including WPM activities. It states that while these charges and levies may not be suited to dealing with specific externalities (including those that arise regardless of the amount of water used), they can be a cost-effective way of raising revenue to address a range of environmental externalities. The PC states that the effectiveness of such an approach relies on transparency as to how the tax is determined and how the funds are used.¹⁵

3.3 Scarcity value

In its 2020 decision for Sydney Water, IPART introduced flexible water usage prices. In response to the 2017-19 drought and to address future climate uncertainty, IPART decided to implement dynamic water usage pricing to manage Sydney Water's additional costs during drought, and to send a stronger signal to customers to conserve water in periods of scarcity¹⁶. This mechanism means Sydney Water charges customers at a higher per kL rate in drought when water storage levels are low. As a result, the water usage price varies between a non-drought price of \$2.35 per kL and a higher drought price of \$3.18 per kL based on water storage levels. The drought water usage price applies from 31 days after dam levels fall below 60% and return to the base price 31 days after dams exceed 70% again¹⁷. IPART implemented a similar approach for Hunter Water.

It is also important to note that the value of water as a scarce resource is reflected in the traded prices of water rights, which occurs mainly between irrigators in non-urban areas. The Department of Climate Change, Energy, the Environment and Water (DCCEEW) states that water users can buy or sell water rights, on a permanent or temporary basis and this encourages the best use of our scarce water resources¹⁸. Water trading in Australia is well developed, particularly in the MDB, which represents the largest set of water markets in Australia. Basin markets have an annual average value of more than \$1.8 billion per year and rising, against an underlying value of entitlements estimated at around \$30 billion and rising¹⁹. Water rights can be traded freely, except where they are restricted by physical constraints or trading rules. Water is traded by public and private market participants mostly through intermediaries (brokers, water exchange platforms and other entities that facilitate water market trades) and through approval authorities.

¹³ Victorian Auditor General 2014, p.30-31

¹⁴ PC 2017, p.426

¹⁵ PC 2017, p.427

¹⁶ IPART 2020, p.77

¹⁷ IPART 2020, p.79

¹⁸ DCCEEW 2023d

¹⁹ Quinlivan 2022

Water markets have not developed in urban areas, as water is usually allocated to Government agencies or Government-owned water companies and is held together with other assets for supplying water services. There have been studies suggesting the decoupling of water ownership from catchment and supply infrastructure to allow the development of competitive urban water markets²⁰. While this approach has the potential to address the current underpricing of water as a scarce resource and provide improved incentives for investment, it has not been pursued in Australia despite being an agreed outcome of the NWI²¹.

3.4 Implications for recommended methodology

State governments pass through WPM costs to water users, either in part or in full. IPART appears to have the most prescriptive methodology for state agency fees, including the calculation of a RAB and operational expenditure for WAMC.

Some state governments do have, or have had, a charge for addressing environmental costs. Victoria's ECL is the closest to the environment costs included in the 2003 WAC methodology. Victoria's ECL is 5% of revenue for urban water users and was subject to audit to assess appropriate governance, outcomes and transparency.

IPART has included the concept of scarcity pricing in water usage prices for Sydney Water and Hunter Water and the value of water as a scarce resource is reflected in traded water prices in non-urban areas.

²⁰ Sibly and Tooth 2007

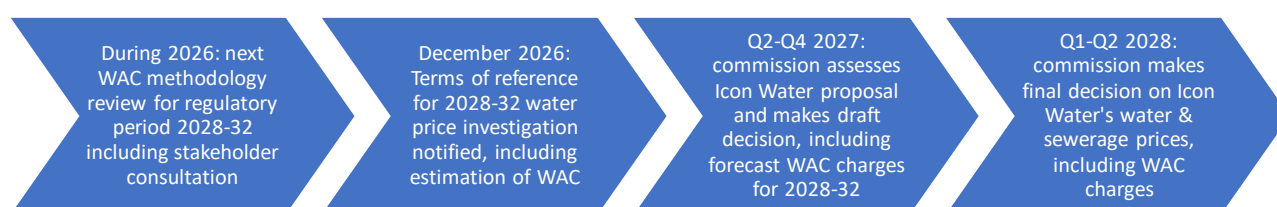
²¹ NWI 2004, paragraph 90(iv)

4. Recommended approach

In our view, the methodology used in the commission's 2003 review remains valid, although some changes are recommended to bring the charges in line with legislative changes introduced since 2003, current information and the increased costs associated with addressing environmental damage.

For the four-year period from 2024-25 to 2027-28, we propose that water abstraction charges are set using the approach recommended in this review. For future periods, we recommend that the methodology for calculating the relevant costs be reviewed as part of the 5-year price investigation process for determining Icon Water's water and sewerage service prices. In the lead-up to the price investigations, the commission can undertake a full review of the methodology and then estimate the costs using that methodology as part of the price investigation. To facilitate transparency, we propose the methodology and estimated costs be made publicly available. Ideally, the process for determining the methodology would be subject to public consultation to ensure the methodology considers the views of stakeholders. The proposed review process for the next regulatory period is set out in Figure 2.

Figure 2: Proposed review process for WAC, 2028-32 regulatory period



4.1 Water planning and management costs

The costs associated with planning and managing water and catchment areas in the ACT should be included in water charges. These costs are directly related to the provision of potable water in the ACT and are not included in Icon Water's regulated costs. The NWI, Water Act 2007 and Water Charge Rules 2010 set out the planning and management costs that can be recovered from water charges. Given that the application of the Water Charge Rules 2010 to the ACT are limited to the monitoring and reporting of WPM costs, we recommend that the charges to recover WPM costs are separated from charges related to water sustainability. This will ensure that the methodology for WPM charges can be clearly identified and reported, consistent with the NWI pricing principles, Water Act 2007 and Water Charge Rules 2010. In addition, it will provide clarity for ACCC reporting purposes on WPM cost recovery.

The commission's original decision on the proposed methodology and estimate of catchment management costs was made prior to the introduction of the NWI, Water Act 2007 and Water Charge Rules 2010. Our recommendation is to adjust our 2003 methodology and calculation of WPM costs using the approach set out in relevant legislation.

4.1.1 Legislative requirements

The legislation dealing with WPM charges includes the NWI, the NWI pricing principles and the Water Charge Rules 2010.

Under the NWI (paragraphs 67 and 68), the States and Territories agree to bring into effect consistent approaches to pricing and attributing costs of water planning and management involving:

- i) the identification of all costs associated with water planning and management, including the costs of underpinning water markets such as the provision of registers, accounting and measurement frameworks and performance monitoring and benchmarking;
- ii) the identification of the proportion of costs that can be attributed to water access entitlement holders consistent with the principles below:
 - a. charges exclude activities undertaken for the Government (such as policy development, and Ministerial or Parliamentary services); and
 - b. charges are linked as closely as possible to the costs of activities or products.

The States and Territories agree to report publicly on cost recovery for water planning and management as part of annual reporting requirements, including:

- i) the total cost of water planning and management; and
- ii) the proportion of the total cost of water planning and management attributed to water access entitlement holders and the basis upon which this proportion is determined.

The NWI pricing principles set out background and principles for recovering the costs of WPM activities (see Box 2). The pricing principles require Government activities to be excluded from WPM water charges, the costs to be subject to cost-effectiveness test, the allocation of costs to be based on an impactor pays approach, costs to be differentiated by catchment, valley or region where practicable and community service obligations to be eliminated or minimised.

Appendix B to the NWI pricing principles sets out the WPM activities and identifies those activities that should be excluded from WPM charges²². The activities broadly cover:

- a) collecting and analysing data to gain a better understanding of the levels of extractions as well as the potential implications of extraction for the water system, and managing this data;
- b) developing policies to manage the resource, including managing the interstate sharing of the resource;
- c) developing plans and strategies/frameworks to allocate water among users and the environment, and to remediate impacts associated with water use;
- d) implementing these plans/strategies/frameworks and monitoring compliance against the plans;
- e) undertaking capital works, such as the modification of weirs to achieve environmental outcomes;
- f) administering water entitlements, compliance, metering and trading systems.

²² Appendix B of the NWI Pricing Principles is reproduced in Attachment 1

Box 2: NWI pricing principles for WPM

Principle 1: Water planning and management

Water planning and management activities include the activities outlined in the water planning and management activities framework provided at Appendix B.

Principle 2: Government activities

Water planning and management charges levied on to water users should exclude the cost of activities undertaken for government such as policy development and Ministerial or Parliamentary services (Paragraph 67 (ii a) of the NWI refers). These activities are marked with an asterisk in the activities framework provided at Appendix B, and the associated activity costs should be allocated entirely to governments.

Principle 3: Cost-effectiveness test

Having identified water planning and management costs to be recovered from water users, in whole or in part, activities should be 'tested' for cost-effectiveness by an independent party and the findings of the cost-effectiveness review are to be made public.

Principle 4: Cost allocation

Costs are to be allocated between water users and governments using an impactor pays approach.

Principle 5: Differentiation of costs

Water planning and management costs are to be identified and differentiated by catchment or valley or region and by water source where practicable. Water planning and management charges should in turn, recover the costs of the activities concerned and be differentiated by catchment or valley or region and by water source (e.g. regulated, unregulated or groundwater sources) where practicable.

Principle 6: Community Service Obligations

Where practical, jurisdictions should aim to reduce or eliminate subsidies or Community Service Obligations. Any shortfall between the revenue required to achieve cost recovery from water users and the total costs recovered through water charges, should be transparently reported.

The Water Charge Rules 2010 (Part 4, rules 12 and 13) set out the requirements for the schedule of charges for a person, other than an infrastructure provider, who determines or levies planning and management charges.

4.1.2 Methodology

Our recommended methodology involves identifying the operating and capital costs associated with the WPM activities set out in the NWI pricing principles. We propose using a building block approach to calculate the total annual WPM revenue required to recover costs. This approach involves establishing an asset base for WPM activities and calculating the return on and return of this asset base each year. We then add the annual operating expenditure and a notional tax allowance to these annual capital costs to arrive at an estimate of total annual costs. We deduct from these total annual costs the annual revenues that the ACT Government collects toward recovery of these costs from other sources (ie sources other than the WAC). These include water access entitlement fees, application fees and administration fees. The result of this calculation is the total annual revenue required to be recovered from WPM charges.

This is the same approach the commission uses for determining Icon Water's water and sewerage charges and is consistent with the NWI.

We propose establishing an asset base starting from 2018-19 and extending this to 2027-28. This period aligns with our price investigation decisions for Icon Water. We will use actual capital expenditure for the period 2018-19 to 2022-23 to establish a starting asset base for 2023-24 and then forecast capital expenditure to estimate a RAB for the 5-year period from 2023-24 to 2027-28. This approach 'draws a line in the sand' for the period prior to 2018-19 and assumes any capital expenditure made prior to 2018-19 has been fully recovered, either through the WAC or consolidated revenue. We will also use forecast operational expenditure for the period 2023-24 to 2027-28 to calculate total annual costs for WPM activities. We will deduct forecast revenue from other sources to calculate an annual net revenue requirement, which will allow us to estimate WPM charges for the 5-year period from 2023-24 to 2027-28.

Consistent with the approach used to set water and sewerage charges for Icon Water, at the time of the next price investigation (for the 5-year period commencing 1 July 2028) we will roll-forward the RAB using actual capital expenditure for 2023-24 to 2027-28 and assess actual operating expenditure against forecast expenditure to assist in determining operational expenditure for the next regulatory period. At least for the first regulatory period, we propose implementing an annual true-up of costs using the existing pass-through mechanism. Given this is the first time WPM costs are being forecast, there may be a significant difference between forecast and actual costs.

4.2 Water sustainability costs

The scope of work for this review asks us to consider the appropriateness and feasibility of including scarcity costs and environmental externalities in fees and charges for water take and the effectiveness of such inclusion for achieving water policy outcomes and the implications to water affordability. We consider scarcity costs and environmental externalities together as 'water sustainability' costs, as they are aimed at achieving a sustainable water supply both for consumptive use and the environment.

4.2.1 Appropriateness

Water sustainability has been at the heart of Commonwealth water reforms for over 20 years and is central to the ACT Government's water policy outcomes (see attachment 1). The ACT Government identifies scarcity pricing as one of the approaches to be explored to promote efficient water use²³. This approach, aimed at reducing demand, to help achieve sustainable use of water in the ACT has been in place in some form since 2003 when the commission proposed the inclusion of a scarcity value and environmental costs in the WAC. The ACT Government's decision to increase the WAC significantly in 2006-07 was explicitly aimed at charging a price for water that more fully reflects its true economic value.²⁴

Therefore, it is appropriate to signal the costs associated with water sustainability in water charges, both as a scarce resource for consumption and as necessary for achieving sustainable environmental outcomes. It is also consistent with what would occur in a competitive market. As evidenced in non-urban areas where water is traded freely, there is a value placed on water as a scarce resource and this value increases and decreases over time based on supply and demand conditions.

However, it is also important to recognise that the ACT already has in place extraction limits under the MDB Plan that are aimed at improving environmental outcomes across the Basin. Including a price-based externality charge in addition to the quantity restriction may be viewed as doubling-up on addressing

²³ ACT Government 2014, p.37

²⁴ ACT Government 2006

environmental externalities. In our view, extraction limits do play a role in balancing consumptive use and environmental needs, but they are not effective in internalising environmental externalities. Unless the extraction limits have some impact on consumption decisions, for example, forcing water restrictions to be enacted, they do not provide any signal to consumers about the impact of their water use on the environment and will not assist in ensuring the right trade-offs are made between different water supply options. Further, the quantity limits do not raise revenue that could potentially be used for addressing environmental damage to our waterways.

4.2.2 Feasibility

In terms of feasibility, scarcity values and environmental externalities are inherently difficult to identify and accurately estimate. However, it is possible to arrive at an approximation of these costs and therefore move prices in the right direction. In our view, this provides a better outcome than the alternative of excluding these costs entirely from water charges. This position is supported by the Productivity Commission which states:

It can be difficult to estimate accurately the appropriate scarcity charge. However, any move in the right direction will have efficiency advantages and so precision is not essential.

PRODUCTIVITY COMMISSION 2008, P.51

Over time, as the methodology is developed and refined, better estimates of these costs will be available and will more accurately signal to customers the costs of achieving a sustainable water supply.

4.2.3 Effectiveness and affordability

The effectiveness and affordability of including these costs in water charges are, to some extent, linked. We assess the affordability of moving from the current WAC rates to the rates that would apply under our recommended approach in section 6. We find that our recommended approach has a small but positive impact on water affordability. However, to assess the effectiveness of including the WAC in water charges, it is not the impact of a change in the rate from its current level to the recommended level that is relevant. Rather, it is the impact of including such charges versus excluding them all together that is important. We find that including our recommended rates in water prices versus excluding them all together (ie setting the WAC to zero) has a significant impact on water prices. For example, we estimate that potable water prices would be between 5% (in 2023-24) and 30% (in 2027-28) higher as a result of including our recommended WAC charges versus excluding them. Even assuming a highly inelastic demand for water with respect to price, differences of this magnitude will assist in reducing demand for potable water.

It is also relevant to observe that elasticities are likely to be higher in the long run than in the short run. As consumers become more aware of price changes, and greater opportunities to use potable water more efficiently (including the use of alternatives to potable water), there will be a greater quantity response. The ACT has already achieved its water efficiency targets (set under the ACT's previous water strategy) to reduce mains water by 25% compared with 2003 levels, with the bulk of these reductions achieved through increased efficiencies and reduced demand in residential water use²⁵. The ACT Government also reports that the per capita use of ACT mains water supply has more than halved over the last 15 years²⁶. It is likely that pricing, coupled with other demand measures, have contributed to these results. Studies in the United States have also found that demand responses can be greater in times of drought. These studies found that

²⁵ ACT Government 2014, p.37

²⁶ ACT Government 2014, p.4

drought levies have been effective in reducing demand, particularly when coupled with other demand measures and public awareness and education programs²⁷. While empirical studies result in a high degree of variability in elasticity estimates for water demand, they tend to indicate that there is scope to use prices to significantly affect the demand for water in urban areas²⁸.

In addition, reflecting the economic cost of water sustainability in prices, ensures that water consumers make the appropriate trade-offs between alternative sources of water. For example, the inclusion of a sustainability charge in potable water prices will make it more attractive for residential consumers to invest in alternative water sources such as rainwater tanks and, for non-residential users, it makes the use of recycled water or stormwater more attractive options. Finally, if the revenue raised from the charges is used for improving water sustainability then the charges are likely to be more effective, while also having a limited impact on water affordability in the ACT.

On balance, we consider it appropriate to signal the economic value of water as a scarce resource through prices. We recommend that a water sustainability charge reflect both the estimated economic value of water as a scarce resource (referred to in our 2003 review as a scarcity value) and an estimate of negative environmental externalities associated with extracting water from the MDB system (referred to in our 2003 review as environmental costs). In making this recommendation, we are not suggesting that the sustainability charge be used in place of other supply and demand mechanisms. We will still need to plan and invest in future supply options, set extraction limits to assist in balancing consumption and environmental water uses and we may still need water restrictions in times of extreme and prolonged droughts.

However, it is important to recognise that other supply and demand mechanisms also involve substantial costs to the community. For example, in 2008, the Productivity Commission estimated that water restrictions were costing in the order of \$1 billion annually across Australia with the burden falling heavily on the household sector and those least able to afford mitigation measures²⁹. A 2006 study found that Canberra households were willing to pay between \$109 and \$268 per year to have lower level 1 or 2 water restrictions imposed rather than level 3 to 5 restrictions³⁰. There are also costs associated with the loss of amenity and recreational opportunity, costs to businesses in forcing changes to production processes and the costs of administering restriction regimes. The cost to taxpayers of Government funded supply augmentations such as desalination plants has also been substantial.³¹ The use of a sustainability charge assists in reducing or delaying these costs by reducing demand and encouraging the use of alternative, more sustainable, water sources.

4.2.4 Future considerations

We consider our recommended approach is sufficiently robust to provide a signal to consumers that the water they are using is a valuable resource due to its scarcity and importance to sustaining the environment. However, in future, we recommend further consideration be given to the methodology used to estimate sustainability costs, particularly whether the economic value of water as a scarce resource should be considered as a longer-term concept. The methodology recommended in this review reflects a short-term concept, looking at the value of water over the forecast year. This approach has the advantage of signalling to customers the current level of water scarcity in the ACT but may not capture the longer-

²⁷ See for example Frontier Economics 2011, p.28-29

²⁸ Productivity Commission 2008, p.47

²⁹ Productivity Commission 2008, p.28

³⁰ Hensher, Shore and Train 2006

³¹ See for example NWC 2011, p.16-20

term concept of sustainability central to national water reforms and the ACT Water Strategy. For example, the definition of water security under the town and city water security framework is:

Ensuring that needs for water in towns and cities – encompassing quantity, quality, and affordability and access – can be met, over time and under changing supply and demand profiles. And, that this is achieved by investment coordination and operations that are economically efficient, financially and environmentally sustainable, culturally appropriate, and resilient to shocks.

AITHER 2023A, P.12

In future we could consider the costs associated with augmenting supply or introducing new supply options as a method for approximating the sustainability cost. This could include recognising the option value associated with investing in water supply infrastructure in an uncertain environment and directly linking the option value with ACT dam levels.

4.3 Economic value of water

In our 2003 review, we used the traded price of temporary water allocations as a proxy for the scarcity value of water. Our decision gave more weight to more recent years given these years would better reflect the value that society currently puts on water. At the same time, we recognised that this may create short-term fluctuations in prices that mean a degree of averaging is desirable. Given no future prices were available at the time, the commission used prices from the previous 2 years but doubled the weight given to the more recent year.

We consider that prices for temporary water allocations (sale of a specific volume of water allocated to a water access entitlement in a given year) remain a good indicator of the short-term economic value of water. Water allocation prices vary considerably over time, with traded prices determined by the value placed on water by buyers and sellers in response to many factors such as the purpose of water use, weather patterns, available allocations, storage volumes, jurisdictional legislative arrangements and commodity market conditions³². As shown in Figure 3, average annual allocation prices in the NSW Murrumbidgee region have varied considerably over time reaching nearly \$900 per ML during the Millennium drought and increasing again during the 2017 to 2019 drought. In contrast, the average allocation price for 2022-23 was very low due to continued wet conditions and high carryover balances.

The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) provides information on the historical average price of water allocations in the southern MDB (and individual regions within the southern MDB) as well as a forecast for the upcoming year. We propose using ABARES' forecast for the NSW Murrumbidgee region to approximate the economic value of water as a scarce resource in the ACT. We propose that the forecast is updated annually.

This approach of using a single forecast year has the potential to result in significant annual fluctuations, depending on market conditions. However, we estimate that the economic value of water as a scarce resource would account for a relatively small share of Icon Water's water prices. For example, based on our estimate for 2023-24, the economic value of water as a scarce resource would account for just 0.5% of an average residential bill. Even at an average annual allocation price of \$900 per ML, as occurred during the

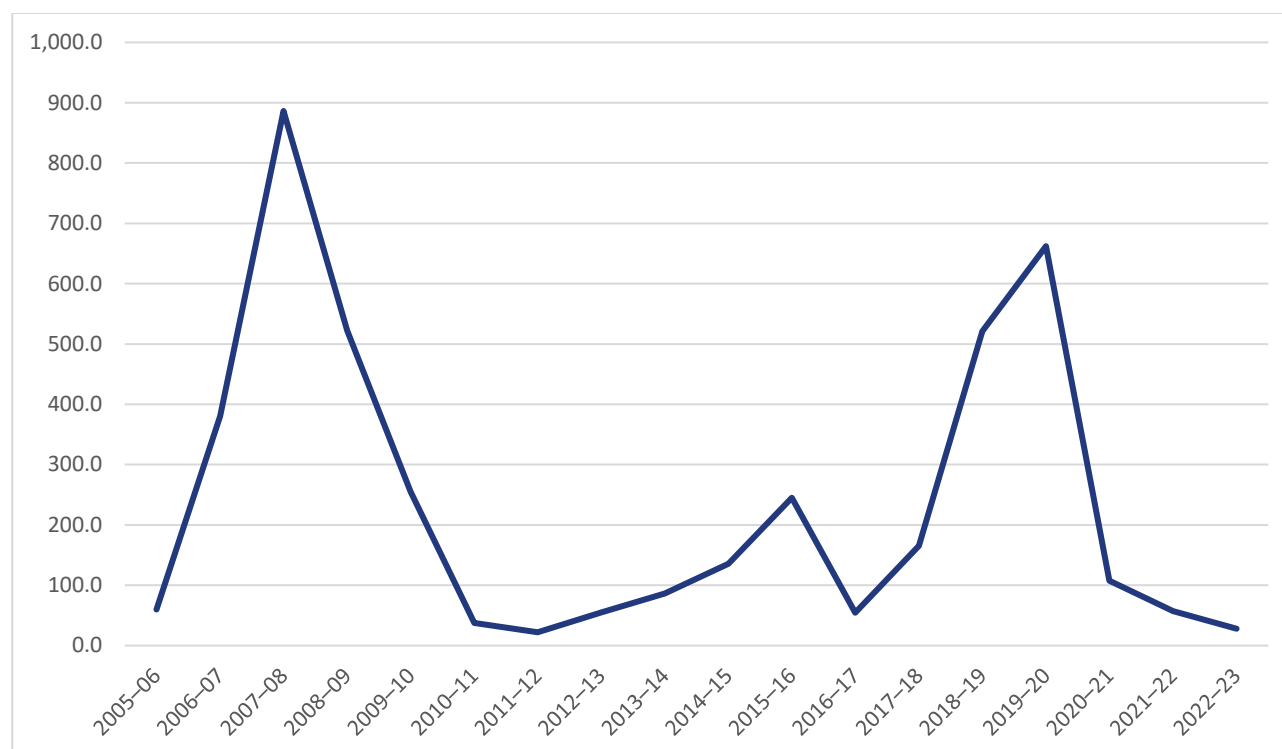
³² Bureau of Meteorology 2023

Millennium drought, our estimate of the economic value of water as a scarce resource would only increase to 6% of an average residential bill.

While this is appropriate for signalling the short-term economic value of water, an alternative approach of using a longer averaging period could result in more stable prices. We examine both options in section 5.2.

Consistent with our methodology review in 2003, we propose that the economic value of water is applied only to flows not returned to the MDB system.

Figure 3: Historical water allocation prices in NSW Murrumbidgee region



Source: ABARES 2023

4.4 Environmental externalities

Negative environmental externalities arise when the costs associated with environmental damage are excluded from the transaction between a buyer and seller³³. That is, the costs are 'external' to the party causing the damage and are instead social costs borne by third parties which, in the case of water, includes future generations. These externalities are not reflected in market prices, which results in prices being too low. The inclusion of the costs of environmental damage into charges is referred to as internalising externalities and allows appropriate trade-offs to be made about the use of natural resources such as water.

It is for these reasons that national water reforms have encouraged the inclusion of environmental externalities in prices where feasible.

Under the NWI, the States and Territories agree to:

³³ Similarly, the Productivity Commission defines externalities as the effects of consumption or production decision on people other than those directly involved, see Productivity Commission 2017

- i) continue to manage environmental externalities through a range of regulatory measures (such as through setting extraction limits in water management plans and by specifying the conditions for the use of water in water use licences);
- ii) continue to examine the feasibility of using market based mechanisms such as pricing to account for positive and negative environmental externalities associated with water use; and
- iii) implement pricing that includes externalities where found to be feasible

Similarly, the Water Act 2007 (Part 3) requires the cost of environmental externalities to be included in water charges where feasible:

- (1) Market-based mechanisms (such as pricing to account for positive and negative environmental externalities associated with water use) are to be pursued where feasible.
- (2) The cost of environmental externalities is to be included in water charges where found to be feasible.

Given the clear guidance on environmental externalities in the relevant legislation, it is our view that it is appropriate to include environmental externalities in water charges for the ACT.

There are a range of different techniques used to evaluate the costs of environmental externalities which can be broadly divided into three categories:

- Revealed preference approaches: valuations take account of the market price of goods and services, pricing that reflects the value of environmental amenities and production functions – the effects of using goods on future production possibilities.
- Cost-based approaches: These include costs to replace ecosystem goods and services, expenditure on mitigation or averting damage and the damage costs avoided by preventing pollution or maintaining ecosystems.
- Stated preference approaches. This technique uses surveys to directly measure people's willingness to pay to maintain ecosystem services that are not traded.

The approach used in our 2003 review was to include the environmental costs associated with altering the timing and magnitude of downstream flows by not returning all the water we abstract to the downstream water system. The commission used the MDB Commission's estimate of the average downstream cost of maintaining or augmenting river flows as a proxy for this environmental cost.

We propose using a similar cost-based approach to calculating environmental externalities in this review.

5. Calculation of WAC

This section presents the results of implementing the recommended approach for estimating the different components of the water charge. Our figure for 2024-25 is a placeholder value and should be updated when ABARES releases its water market outlook forecasts for 2024-25, expected in April 2024.

5.1 Planning and managements costs

As discussed in section 4.1, we propose calculating WPM costs using a building block approach and estimating the charges for a 5-year regulatory period consistent with the water and sewerage price investigation. We recommend an annual true-up to account for the difference between forecast and actual costs.

We have obtained actual capital and operating costs for the period 2018-19 to 2022-23 for all WPM activities from the Office of Water within EPSDD. We have been informed that the cost information from 2020-21 onward is more robust following clarity provided on the definition of WPM activities. We have excluded costs associated with water reform, strategy and policy as required under the NWI and Water Act 2007. We have also excluded costs that EPSDD advised should not have been reported as WPM activities. We then forecast costs for the new regulatory period from 2023-24 to 2027-28.

We forecast operating costs using the same approach as for our water and sewerage price investigation. This methodology is referred to as base-step-trend and involves the following steps.

- Establishing a representative base year of actual costs. We use average operating expenditure incurred over the 2-year period from 2021-22 to 2022-23 as our base year. EPSDD identifies these 2 years as the most reliable for estimating the base year.
- Determining if there are any step changes in operating costs over the forecast period. These are costs that are not reflected in the base year but are expected to be incurred during the forecast period. EPSDD has provided cost estimates for a range of projects for inclusion in the WPM charge that are reflected in their bid for the 2024-25 budget cycle and to be considered in early 2024.
- Applying a trend factor to the base year to move the base year value forward to the forecast years using forecast changes in real wages.

We forecast base capital costs using the average capital expenditure for the 3-year period from 2020-21 to 2022-23. EPSDD has identified a further three capital projects for inclusion in the WPM charge, that are not reflected in base capital costs. This additional expenditure is dominated by a water recovery project that involves \$12 million of capital expenditure in 2024-25 and \$16 million per year in the following 3 years.

We also forecast other revenue that the ACT Government collects toward the recovery of WPM costs (other than the WAC revenue). This includes water access entitlement fees, application fees and administration fees. This revenue has been relatively stable over time and we forecast future values based on a linear trend.

The resulting expenditure and revenue forecasts are presented in Table 2.

Table 2: Forecast operating and capital expenditure and other revenue, \$ nominal

	2023-24	2024-25	2025-26	2026-27	2027-28
Operating expenditure	6,884,083	9,409,241	9,420,022	9,695,393	9,778,215
Capital expenditure	3,570,690	16,024,930	19,782,212	19,892,626	20,006,264
Other revenue	119,730	125,949	132,430	139,181	146,213

Source: EPSDD and our calculations

Consistent with the NWI pricing principles, we convert capital expenditure to annual expenditure by calculating the return on and return of capital. To do this we must establish a RAB. As discussed in section 4.1, we draw a line in the sand at 2018-19. We assume that all capital expenditure incurred prior to 2018-19 has been fully recovered, either through the WAC revenue or consolidated revenue. Therefore, our starting RAB for 2018-19 is zero and we establish an opening asset base as at 2023-24 based on actual expenditure from 2018-19 to 2022-23. We then forecast the RAB for future years using our opening RAB as at 2023-24, forecast capital expenditure and forecast depreciation. We also index the RAB annually for inflation. The resulting RAB values over the forecast period are set out in Table 3 below.

Table 3: Regulatory asset base, \$ nominal

	2023-24	2024-25	2025-26	2026-27	2027-28
Opening RAB	18,124,117	21,133,908	36,066,345	54,257,721	72,097,554
Forecast capital expenditure	3,570,690	16,024,930	19,782,212	19,892,626	20,006,264
Indexation	581,218	850,871	1,341,638	1,874,311	2,396,769
Depreciation	1,142,117	1,943,364	2,932,474	3,927,106	4,927,419
Closing RAB	21,133,908	36,066,345	54,257,721	72,097,554	89,573,168

Source: EPSDD and our calculations

Based on this information, we can then calculate the building blocks that determine the total revenue required each year to fully recover WPM costs. We use the same rate of return, inflation and tax parameters as used in our water and sewerage decision for Icon Water. The resulting building blocks for each year of the regulatory period are set out in Table 4.

Table 4: Building blocks, \$ nominal

	2023-24	2024-25	2025-26	2026-27	2027-28
Return on capital	1,171,918	1,749,386	2,811,634	4,002,315	5,213,049
plus depreciation	1,142,117	1,943,364	2,932,474	3,927,106	4,927,419
less indexation	581,218	850,871	1,341,638	1,874,311	2,396,769
plus opex	6,884,083	9,409,241	9,420,022	9,695,393	9,778,215
less other revenue	119,730	125,949	132,430	139,181	146,213
plus tax payable	19,759	28,926	45,611	63,720	81,481
less imputation credits	9,880	14,463	22,805	31,860	40,741
Total revenue requirement	8,507,049	12,139,633	13,712,868	15,643,181	17,416,441

Source: EPSDD and our calculations

Finally, we divide the total revenue requirement by the total forecast volume of water extracted for potable use. The forecast volumes are taken from our final decision for Icon Water's water and sewerage services and are presented in Table 5 with the estimated WPM charge.

Table 5: Forecast volumes and estimated WPM charges, \$ nominal

	2023-24	2024-25	2025-26	2026-27	2027-28
Forecast releases, ML	51,982	52,307	52,845	53,414	53,952
WPM charge, \$/kL	\$0.164	\$0.232	\$0.259	\$0.293	\$0.323

Source: our calculations

5.2 Economic value of water

As discussed in section 4.3, we propose calculating the economic value of water using the forecast price of water allocations in the Southern MDB. We propose applying this price only to the share of abstracted water that is not returned to the system.

In April 2023, ABARES published its forecast for average allocation prices for 2023-24³⁴. ABARES' forecasts are aligned with state water agency allocation outlooks and are based on historical inflow and rainfall conditions: wet, average, dry and extreme dry. For the NSW Murrumbidgee region of the MDB, ABARES allocation price forecast is between \$54 per ML and \$271 per ML. ABARES considers the average scenario most likely for 2023-24 implying a water allocation price of \$81 per ML, only slightly higher than for the whole southern MDB (see Table 6). ABARES report that prices are presented in 2022-23 dollars and therefore we have applied CPI for 2023-24³⁵ to arrive at a price of \$83 in 2023-24 terms.

³⁴ BoM 2023

³⁵ We have used CPI forecasts consistent with that used in our final decision for Icon Water's water and sewerage prices for 2023-28. As we recommend aligning the decision for Icon Water with the decision for the WAC, we would, in future reviews, be using consistent inputs and assumptions.

Table 6: Average allocation price scenarios for 2023-24, \$ per ML (\$2022-23)

	2022-23	Wet	Average	Dry	Extreme Dry
Southern MDB	\$29	\$53	\$80	\$129	\$202
NSW Murrumbidgee	\$28	\$54	\$81	\$157	\$271

Source: ABARES Water Market Outlook, April 2023

ABARES has not yet released its forecast average allocation prices for 2024-25. Given the expected drier conditions moving into 2024-25, we expect the forecast allocation price to be higher than 2023-24. As a placeholder, we have used the midpoint between the average and dry condition price forecasts for 2023-24 and adjusted for CPI. This gives a value of \$126 per ML. We recommend this value is updated when ABARES releases its 2024-25 forecast in April 2024.

In addition to the allocation price of water, we also need a measure of flows not returned to the river system. The ACT Water Resources Environmental Flow Guidelines 2019 state that, through Icon Water, the ACT can divert up to 71GL a year from urban water supply. Of the amount diverted, around 60% is returned to streams as treated effluent³⁶. Downstream of the Queanbeyan and Lower Molonglo sewage treatment works on the Molonglo River there is a significant increase in base flows as a result of the return of treated effluent to the river. Augmented flows are not necessarily of benefit to the aquatic ecosystems because natural ecosystems are not adapted to the constant, high base flows that large sewage treatment plants can discharge. In addition, contaminants such as nutrients and salt in the discharged effluent from sewage treatment plants may compromise the value of the returned flows to rivers.

While it may be the case that not all return flows are beneficial to the environment, we do consider it appropriate they be included as flows available for alternative use and therefore use the split of 60%/40% for returned and unreturned flows, respectively.

To arrive at an estimate of the economic value for water in the ACT, we take the annual water allocation price of \$83 per ML for 2023-24 and \$126 per ML for 2024-25 and multiply it by 40% (the share of abstractions not returned to the system) to arrive at an economic value of \$33.23 per ML for 2023-24 and \$50.36 per ML for 2024-25 (or 3.3 cents and 5.0 cents per kL for 2023-24 and 2024-25, respectively).

The alternative approach of using a 5-year average of water allocation prices, as discussed in section 4.3, results in an economic value of water of 7.7 cents per kL for 2023-24 and 3.3 cents per kL for 2024-25. This result is somewhat counterintuitive given that BOM forecasts suggest we are moving from wet conditions in 2023-24 into drier conditions in 2024-25 and therefore would expect the economic value of water to be increasing. In addition, this approach does not smooth prices, at least not between 2023-24 and 2024-25.

On balance, we recommend the approach of using a single forecast year but include the alternative option for the Government's consideration.

5.3 Environmental externalities

As discussed in section 4.4, we propose using the same cost-based methodology as our 2003 review for estimating environmental externalities. This involves estimating the cost of permanently returning water flows to the river system for environmental purposes.

³⁶ ACT Government 2019, p.17

Since our 2003 review, the cost of returning flows to the system has increased substantially. As discussed in Attachment 1, the Commonwealth Government has purchased water entitlements close to the limit of 1,500 GL permitted under the Water Act, with only 46 GL remaining available for buybacks. Another 424 GL of environmental water remains to be recovered to meet the Basin targets. To date, the method for meeting the environmental water target has been through efficiency programs³⁷, which have proven substantially more costly than buybacks.

In its recent implementation review of the MDB plan, the Productivity Commission reports that since the implementation of the Basin Plan in 2012, the cost of recovering water – through purchase and infrastructure projects – has increased substantially³⁸. In 2022-23, the Aither water entitlement price index sat at about three times its 2012 value having grown at an average rate of 15% a year since 2015-16³⁹.

In December 2021, the second independent review of the Water for the Environment Special Account (WESA) was provided to the Commonwealth Government. The independent review panel was tasked with determining whether the amount available in the WESA is sufficient to increase, by 30 June 2024, the volume of the Basin water resources that is available for environmental use by 450 GL⁴⁰. The panel engaged Marsden Jacob Associates (MJA) to assist with estimating the costs of meeting the 450 GL environmental target. Based on the MJA study, the panel found that, putting aside program and timing limitations, the estimated cost to recover the full 450 GL through efficiency measures is between \$3.4 billion and \$10.8 billion⁴¹, substantially more than the WESA funding of \$1.575 billion.

In our view, the MJA analysis provides a useful basis for estimating the cost of permanently returning flows to the MDB for environmental purposes. MJA first estimate the cost of purchasing permanent water entitlements and then estimate a range of multiples to apply to these costs to arrive at the total cost of achieving the 450 GL environmental water target.

5.3.1 Costs of purchasing permanent water entitlements

MJA calculate the cost of permanent water entitlements by taking the average Southern Basin volume weighted average price for general and high security water entitlements of \$2,000/ML and \$7,000/ML (nominal) respectively⁴². These nominal values are converted to long-term average annual yields (LTAAY)⁴³ by applying water recovery factors. All water recovery figures are expressed in LTAAY terms to enable different types of entitlements to be counted on equal terms to track the volume of water that has been recovered in a way that is consistent and accurate across the Basin.

MJA reports that the average cap factor in NSW Murrumbidgee, NSW Murray, Vic Murray and Goulburn is 0.6 for general security entitlements and 0.95 for high security entitlements. Based on these water recovery factors, the cost of permanent entitlements equates to approximately \$3,300/ML LTAAY for general security and \$7,400/ML LTAAY for high security⁴⁴. MJA notes that these prices are considerably higher than when the WESA was established but have remained relatively stable since the first WESA

³⁷ On 3 March 2021, the Commonwealth Government announced the closure of the Water Efficiency Program for any further projects and launched a new approach to the recovery of the 450 GL of additional environmental water through the new Off-Farm Efficiency Program (OFEP).

³⁸ PC 2023, p.64

³⁹ Aither 2023b, p.10

⁴⁰ The Panel was also asked to determine if the WESA funding of \$200 million is sufficient to ease or remove constraints identified by the MDBA on the capacity to deliver environmental water to the environmental assets of the MDB.

⁴¹ Independent Panel 2021, p.21

⁴² MJA 2021, p.55

⁴³ Also known as long-term diversion limit equivalents

⁴⁴ MJA 2021, p.55

review in 2020. Additionally, MJA uses southern MDB prices, as most potential recovery is expected to occur in the Southern Basin.

5.3.2 Multiples

Prior water efficiency program initiatives have revealed that paying market rates for water entitlements is not enough to fund efficiency measure projects and even at 1.75 times the market rate there was not a lot of interest in the water efficiency program⁴⁵. Analysis of market multiples used for historical infrastructure projects funded by the federal government shows that approximately 83% of the projects involved a market multiple of between 1.75 and 3.0⁴⁶. MJA also notes that most efficiency measure opportunities for off-farm infrastructure networks have already been undertaken through historical programs⁴⁷. The remaining opportunities are therefore likely to be more costly.

MJA calculated the cost of meeting the 450 GL WESA target by using a range of market multiples (from 1.75 to 3.75) and different combinations of general and high security entitlements. As shown in Table 7, the cost per ML LTAAY range between \$7,659 and \$23,906. The total estimated cost of recovering 450 GL is between \$3.4 billion and \$10.8 billion with MJA concluding that the cost is most likely to be at least \$6.5 billion because the market multiple (previously 1.75) has been relaxed and the average market multiple to recover the 450 GL through efficiency programs is likely to be at least 2.75⁴⁸.

Table 7: Cost of meeting 450 GL target for environmental water

High/General security entitlement mix	Cost per ML LTAAY at 1.75 market multiple	Cost per ML LTAAY at 2.75 market multiple	Cost per ML LTAAY at 3.75 market multiple
25%/75%	\$7,569	\$11,894	\$16,219
50%/50%	\$9,363	\$14,713	\$20,063
75%/25%	\$11,156	\$17,531	\$23,906
High/General security entitlement mix	Total cost (\$m) 450 GL at 1.75 market multiple	Total cost (\$m) 450 GL at 2.75 market multiple	Total cost (\$m) 450 GL at 3.75 market multiple
25%/75%	\$3,406	\$5,352	\$7,298
50%/50%	\$4,213	\$6,621	\$9,028
75%/25%	\$5,020	\$7,889	\$10,758

Source: our calculations based on MJA 2021

5.3.3 Our calculation

To estimate the cost of permanently returning water to the MDB system for environmental purposes, we propose using a market multiple of 2.75 and an assumption of 50%/50% allocation of general and high security entitlements. This represents the midpoint of the assumptions used by MJA, although we recognise the range around this value is large. Under these assumptions, the cost of permanently returning water to the MDB is \$14,713 per ML (2021-2022 dollars). This figure is consistent with the cost of the

⁴⁵ MJA 2021, p.31

⁴⁶ MJA 2021, p.32

⁴⁷ MJA 2021, p.38

⁴⁸ MJA 2021, p.58

current suite of projects under the OFEP which are contracted to recover 23.4 GL/y at a cost of almost \$347 million, representing an average cost, in LTAAY terms of \$14,800 per ML (2022 dollars).⁴⁹

Permanent water entitlements represent assets with an ongoing value that do not depreciate over time. To convert these costs to an annual cost we calculate the annual financing costs associated with securing permanent water entitlements. The Commonwealth Government finances debt through long-term treasury debt securities. Therefore, we use the same risk-free rate (based on 10-year Commonwealth Government Securities) as in our final decision on Icon Water's water and sewerage prices for 2023-28 (3.59%).

We apply this financing cost to our total estimated cost of \$14,713 per ML to arrive at an environmental cost of \$528 per ML. As with the scarcity value, we only apply this figure to flows not returned to the system (40%) giving an environmental cost of \$211 per ML or 21 cents per kL. The MJA study was undertaken in 2021-22 so we adjust this value for inflation to arrive at an estimated environmental externality of:

- 23.2 cents per kL for 2023-24
- 23.9 cents per kL for 2024-25

We recognise that not all treated wastewater returned to the MDB system is necessarily beneficial to the environment and our approach of applying the environmental cost only to flows not returned to the system may understate environmental costs. There may also be other environmental externalities associated with water consumption in the ACT that are not captured in our estimate of the costs of returning water permanently to the MDB.

5.3.4 Implications of recently announced changes to the MDB Plan

We note the recent agreement (August 2023) by Basin states (with the exception of Victoria) and the Commonwealth Government to extend the period of recovery for the 450 GL of environmental water to 31 December 2027. The Agreement states that the Commonwealth will work with communities on the design and delivery of water recovery programs towards the 450 GL target with all options on the table, including water purchase. In the case of water purchase towards the 450 GL for the environment, this includes providing funding for community adjustment assistance and working with Basin governments and communities in delivering this assistance.

In January 2024, the Australian Government released a draft framework for delivering the 450 GL of environmental water, outlining 3 new programs to deliver the target including infrastructure projects and voluntary water purchases coupled with adjustment assistance for Basin communities impacted by water purchases (see section A.1.5 for details)⁵⁰. The consultation on the draft framework is open until 4 March 2024.

At the time of undertaking this review, it is unclear what the final programs for recovering the full 450 GL of environmental water might be. Further, there is no clarity over the level of funding for community assistance if further water buybacks were to be used. Given these uncertainties, we believe it is appropriate for the purposes of this review to use the cost of securing permanent water entitlements via efficiency programs as an approximation of environmental externalities. It is reasonable to expect that if other options are used to recover the 450 GL of environmental water, including water purchases coupled with funding for community assistance, the costs are likely to be well above the market price of permanent water entitlements.

⁴⁹ PC 2023, p.65

⁵⁰ DCCEEW 2024

This is supported by the PC's recent implementation review of the MDB, which also notes the potential disruption to the water market given the proposed timeframe for water recovery:

The costs of achieving the enhanced environmental outcomes (schedule 5 of the Basin Plan) through water recovery have risen substantially.

The budget available to recover the 450 GL/y will not be adequate to achieve the target even if water purchases are allowed. Recovering water towards the supply measure shortfall and 450 GL/y targets at the same time over a three-year period would risk significant disruption to water markets and Basin communities.

The 2026 Basin Plan review is an opportunity to assess how to deliver the enhanced environmental outcomes that the 450 GL/y target is designed to meet.

PC 2023, INTERIM FINDING 2.5, P. 79

We propose reviewing the implications of any changes to the Basin Plan and Water Act 2007 as part of the next methodology review.

5.4 Total water sustainability charge

Based on the methodology set out above, the total water sustainability charge is 26.5 cents per kL for 2023-24 and 28.9 cents per kL for 2024-25. We note that these rates result in a sustainability charge that represents approximately 5% of Icon Water's total regulated revenue, bringing the charge into line with the ECL for urban water utilities in Victoria.

We also note that our methodology has the potential to result in significantly higher water charges in periods when water is scarce. For example, during the Millennium drought the average annual traded price of water allocations reached nearly \$900 per ML. If this rate was used in our calculation for 2023-24 the sustainability charge would be 60.2c per kL instead of 26.5c per kL. In our view, this is entirely appropriate as an indicator of the short-term scarcity value of water.

5.5 Application of water charges

In terms of how the water charges are applied to potable and non-potable water, we propose the following approaches.

5.5.1 Potable water

For potable water, we recommend both the WPM charge and the water sustainability charge apply. WPM costs are spread across water abstracted for potable purposes and are recovered from potable water prices. This results in a total notional charge of 42.9c per kL for 2023-24 and 52.1c per kL for 2024-25. Consistent with the current methodology, these charges would be applied to the total volume of water abstracted to determine the total level of costs to be recovered through Icon Water's potable water service prices.

We also considered whether the application of these charges should be limited to 'discretionary use'. The argument in favour of this approach is that households have access to essential water at all times at an affordable price. For example, it would be possible to apply the WAC only to tier 2 water charges in the

ACT, resulting in lower tier 1 water charges. However, the effect of this would be to exempt over 60% of total water use from the WAC charge, resulting in an extremely high tier 2 charge. This approach would also undermine the benefits of a sustainability charge in signaling the cost of water consumption to consumers and thereby reducing demand and encouraging the use of alternative supply options. Attempting to achieve multiple objectives with a single instrument, in this case efficient water use and affordability, is problematic and unnecessary. There are more direct and efficient instruments available to the ACT Government to achieve water affordability objectives.

5.5.2 Non-potable water

Given WPM costs are fully recovered through potable water charges, only the water sustainability charge should apply to surface water and groundwater. This results in a charge of 26.5c per kL for 2023-24 and 28.9c per kL for 2024-25.

For recycled water and stormwater, the NWI requires that in metropolitan areas, States and Territories develop pricing policies for recycled water and stormwater that are congruent with pricing policies for potable water, and stimulate efficient water use no matter what the source⁵¹. In addition, parties to the NWI agree that one of the outcomes for urban water reform is to encourage the re-use and recycling of wastewater where cost effective⁵². The NWI pricing principles include a separate set of principles for recycled and stormwater use. Principle 7 specifies that prices should recover efficient, full direct costs – with system wide incremental costs (adjusted for avoided costs and externalities) as the lower limit, and the lesser of stand-alone costs and willingness to pay (WTP) as the upper limit. Any full cost recovery gap should be recovered with reference to all beneficiaries of the avoided costs and externalities.

We interpret the NWI and NWI pricing principles to mean that the pricing policies for recycled water and stormwater should be consistent with the policies for potable water by encouraging the efficient use of water, regardless of source. Further, the benefits of using recycled water and stormwater, including avoided costs and positive externalities should be taken into account when considering cost recovery.

Our proposed methodology for potable water seeks to ensure the appropriate trade-offs are made between sources of water by including the value of negative environmental externalities and the economic value of water as a scarce resource in potable water charges.

For recycled water and stormwater, there are significant benefits associated with using these water sources in addition to the costs that can be avoided in supplying potable water. The use of recycled water and harvested stormwater can reduce the volume of polluted discharges into the water system and can reduce the volume of water that needs to be extracted from the MDB. In addition, recycled water has already had the full level of water charges applied when used as potable water and applying it again would involve double counting. Given that both recycled water and stormwater can assist in achieving water sustainability, we consider it inappropriate and inconsistent with the NWI⁵³ to apply a water sustainability charge. We recommend that neither the WPM charge or the water sustainability charge apply to recycled water and stormwater.

A summary of our water charges using our proposed approach compared with the current approach is provided in Table 8.

⁵¹ NWI 2004, paragraph 66 (ii)

⁵² NWI 2004, paragraph 90(iii)

⁵³ NWI 2004, paragraph 64(v) states as one of the best practice water pricing outcomes “avoid perverse or unintended pricing outcomes”

Table 8: Recommended water charges for 2023-24 and 2024-25, cents per kL, nominal

	WPM charge	Water sustainability charge	2023-24 current approach	2023-24 proposed approach	2024-25 current approach	2024-25 proposed approach
Potable water	✓	✓	69.0	42.9	71.1	52.1
Non-potable water						
Surface water	✗	✓	33.4	26.5	34.4	28.9
Ground water	✗	✓	33.4	26.5	34.4	28.9
Stormwater	✗	✗	33.4	0.0	34.4	0.0
Recycled water	✗	✗	33.4	0.0	34.4	0.0

Source: ACT Government 2023a and our calculations

Notes: 2024-25 current approach rates calculated by indexing 2023-24 rates by 3%. 2024-25 proposed approach values are placeholders and need to be updated for ABARES 2024-25 forecast for water allocation prices.

6. Financial impacts

We have assessed the financial impacts of our recommended approach on consumers of potable water by examining the indicative bill impacts at varying levels of consumption. Our recommended approach has a small but positive impact on affordability, reducing water prices (supply and usage charges) for 2023-24 and 2024-25 by 1.7% and 3.4% per year, respectively, compared with the current approach. Given consumers receive a combined bill for water and sewerage, the bill impact is lower than the price impact, reducing the average residential consumer bill by 1.0% in 2023-24 and 1.9% in 2024-25.

It is important to note that we have included the notional price change for 2023-24 in our analysis of price estimates and bill impacts. Our model sets prices by smoothing the revenue requirement over the 5-year regulatory period to achieve a constant X-factor (annual price change) in every year. Given that the 2023-24 WAC rate has already been set and included in 2023-24 water prices, this approach overstates the price reductions that could be achieved over the regulatory period if the recommended rates were introduced in 2024-25. In other words, the price and bill impacts should be interpreted as notional changes had the recommended approach been introduced in 2023-24.

6.1 Impact on water prices

The forecast WAC rates, abstraction volumes and the resulting total WAC charges included in water prices for the current regulatory period are presented in Table 9. The commission recalibrates water prices annually and includes a true-up for the difference between the forecast and actual WAC charges.

Table 9: Current WAC rates and revenue

	2023-24	2024-25	2025-26	2026-27	2027-28
WAC rate (\$/kL)	\$0.69	\$0.71	\$0.73	\$0.75	\$0.78
Forecast releases (ML)	51,982	52,307	52,845	53,414	53,952
Total WAC charges	\$35,867,354	\$37,190,015	\$38,682,570	\$40,273,862	\$41,920,335

Source: ICRC 2023

Under our recommended approach, the WAC rates for 2023-24 and 2024-25 would be significantly lower than the current rates. We have estimated WAC rates for 2025-26 to 2027-28 by using our forecasts for the WPM charge and applying forecast CPI to the sustainability charge. This results in the WAC rates and total WAC charges in Table 10.

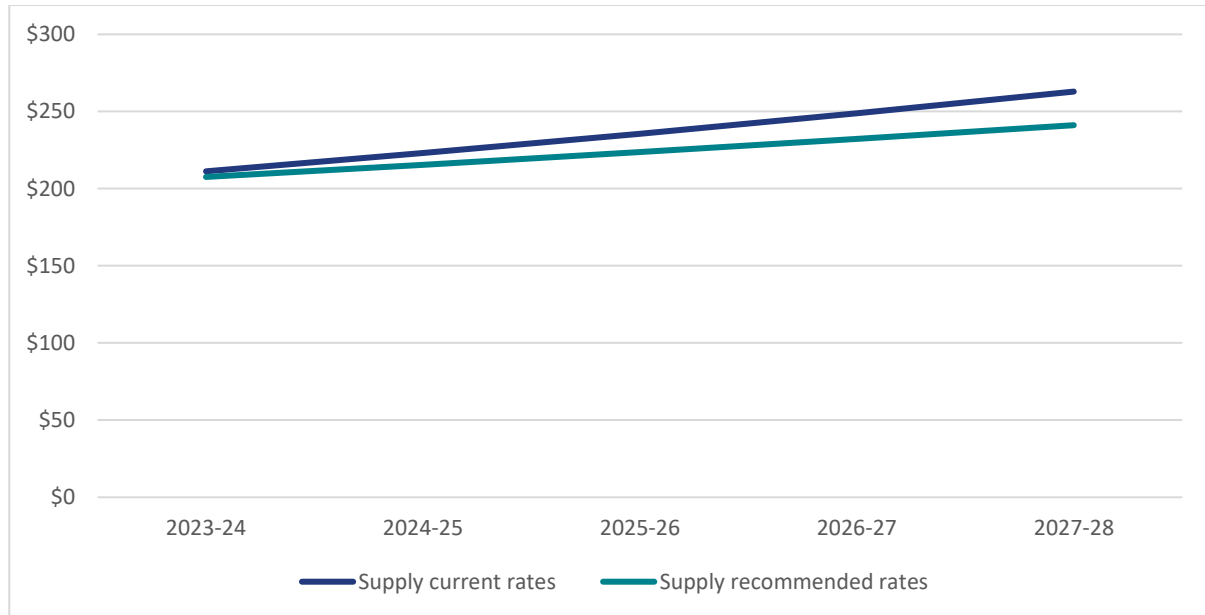
Table 10: Recommended WAC rates and revenue

	2023-24	2024-25	2025-26	2026-27	2027-28
WAC rate (\$/kL)	\$0.43	\$0.52	\$0.56	\$0.60	\$0.64
Forecast releases (ML)	51,982	52,307	52,845	53,414	53,952
Total WAC charges	\$22,288,776	\$27,257,622	\$29,432,355	\$31,995,634	\$34,415,760

Source: Our calculations

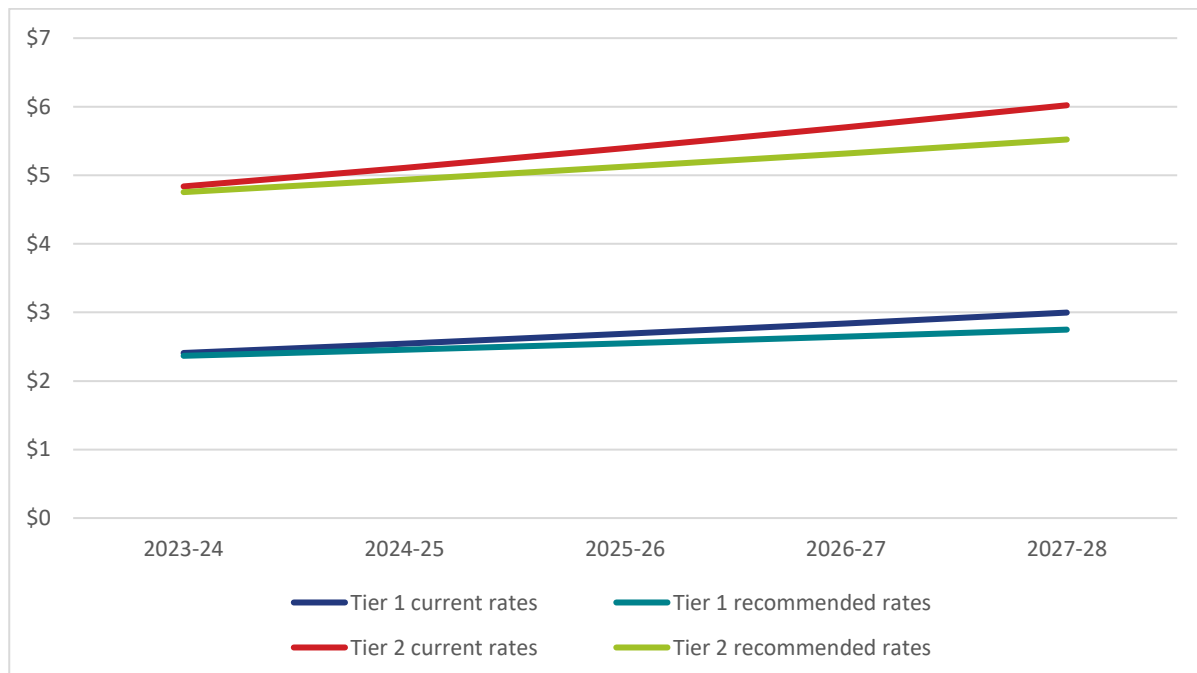
We have calculated the impact on water prices by rerunning our revenue model for Icon Water using the recommended WAC rates instead of the current WAC rates. The impact on the water supply charge and the water usage rates are shown in Figure 4 and Figure 5, respectively. In 2023-24, the supply charge and usage charges would have been 1.7% lower under the recommended rates than the current rates. By the end of the regulatory period, the supply charge and usage charges would be 8.3% lower under the recommended rates compared with the current rates.

Figure 4: Water supply charge, \$ nominal per year



Source: Our calculations

Figure 5: Water usage charges, \$ nominal per kL



Source: Our calculations

6.2 Impact on bills

The change in the methodology for estimating the water charges for abstractions only impacts the water component of customer bills. There is no change to sewerage charges. Therefore, the impact on the combined consumer bill is less than the impact on water prices.

The estimated reduction in the water and sewerage bill for an average residential customer using 200kL of water per year is 1.0% (or \$12 per year) in 2023-24, increasing to 4.7% (or \$74 per year) by 2027-28 (see Table 11). The estimated reduction in the water and sewerage bill for a non-residential customer using 5,000kL of water per year with 50 billable fixtures is 0.8% (or \$410 per year) in 2023-24, increasing to 3.8% (or \$2,467 per year) by 2027-28 (see Table 12).

Table 11: Indicative annual residential water and sewerage bill impacts, \$nominal

	Water consumption (kL/year)	2023-24	2024-25	2025-26	2026-27	2027-28
Current WAC rates	100	988	1,049	1,114	1,183	1,257
	200	1,249	1,325	1,406	1,491	1,582
	350	1,954	2,070	2,192	2,322	2,460
	750	3,889	4,114	4,351	4,602	4,868
Recommended WAC rates	100	980	1,033	1,089	1,148	1,210
	200	1,237	1,299	1,365	1,435	1,508
	350	1,930	2,019	2,112	2,211	2,314
	750	3,832	3,993	4,162	4,338	4,522

Source: Our calculations

Table 12: Indicative annual non-residential water and sewerage bill impacts, \$nominal

	Annual water usage (kL/year)	No. of billable fixtures	2023-24	2024-25	2025-26	2026-27	2027-28
Current WAC rates	1,000	10	10,339	10,982	11,666	12,392	13,164
		50	31,299	33,345	35,526	37,849	40,325
		100	57,499	61,299	65,351	69,671	74,277
	5,000	10	29,689	31,420	33,253	35,194	37,248
		50	50,649	53,784	57,113	60,651	64,409
		100	76,849	81,738	86,939	92,473	98,361
	15,000	10	78,065	82,517	87,223	92,198	97,458
		50	99,025	104,880	111,083	117,656	124,620
		100	125,225	132,834	140,908	149,477	158,571
Recommended WAC rates	1,000	10	10,261	10,818	11,408	12,032	12,693
		50	31,221	33,181	35,268	37,490	39,854
		100	57,421	61,135	65,093	69,311	73,806
	5,000	10	29,279	30,561	31,904	33,309	34,781
		50	50,239	52,924	55,764	58,767	61,942
		100	76,439	80,878	85,589	90,588	95,894
	15,000	10	76,824	79,919	83,143	86,502	90,001
		50	97,785	102,282	107,003	111,959	117,162
		100	123,985	130,236	136,828	143,780	151,114

Source: Our calculations

Attachment 1 Water reforms since 2003

This attachment provides details of the major water reforms that have been implemented since our last WAC review in 2003. These include the NWI, the NWI pricing principles, the Water Act 2007 and the MDB plan. In addition, the ACT Government has published its Water Strategy for 2014-2044. The implications of these reforms for our recommended approach are also discussed.

A.1.1 National Water Initiative

By 2003, understanding of water management and water markets had grown, as had national demand for water. It was clear more work was required to build on the previous reform framework. This led to the development of the NWI⁵⁴. The NWI is the blueprint for national water reform, created in 2004 and signed by all states and territories. This shared commitment by all Australian governments provides a framework and principles to underpin the sustainable management of our water resources.

The NWI included agreement to review the 1992 Murray-Darling Basin (MDB) Agreement and a separate agreement to address the overallocation of water and achievement of environmental objectives in the MDB (MDB Intergovernmental Agreement).

The NWI includes a set of outcomes and actions to deliver best practice water pricing, which includes pricing that promotes economically efficient and sustainable use of water resources, water infrastructure assets and government resources devoted to the management of water. The NWI requires States and Territories to implement pricing that includes externalities where found to be feasible and sets out the cost recovery approach for planning and management costs.

A.1.2 NWI pricing principles

The NWI pricing principles⁵⁵ set out principles for three areas where the Steering Group on Water Charges (established by the NWI Committee) identified marked differences in pricing approaches across jurisdictions. These are recovery of capital expenditure, setting urban water tariffs and recovering the costs of water planning and management. The NWI pricing principles also include a set of principles for recycled water and stormwater reuse. Collectively, these four sets of principles are referred to as the NWI pricing principles.

The capital expenditure pricing principles set out how capital expenditure should be recovered, including the establishment of a regulatory asset base (RAB) and the calculation of annual capital costs. Principles for urban water tariffs include the recovery of efficient costs (including externalities) and pricing transparency, including the use of a transparent methodology, through a process which seeks and takes into account public comment or which is subject to public scrutiny. The principles for WPM set out the activities to be included and excluded in charges and a cost-effectiveness test.

⁵⁴ Intergovernmental Agreement on a National Water Initiative 2004

⁵⁵ Intergovernmental Agreement on NWI pricing principles 2010

A.1.3 Water Act 2007

In 2007 there was widespread agreement across governments that a plan was needed to manage water carefully and protect the MDB for future generations. The Water Act 2007⁵⁶ seeks to return to environmentally sustainable levels of extraction for MDB water resources, promote the use and management of Basin water resources in a way that optimises economic, social and environmental outcomes, protect, restore and provide for the ecological values of the Basin. Key features of the Water Act include:

- a national framework to manage Basin water resources
- establishment of the Murray-Darling Basin Authority
- establishment of the Commonwealth Environmental Water Holder
- requirements for the Murray-Darling Basin Plan.

An amendment to the Water Act in 2012 established the Water for the Environment Special Account (WESA) which can be used for improving environmental outcomes, including purchasing water access rights in relation to Basin water resources.

The Water Act 2007 includes water charging objectives and principles consistent with the NWI, including those on environmental externalities.

The water charging objectives⁵⁷ are concerned with promoting economic efficiency and giving effect to the principles of users-pays and pricing transparency in respect of water storage and delivery in irrigation systems and cost recovery for WPM activities. The water charging objectives also aim to avoid perverse or unintended pricing outcomes. The water charging principles⁵⁸ set out the key principles for water storage and delivery in rural systems, cost recovery for WPM, environmental externalities and benchmarking and efficiency reviews.

For cost recovery for WPM, the Water Act 2007 requires all costs associated with WPM to be identified, the proportion of costs that can be attributed to water access entitlement holders to be identified and for charges to be linked as closely as possible to the costs of activities or products. In addition, WPM charges are to exclude activities undertaken for the Government (such as policy development and Ministerial or Parliamentary services) and States and Territories are to report publicly on cost recovery for WPM annually.

For environmental externalities, market-based mechanisms (such as pricing to account for positive and negative environmental externalities associated with water use) are to be pursued where feasible. In addition, the cost of environmental externalities is to be included in water charges where found to be feasible.

A.1.4 Water Charge Rules 2010

The Water Act provides for the Water Charge Rules, which provide transparency in charges and costs for customers of monopoly water infrastructure providers across the Basin. The Water Charge Rules 2010⁵⁹ set out the determination of infrastructure charges for Part 6 operators. An infrastructure operator is a Part 6 operator if it is not required to have all its infrastructure charges determined or approved by a single State Agency under a law of the State. The Water Charge Rules do not apply to charges in respect of urban water

⁵⁶ Water Act 2007

⁵⁷ Water Act 2007, Schedule 2, Part 2

⁵⁸ Water Act 2007, Schedule 2, Part 3

⁵⁹ Water Charge Rules 2010

supply activities beyond the point at which the water has been removed from a Basin water resource⁶⁰. The Water Charge Rules only apply to charges in relation to Basin water resources (or infrastructure that carries Basin water resources)⁶¹.

The Water Charge Rules 2010 do set out requirements in relation to WPM charges for persons other than Part 6 infrastructure operators, including a schedule of charges that must set out details of the charges being levied.

The ACCC publishes an annual Water Monitoring Report to inform the minister and stakeholders about regulated water charges, compliance with the Water Charge Rules 2010, the Water Market Rules 2009 and transformation arrangements in the MDB.

As WPM activities are included in the Water Charge Rules 2010, the ACCC reports on the recovery of these costs for MDB jurisdictions, including the ACT. In its 2020-21 report⁶², the ACCC notes the challenges in reporting WPM activity costs and revenues including the difficulty in separating WPM costs from other costs, the level of charges not clearly relating to the cost of WPM activities, allocating costs to MDB areas and the recovery of capital expenditure, which may take place over an extended period. The ACCC published the extent to which each MDB jurisdiction recovers WPM costs from water consumers (see Figure 6). The ACT is a stand-out among MDB states in terms of recovery, which reflects the total WAC revenue being compared only against WPM costs.

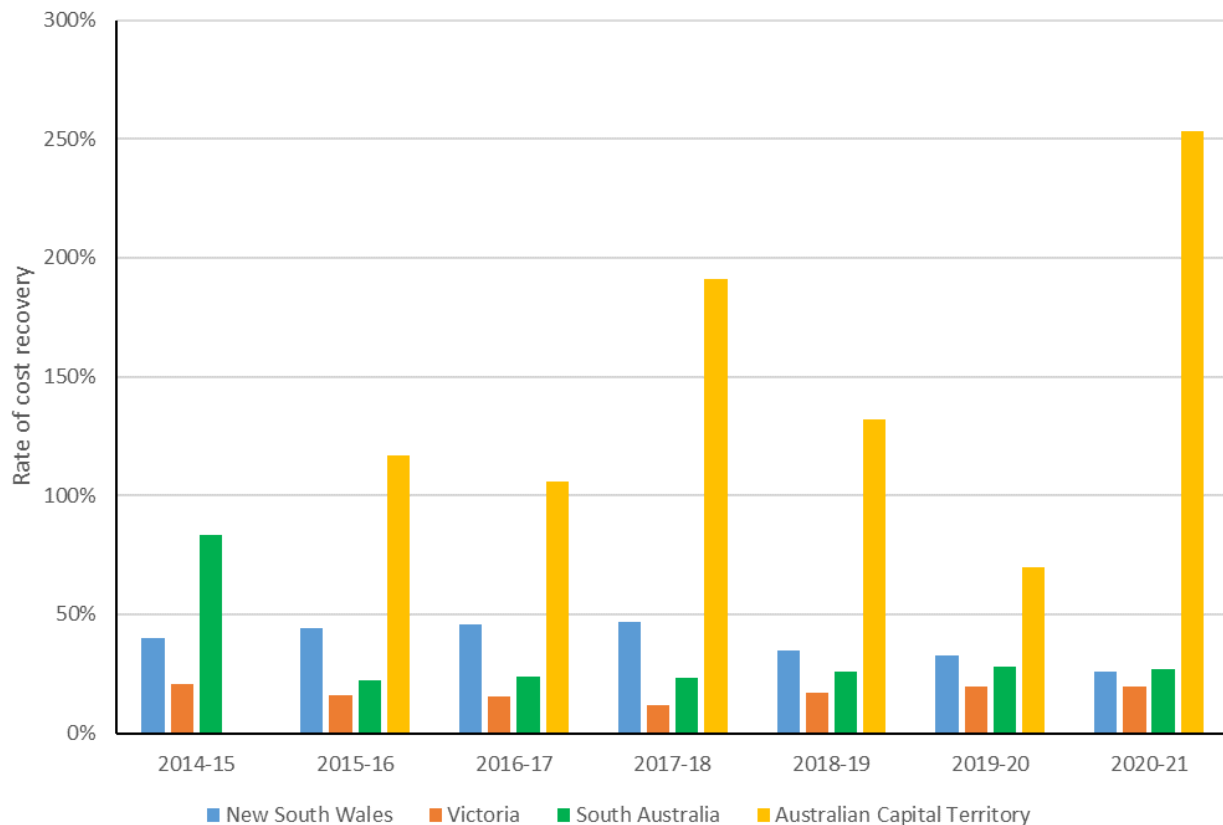
In August 2023, the ACCC released its 2021-22 Water monitoring report⁶³, which does not present the same cost recovery graph as in the 2020-21 report, but which shows similar trends. The ACCC reported a recovery rate of 85% for Water NSW, 17% for Victoria and 24% for the South Australian Department for Environment and Water. For the ACT, the ACCC reports that costs of WPM fell by 4% nominal to \$11.8 million, while the revenue from WPM charges fell by 4.2% to \$29.9 million. These figures imply a recovery rate of 253%, consistent with 2020-21, although the ACCC did not report this recovery rate in its 2021-22 report. The ACCC reported that the urban water abstraction fee comprises 98.5% of the water planning and management revenue generated in the ACT, with the remainder comprised of revenue generated through water access entitlement fees, application fees and administration fees.

⁶⁰ Water Act 2007, 91(3)

⁶¹ Water Act 2007, 91(2)

⁶² ACCC 2022

⁶³ ACCC 2023a

Figure 6: Rates of cost recovery for Basin states, 2014-15 to 2020-21

Source: ACCC 2022. The ACCC notes that Queensland's rate of recovery could not be calculated due to the absence of spending data.

A.1.5 Murray Darling Basin Plan

In line with the Water Act 2007, the MDB Authority developed the Basin Plan⁶⁴ which, at its heart, sets the amount of water that can be taken from the Basin each year. The aim of the Basin Plan is to bring the Basin back to a healthier and sustainable level, while continuing to support farming and other industries for the benefit of the Australian community. The Basin Plan was adopted in 2012 and the first Basin Plan Review will be conducted in 2026.

The Basin Plan establishes the volume of water that can be extracted from the Basin (the 'environmentally sustainable level of take' or Sustainable Diversion Limit (SDL)). In 2012, the Basin states and the Australian Government agreed that 2750 GL of water from across the Basin would be recovered for the environment by 30 June 2024⁶⁵. Following amendments to the Basin Plan under the Sustainable Diversion Limit Adjustment Mechanism (SDLAM), the overall target for water recovery was changed to 2,075 GL coupled with a package of supply measures to achieve improved environmental outcomes with 605 GL less water⁶⁶.

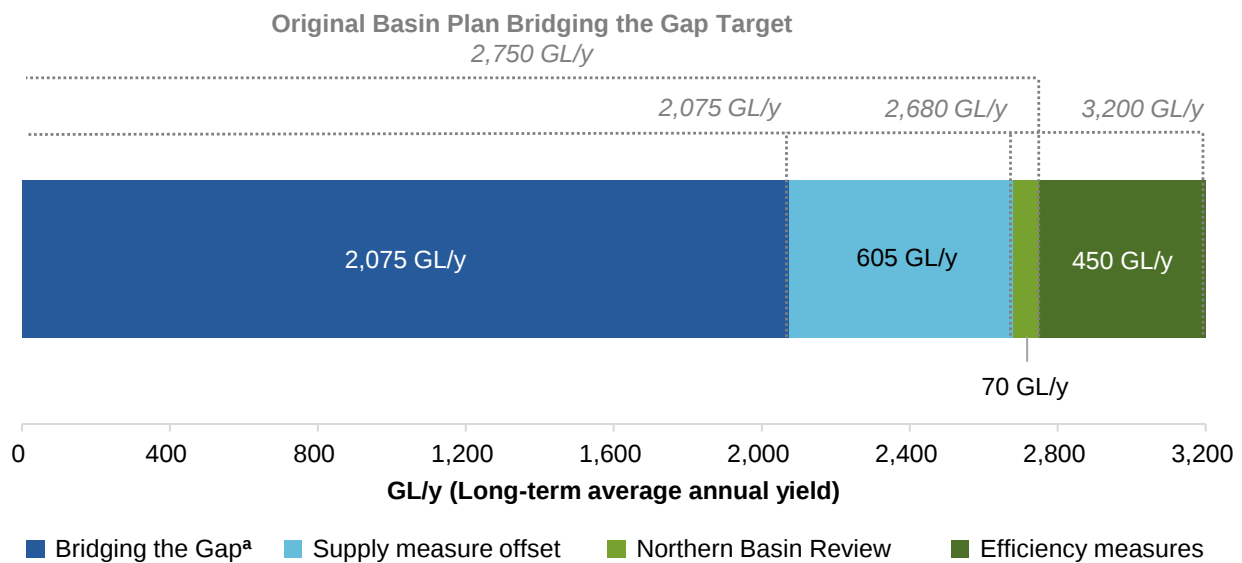
⁶⁴ MDB Authority 2012

⁶⁵ Water recovery in the MDB is presented in this report in long-term average annual yield terms.

⁶⁶ As well as a 70 GL/y reduction in the northern Basin water recovery target, which was agreed on the condition that the northern Basin toolkit measures would be implemented to ensure effective management of environmental water in the northern Basin.

plus the recovery of an additional 450 GL to support enhanced environmental outcomes by 2024. The Basin surface water recovery and SDL adjustment targets are shown in Figure 7.

Figure 7: Basin surface water recovery and SDL adjustment targets



a. Bridging the Gap relies on 2,075 GL/y of surface water recovery and the supply measure offset.

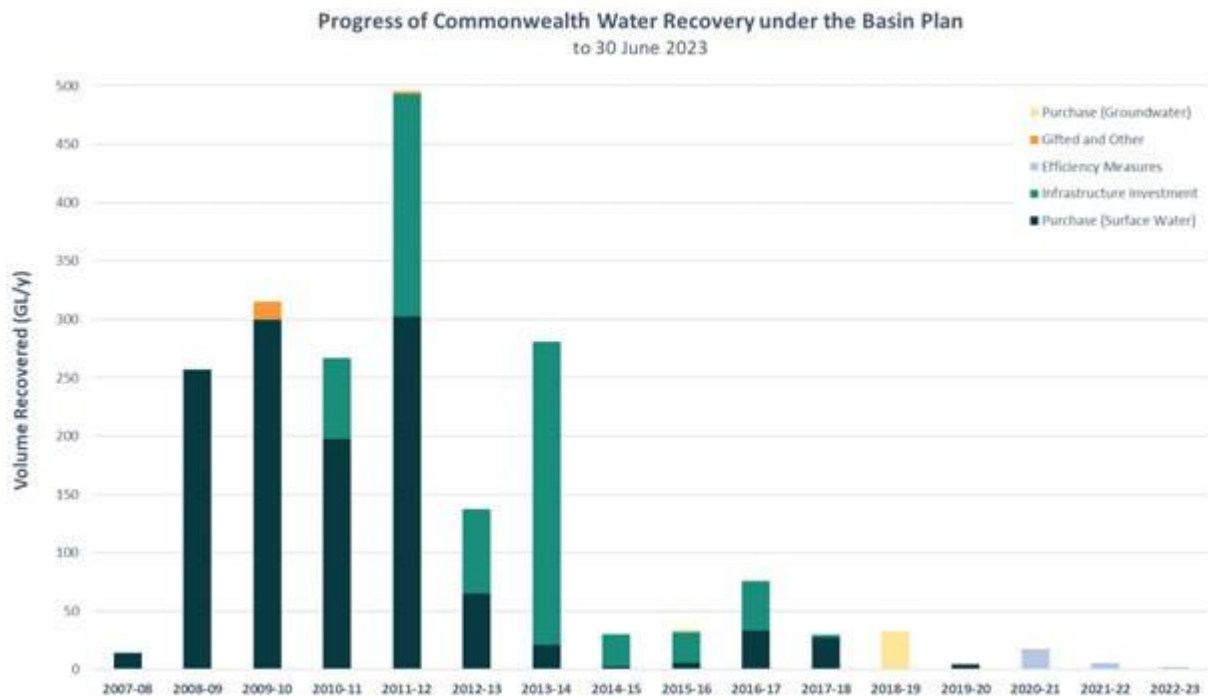
Source: PC 2023, p.4

Since 2007 the Australian Government has recovered water entitlements through a combination of direct purchase from willing sellers and investments in water saving infrastructure. These water entitlements are transferred to the Commonwealth Environmental Water Holder to use to improve environmental outcomes. Significant progress toward meeting the Basin Plan targets were achieved between 2008-09 and 2013-14, however since this time water recovery has been minimal (see Figure 8).

The buyback of water by the Commonwealth has been contentious, driven by the negative socio-economic impacts it has had on communities in the Basin. In 2015 the Water Act was amended to set a cap of 1,500GL on the volume of water that could be recovered through buybacks until the first review of the Basin Plan is completed. Water recovery has since been focused on infrastructure-based efficiency solutions.

As at 30 September 2023, only 46 GL remains to meet the 2,075 GL 'Bridging the Gap' target.⁶⁷ However, there remains a 315 GL shortfall on supply measures and the progress towards the 450GL for enhanced environmental outcomes has been limited with only 26.0 GL of the total target of 450 GL contracted, leaving 424GL to be recovered.

⁶⁷ DCCEEW 2023a

Figure 8: Water recovery under the Basin Plan

Source: DCCEEW 2023b

On 3 March 2021, the Minister of Resources and Water announced the Off-Farm Efficiency Program (OFEP) as the vehicle to recover up to 450 GL of additional environmental water using funds from the WESA. The OFEP invests in water delivery infrastructure to reduce water losses in the MDB, providing benefits to water users and the community by sharing the water saved between consumptive users and the environment. The previous water efficiency program in place limited funding to a fixed market multiple of 1.75⁶⁸ whereas the OFEP removes this multiple with project funding instead based on infrastructure costs. The second review of the WESA found that full recovery of 450 GL through efficiency measures would likely cost between \$3.4 billion and \$10.8 billion⁶⁹. This is well beyond the \$1.575 billion of funding set aside in the WESA for achieving enhanced environmental outcomes.

A further tender for the strategic water rights purchasing of 44.3 GL by the Australian Government to deliver the 'Bridging the Gap' target opened on 23 March 2023 and closed on 19 May 2023⁷⁰. The Government received around 250 tender responses and started accepting water offers in the relevant catchments in August 2023. The Government states that offers were based on an assessment of value for money and environmental utility. At the time of this review, the outcome of the tender process had not yet been disclosed due to privacy and confidentiality requirements under the procurement rules. The plan also includes 4.9 GL of surface water in the ACT, which is currently held by Icon Water. The Commonwealth Government states that it will continue to work with the ACT Government to recover this water.

In July 2023, the MDB Authority advised that the full implementation of the MDB Plan would not be possible by the legislated deadline of 30 June 2024. In August 2023, the Australian, NSW, South Australian, Queensland and ACT governments agreed to support amendments to the Water Act 2007 and the Basin

⁶⁸ 1.75 times the market value of permanent water entitlements

⁶⁹ Independent Panel 2021

⁷⁰ DCCEEW 2023c

Plan 2012 to deliver the Basin Plan in full⁷¹. The Victorian Government is not party to the agreement. The amendments include extending the time to deliver SDLAM supply and constraints projects to 31 December 2026 and extending the timeline for the recovery of the 450 GL of additional environmental water to 31 December 2027.

The Agreement states that the Commonwealth will work with communities on the design and delivery of water recovery programs towards the 450 GL target with all options on the table, including water purchase. Should any negative social and economic impacts from delivering environmental outcomes intended under the Basin Plan be identified, the Commonwealth supports minimising these impacts on communities. In the case of water purchase towards the 450 GL for the environment, this includes providing funding for community adjustment assistance and working with Basin governments and communities in delivering this assistance.

The agreement requires amendments to the Water Act and the Basin Plan. The Water Amendment (Restoring Our Rivers) Bill 2023⁷² was introduced to Parliament on 6 September 2023 and was passed by both the House of representatives and the Senate on 30 November 2023, receiving assent on 7 December 2023.

In January 2024, the Commonwealth Government released the Restoring our Rivers: Draft framework for delivery the 450 GL of additional environmental water for consultation⁷³. The draft framework outlines 3 new programs that the Australian Government will establish to deliver the 450 GL target:

- *Resilient Rivers Program* – infrastructure projects, rules changes, land and water partnerships and other ways to recovery water.
- *Voluntary Water Purchase Program* – purchase of water entitlements from willing sellers
- *Sustainable Communities Program* – adjustment assistance for Basin communities impacted by voluntary water purchase.

The draft framework for delivering the 450 GL also outlines the three key principles that will guide the approach to water recovery: enhancing environmental outcomes, minimising socio-economic impacts, and achieving value for money.

Consultation on the draft framework for delivering the 450 GL is open from 30 January to 4 March 2024.

A.1.6 ACT Water Strategy 2014-2044

The ACT Water Strategy 2014-44⁷⁴ is consistent with national water objectives of achieving sustainable water resources and has been informed by the NWI and COAG urban water reform. The ACT is wholly situated within the Murrumbidgee River catchment, which feeds into the Murray-Darling river system. Therefore, the ACT Water Strategy adheres to the MBD Plan and commits to meeting MDB-wide environmental objectives for water dependent ecosystems and water quality.

The ACT Water Strategy 2014-44 is focussed on achieving three outcomes:

1. Healthy catchments and waterbodies
2. A sustainable water supply used efficiently
3. A community that values and enjoys clean, healthy catchments.

⁷¹ DCCEEW 2023d

⁷² Water Amendment (Restoring our Rivers) Bill 2023

⁷³ DCCEEW 2024

⁷⁴ ACT Government 2014, p.4

The scope of work for this review specifically requires the commission to have regard to the second of these outcomes, a sustainable water supply used efficiently, which is explained as:

An integrated and efficient water supply system that provides for the optimal mix of supply options, encourages efficient use of water, is resilient to climate variability, and supports the social, economic and environmental needs of the ACT community.

ACT GOVERNMENT 2014, P4

The ACT has already taken steps to secure long term water supplies through increasing water storage capacity and through infrastructure projects such as the enlarged Cotter Dam project and Murrumbidgee to Googong pipeline. The ACT Water Strategy also notes that a key action will be to take advantage of the evolving water trading arrangements with NSW based on rules under the Basin Plan. The ACT will also continue to investigate the costs and benefits of alternative water supply options such as treated effluent, grey water and stormwater. The costs associated with these supply-side projects and actions will be included either in Icon Water's regulated cost base or in the WPM costs incurred by the ACT Government. In either case, the costs will be passed onto ACT consumers in their water charges.

Maintaining efforts to reduce demand over the longer term is another central focus of the ACT Government's strategy. The per capita use of ACT mains water supply has more than halved over the last 15 years and total water use has significantly reduced. Permanent water conservation measures are in place. However, with a growing population and the impacts of climate change, the Government will continue to pursue demand reduction initiatives and ways to use water more efficiently. The ACT Government identifies scarcity pricing as one of the approaches to be explored in promoting water use efficiently⁷⁵.

A.1.7 Other relevant considerations

While the legislative reforms discussed above outline the current framework, there have been numerous reviews, assessments, agreements, consultations and projects undertaken by various parties, including the Productivity Commission, Independent Panels, consultants, the MDB Authority, academics and other government agencies, all aimed at identifying potential changes to the water sector to improve outcomes for consumers and the environment.

It is impossible to survey all the material available in the context of the current review, however, it is useful to identify some of the more important and relevant agreements and reviews.

First, it is important to note that the impetus for reform came from a recognition of the environmental harm that was occurring as a result of relatively unconstrained water use. The need to take action in the water sector commenced in earnest with the introduction of the 1994 Council of Australian Government (COAG) reforms. COAG agreed:

That action needs to be taken to arrest widespread natural resource degradation in all jurisdictions occasioned, in part, by water use and that a package of measures is required to address the economic, environmental and social implications of future water reform.

COAG 1994

⁷⁵ ACT Government 2014, p.37

Second, there was clear guidance that both supply and demand options should be considered and that there was a role for pricing in achieving the appropriate urban water supply/demand balance. COAG endorsed the National Urban Water Planning Principles in 2008. These principles included the requirement to consider the full portfolio of water supply and demand options. The aim was to optimise the economic, social and environmental outcomes and reduce system reliability risk, recognising that in most cases there is no one option that will provide a total solution. In addition, pricing and markets were to be used, where efficient and feasible, to help achieve planned urban water supply/demand balance.

Tariff structures for water supplies should be designed to signal the full value of finite water resources to end users to encourage efficient water use.

COAG 2008

Third, a clear need was identified to recognise the economic value of water in setting water charges. For example, in 2011, the National Water Commission (NWC) released a report that considered whether changes to the underlying institutional and policy settings for the urban water sector were needed to reshape and improve performance⁷⁶.

The NWC report identified inflexible pricing arrangements as one of the policy and regulatory settings that limits the ability of the water sector to balance supply and demand efficiently. While prices are the principal means by which supply and demand for most goods and services are brought into balance, it states that this has not been the case in the urban water sector.

Water has a tremendous value. We all know that without it we cannot live, and we cannot grow the food we need to eat. The worlds' ecological web which maintains all life on earth depends on fresh water. Water is a key input to almost every industrial and economic activity. Past failures to assign water its true economic value have led to wasteful and damaging use of the resource. One of the most profound developments of recent decades is the realisation that water is in fact an economic good, supporting almost every activity, and needs to be treated as such.

Contributor report, NWC 2011, p.23

The standard approach adopted by regulators, which involves assessing the long-term cost of supply to accommodate demand growth over time, works well when applied to 'steady state' natural monopoly water businesses. However, in times of drought, it does not allow prices to respond to fluctuations in available supply. As regulated prices do not reflect the true value of water, this effective under-pricing does not provide a signal for efficient water use during times of scarcity and necessitates blunter mechanisms to manage demand. Under-pricing of potable water during times of shortage also does little to encourage the take up of alternative sources, such as recycled water, that could help to bridge the gap between supply and demand.

The NWC noted that while moving towards more flexible pricing approaches that better signal the scarcity value of water is not necessarily simple, the apparent lack of willingness of most of the industry and regulators to rigorously explore or even consider such options is a source of concern.

⁷⁶ NWC 2011

A.1.8 Implications for recommended methodology

It is clear that the concept of water sustainability underpins the national reform agenda and is reflected in the key outcomes of the ACT's water strategy. The reforms recognise the environmental harm caused by water diversions and both the NWI and the Water Act 2007 include an explicit requirement to consider environmental externalities in prices if feasible. The ACT Water Strategy specifically identifies the use of scarcity pricing as a potential option to encourage efficient use of water to ensure water sustainability. In our view, water charges that include the costs associated with achieving water sustainability are consistent with both the national and ACT legislative framework.

There is clear guidance in the legislative framework on the costs that can be included in WPM charges, and how these costs are reported and reviewed. For the ACT, it is only WPM costs that are relevant under the Water Charge Rules 2010, as the other costs associated with urban water supply fall outside the coverage of these rules⁷⁷. The ACCC reports on WPM costs annually for all Basin states, including the ACT. To date, the ACT appears to be over-recovering WPM costs due to the nature of reporting, which compares the total WAC revenue against WPM costs only. In our view, there is scope for improving both the calculation and reporting of WPM costs. The methodology for calculating WPM costs should align with the legislative requirements and separating the calculation of these costs and charges from other elements of the WAC would allow clear reporting to the ACCC.

The costs associated with meeting environmental targets has increased substantially over the past 20 years. Minimal water remains to be collected through water purchases under the Water Act 2007 and the costs associated with meeting targets through efficiency projects is much higher. Even if water purchases were used to meet the remaining Basin targets, this would need to be accompanied by adjustment assistance for Basin communities. In our view, the higher costs associated with achieving sustainable environmental outcomes should be reflected in water charges. This ensures consumers take into account the environmental costs associated with using water and make appropriate trade-offs between different sources of water.

⁷⁷ Water Act 2007, 91(3)

Attachment 2 NWI pricing principles (Appendix B)

Appendix B:

A framework for classifying water planning and management activities

This Appendix outlines a framework which classifies water planning and management activities. It is important to note that the costs of some of these activities will be allocated entirely to governments (e.g. water reform, strategy and policy). An asterisk (*) denotes the activities where this is the case.

It should be noted also that there will be capital and corporate services costs associated with each of the activities listed in the framework.

Capital costs can include the provision of infrastructure (e.g. physical works such as streamflow gauging stations, monitoring bores and control weirs) and systems (e.g. water registers and water accounting systems).

Corporate services can include the delivery of corporate services (e.g. legal, IT, communications, human resources, financial management and records management) and corporate planning functions (business and strategic planning and reviewing performance against these plans).

A. WATER REFORM, STRATEGY & POLICY (*)

1. Development of intergovernmental agreements
 - a) e.g. the National Water Initiative, Murray-Darling Basin Agreement, Lake Eyre Basin Intergovernmental Agreement etc.
2. Development of broad strategies for managing water
 - b) e.g. State Water Plan (Western Australia), Securing our Future Together – White Paper (Victoria), State Water Management Outcomes Plan (NSW).
3. Development and/or refinement of overarching statutory instruments
 - c) e.g. Water Management Act 2000 (NSW), Water Act 2000 (Queensland). Overarching legislation does not include statutory-based, catchment/valley/regional level water plans or other secondary/subordinate legislation that operationalises water planning and management.

B. WATER PLANNING

1. Water resource planning
 - a) Development of water resource plans:
 - i. Cross border water plans - sharing and management (inc. allocation) of water resources in cross-border areas;

- ii. Regional water plans - sharing and management of water resources between catchments where interconnectivity occurs (either naturally, or as a result of infrastructure, i.e. a pipeline);
- iii. Catchment scale water plans - allocation and sustainable management of water resources (strategic and operational), including planning for current and future water use, environmental flow arrangements;
- iv. Localised water plans - plans developed to address specific water resource problems (quantity or quality) at a local level;
- v. Other water plans - plans developed at a local or catchment level to address other water management issues, such as water or floodplain harvesting or drainage issues;
- b) Operationalisation and implementation of plans:
 - i. development of rules for water sharing (including environmental shares);
 - ii. determining water availability and distribution (e.g. announced/seasonal allocations);
 - iii. establishing system operating rules, monitoring and reporting requirements etc.;
 - iv. storage and delivery of water to achieve environmental outcomes;
- c) Monitoring and evaluation of planning outcomes and progress against targets
(including compliance);
- d) Review of water resource plans / development of new plans.

2. Environmental and ecosystem management planning

- a) Development of environmental management plans where related to water resources
(e.g. salinity, blue green algae, riverine management);
- b) Development of plans to manage water-dependent ecosystems (e.g. riverine zones, estuaries, wetlands).

C. WATER MANAGEMENT

1. Measures to improve water use

- a) Water use efficiency programs (irrigation, commercial, urban);
- b) Development of property level water management plans;
- c) Great Artesian Basin Sustainability Initiative;
- d) Flood Plain Management.

2. Construction of works (not significant water supply infrastructure)

- a) Construction of weirs, replacement of bores etc., to achieve water management outcomes.

3. Environmental works

- a) Works to reduce or remediate environmental impacts arising from water use.

D. WATER MONITORING & EVALUATION

1. Monitoring and evaluation of water resources

- a) Water resource monitoring:
 - i. Streamflow gauging;

- ii. Groundwater bore monitoring (pressure and levels);
- iii. Water quality monitoring (surface and groundwater resources).

b) Water use monitoring:

- i. Collection of water use information (metering, surveys).

c) Water resource assessment:

- i. Hydrological and hydraulic assessment;
- ii. Water quality assessment (e.g. turbidity, nutrient monitoring, salinity, algal blooms etc);
- iii. Surface water / groundwater interconnectivity;
- iv. Effects of land use change, land clearing, climate change, etc.

2. Monitoring and evaluation of water dependent ecosystems

- a) Monitoring and evaluation of riverine health (flow and non-flow elements), wetland health, estuary health.

E. INFORMATION MANAGEMENT & REPORTING

1. Water resource accounting

- a) Development of frameworks and systems;
- b) Data collection and processing.

2. Publication of water resource information

- a) Water use statistics, water trading statistics, resource condition and assessment reporting, etc.

F. WATER ADMINISTRATION & REGULATION

1. Administration of entitlements and permits

- a) Granting of water allocations, entitlements and permits to users (incl. bulk water entitlements);
- b) Processing of applications and transactions;
- c) Management of bulk water entitlements;
- d) Ensuring compliance with licence and other conditions;
- e) Regulation of water-related works or developments (e.g. dams, bores, pumping equipment);
- f) Benchmarking costs and standards of water planning and management activities (where applicable).

2. Development of entitlement frameworks

- a) Overland flow, interception, non-use 'entitlements'.

3. Administration of water trading arrangements

- a) Development and regulation of trading frameworks;
- b) Facilitation and administration of water trading.

4. Business administration

- a) Pricing review and implementation;
- b) Financial management and reporting (e.g. costing, revenue monitoring);
- c) Billing and debt management.

5. Administration of water metering arrangements

- a) Development of metering requirements and standards;
- b) Implementation of metering requirements;
- c) On-going management of metering activities.

G. WATER INDUSTRY REGULATION

1. Oversight of water businesses

- a) Review of water business operations to ensure compliance with statutory requirements.

Attachment 3 Responses to consultancy report

A review of the WAC was undertaken by Slattery & Johnson in December 2022 for EPSDD (consultancy report). The terms of reference for the review included the following tasks.

- (1) Review and confirm the appropriateness of the criteria used by EPSDD for allocating relevant expenditure collected from the WAC. Proposed amendments to the criteria if required to align with the statutory basis for the charge.
- (2) Conduct a desktop assurance review of WPM expenditure allocated from the WAC reported to the ACCC for the 2021-22 year, using the criteria from task 1.
- (3) Report on Task 1 and Task 2 and discuss the appropriateness of current reporting and provide advice on potential improvements in relation to:
 - Statutory reporting requirements under the Water Act (Cth)
 - Best practice guides and Audit Insights by the Australian National Audit Office
 - Act Government policies relevant to financial reporting

Advise on any strategic risks associated with current reporting on the expenditure of revenue raised through the WAC.

Given that the findings of the consultancy report prompted the ACT Government's request to the commission to review the WAC, we consider it appropriate to provide a response to the issues raised in the consultancy report.

A.3.1 Definition of Water Charge Rules

Section 3 of the consultancy report defines the Water Charge Rules as the:

- Water charge pricing objectives and principles included in the Water Act 2007, and
- NWI pricing principles agreed in 2010

This definition leads to some confusion, as the Water Charge Rules 2010 are a separate legal instrument, given effect under the Water Act 2007. The Water Charge Rules 2010 should not be confused with the Water Act 2007, the NWI or the NWI pricing principles.

As explained in section A.1.4 of this report, the Water Charge Rules 2010 are mainly concerned with the regulation of irrigation infrastructure operators and bulk water suppliers. The only part of the Water Charge Rules 2010 that impact the ACT are those in relation to WPM cost recovery. The Water Charge Rules 2010 set out the monitoring and reporting requirements for WPM costs for all Basin jurisdictions, including the ACT.

A.3.2 Updated WAC estimate

Section 4 of the consultancy report correctly identifies the components of the WAC included in the commission's 2003 review. However, the recalculation of the WAC for 2022-23 assumes that most of the increase in the WAC over time is a result of the increase in a single component, the scarcity value. We do

not agree that this is necessarily the case. In explaining the large increase in the WAC in 2006-07, the explanatory statement noted:

This increase in the WAC represents the decision of Government to charge a price for water that more fully reflects its true economic value. This value represents an appropriate price for a scarce resource and is likely to achieve a more economically sustainable approach to water consumption within the Territory.

ACT GOVERNMENT 2006

In our view, the “true economic value” of water as a “scarce resource” does not necessarily limit the increase in the WAC to the scarcity component. The true economic value of water as a scarce resource could also be referring its value to the environment and therefore be referring to the total cost of achieving a sustainable water supply, both for consumptive use and for the environment.

Regardless of the ACT Government’s intention, it is our view that the increases in the WAC since our initial review in 2003 have lacked transparency and can therefore, not be broken down into the individual components set out in our 2003 review.

A.3.3 Reporting on the WAC

Section 5 of the consultancy report recommends:

- the method to calculate the WAC is published annually (5.1)
- the costs used to calculate the WAC are published annually (5.2.1)
- the WAC is independently reviewed and that review is published (5.3)
- the review should advise on how often the WAC should be reviewed (5.3)
- the independent review includes advice on whether part of the WAC is levying charges for the purpose of revenue raising and, if so, what risk does that pose to the Government (5.4)

We agree with the recommendations to make the method and costs associated with the WAC publicly available. Our recommended approach involves reviewing the methodology every 5 years in line with our price investigation process for Icon Water’s water and sewerage services. We propose a public consultation process on the methodology review and making the estimated costs publicly available as part of the price investigation process (see section 4 of this report).

While as noted above, the increases to the WAC since our initial review in 2003 has lacked the transparency necessary to break them down to individual components, we found no evidence that the WAC has been levying charges for the purpose of revenue raising. If adopted, the proposed WAC methodology provides a clear, transparent process fully compliant with the NWI Pricing Principles and Water Change Rules.

A.3.4 Contributions to the WAC

Section 5.5 of the consultancy report identifies potential issues with each of the components of the WAC included in our 2003 methodology.

A.3.4.1 Water supply (WPM) costs

For water supply costs (referred to in our report as WPM costs), the consultancy report correctly identifies that legislative requirements introduced since our 2003 review require some WPM costs to be excluded from water charges and recommends:

- The independent review should review Water Supply Costs against the Water Abstraction Charge Cost Framework to ensure they do not include costs relating to the business of Government.

We agree with this recommendation and our proposed methodology and implementation involves excluding water reform, strategy, and policy consistent with the current legislative framework (see sections 4.1 and 5.1 of this report).

A.3.4.2 Environmental externalities and the ACCC

Section 5.5.2.2 of the consultancy report notes that the ACCC is responsible for monitoring and enforcement of the water charge rules but notes:

However, it does not appear to require the inclusion of environmental externalities in water charges. It conducted a review of water charge rules in 2016 which did not mention the reporting or monitoring of environmental externalities.

SLATTERY AND JOHNSON 2022, P.17

As discussed in Appendix 2, this observation is a result of confusion between the definition of the water charge rules in the consultancy report and the Water Charge Rules 2010. The ACCC is required to enforce, monitor and report on the latter. The Water Charge Rules 2010 do not include any reference to environmental externalities and this is the reason the ACCC's monitoring reports and review of the Water Charge Rules 2010 do not mention them. The only application of the Water Charge Rules 2010 to the ACT is with respect to WPM costs and charges and that is why these are reported by the ACCC.

The consultancy report states that other Basin jurisdictions do not appear to include environmental externalities in their regulated water charges. While it may be the case that no Basin jurisdictions include a true estimate of externalities associated with environmental damage, both South Australia and Victoria do impose charges to assist in addressing environmental issues (see section 3.2 of this report). The ECL in Victoria has, as one of its objectives, providing a price signal to water consumers.

The consultancy report queries the calculation of environmental costs in our 2003 review and argues that because the ACT Government has not incurred any costs for water recovery, it cannot rightfully argue that water recovery is a cost to be recovered. The consultancy report recommends that the independent review should advise on best practice:

- treatment of environmental externalities (as opposed to cost recovery) in water pricing, and
- method to incorporate environmental externalities into regulatory water charges.

As discussed in section 4.4, environmental externalities refer to costs that are 'external' from the transaction between buyer and seller and are instead borne by third parties, which in the case of water, includes future generations. Consequently, externalities are not reflected in market prices, which results in prices being set too low. The practice of 'internalising' externalities by including the costs of environmental damage into water charges allows the appropriate trade-offs to be made about the use of water. It is for these reasons that national water reforms have encouraged the inclusion of environmental externalities in prices where feasible.

Whether these costs are referred to as environmental externalities or environmental costs is irrelevant. The concept involves estimating the environmental costs caused by water extractions and reflecting these in water charges.

Whether the ACT Government contributed in the past to water purchases is also irrelevant. The cost of permanent water entitlements is simply being used as an approximation of the negative environmental externality. It is a practical and measurable cost-based approach commonly used to estimate externalities.

In section 3.2 of this report, we propose a methodology to incorporate environmental externalities into water charges, consistent with the recommendation in the consultancy report. However, we consider that ongoing work on the methodology over time is required to refine and improve the accuracy of the estimates.

Also, while the Water Change Rules do not deal with environmental externalities, the Minister may make rules and charges that contribute to the water charging objectives and principles which includes the costs of environmental externalities.

A.3.4.3 Scarcity value

Section 5.5.3.2 of the consultancy report criticises the commission's 2003 methodology for estimating the scarcity value on the basis that it is unclear what specific licence categories were used, the weightings not being explained, and the traded prices potentially omitting a large share of trades. The consultancy report states that while it is possible to re-estimate a WAC using the method advised by the commission, it is unlikely to be meaningful and should not be relied on with any confidence. The consulting report recommends that the independent review include consideration of the:

- inclusion of a scarcity value in the WAC, and
- If appropriate, a method to incorporate a scarcity value into water charges

For the reasons explained in section 4 of this report, we consider it appropriate to recognise the economic value of water as a scarce resource in water charges. In our 2003 methodology, we did not claim that the proposed approach was an accurate or exact measure of scarcity. However, the available traded prices for temporary water allocations were the best approximation available. We explained the rationale of the weighting used as follows:

The commission considers it appropriate to give greater weighting to more recent years on the basis that more recent years better reflect the value that society currently puts on water, and the fact that the water market is still developing. At the same time the commission recognises that there will be short-term fluctuations in price that mean that a degree of averaging is desirable and hence the commission suggests the use of data from the previous two years, but with a (somewhat arbitrary) greater weighting applied to the most recent year.

ICRC 2003, P.12 (FOOTNOTE 11)

As discussed in section 4.3 of this report, we propose estimating the economic value of water as a scarce resource using a forecast of the average water allocation price in the NSW Murrumbidgee region of the MDB. These forecasts are prepared by ABARES annually.

A.3.4.4 Capital costs

Section 5.5.4 of the consultancy report correctly identifies that the commission's 2003 methodology for estimating annual capital costs is inconsistent with the NWI pricing principles that were introduced 7 years later. The NWI pricing principles require annual capital costs to be calculated using a return on and return of capital. The consultancy report recommends that the independent review include:

- method to incorporate capital costs into the WAC
- recalculation of historic capital costs reported to the ACCC
- preparation a 'Capital Cost Register' to calculate capital costs for reporting to the ACCC and future calculations of the WAC.

Capital costs are incurred in undertaking WPM activities and our recommended approach set out in section 4.1 and implemented in 5.1 involves the establishment of a RAB and the calculation of building blocks to determine the notional net revenue requirement. This is the same approach the commission uses to determine Icon Water's annual water and sewerage prices and is consistent with the NWI pricing principles.

Our estimation of environmental externalities is based on the cost of permanent water entitlements. These entitlements represent assets, so we calculate an appropriate return on those assets to convert the capital costs to annual costs. Permanent water entitlements do not depreciate over time so there is no return of assets to calculate.

References

ABARES 2023, *Water Market Outlook – April 2023*, <https://www.agriculture.gov.au/abares/research-topics/water/water-market-outlook>.

ACT Government 2006, *Water Resources (Fees) Determination 2006 (No 1)*, Explanatory Statement.

ACT Government 2014, *Act Water Strategy 2014-44*, Striking the Balance, August.

ACT Government 2019, *Water Resources Environmental Flow Guidelines 2019 (No 2)*, July.

ACT Government 2023a, *Water Resources (Fees) Determination 2023*, Explanatory Statement.

ACT Government 2023b, *Scope of work*, October.

Aither 2023a, *Town and city water security – Definition and reporting framework*, A final report prepared for the Department of Climate Change, Energy, the Environment and Water, March.

Aither 2023b, *Water Markets Report: 2022-23 Review and 2023-24 Outlook*.

Australian Competition and Consumer Commission (ACCC) 2022, *Water monitoring report 2020-21*, October.

ACCC 2023a, *Water monitoring report 2021-22*, July.

Bureau of Meteorology (BoM) 2023, About water markets, [About water markets: Water market information: Water Information: Bureau of Meteorology \(bom.gov.au\)](https://www.bom.gov.au/about/water-markets/).

COAG 1994, extracts from *Council of Australian Governments: Hobart 25 February 1994 Communique*, Water reform framework.

COAG 2008, *National Urban Water Planning Principles*.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023a, *Progress on Murray-Darling Basin water recovery*, [Progress on Murray-Darling Basin water recovery - DCCEEW](#).

DCCEEW 2023b, *Submission to the Productivity Commission's Murray-Darling Basin Plan Five-year Assessment 2023*, July.

DCCEEW 2023c, *Strategic water purchasing – Bridging the Gap 2023*, [Strategic water purchasing – Bridging the Gap 2023 - DCCEEW](#).

DCCEEW 2023d, *Agreement of Murray-Darling Basin Ministers to Deliver the Basin Plan in Full*, August, [Agreement of Murray-Darling Basin Ministers to deliver the Basin-Plan in full \(dcceew.gov.au\)](#).

DCCEEW 2023d, Australian water markets, [Australian water markets - DCCEEW](#).

DCCEEW 2024, *Restoring Our Rivers: Delivering the Basin Plan 2012*, Draft framework for delivering the 450 GL of additional environmental water, https://storage.googleapis.com/files-au-climate/climate-au/p/prj2a8f4464525d140f6d670/public_assets/Draft450Framework.pdf.

Essential Services Commission of South Australia (ESCOSA) 2019, *Advice to Treasurer on Water Industry Licence Fees*, November.

ESCOSA 2020, *SA Water Regulatory Determination 2020*.

Frontier Economics 2011, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, a report prepared for the National Water Commission, Waterlines Report Series No 44, April.

Government of South Australia 2020, *Murray-Darling Basin Regulated Water Charges*, Department of Environment and Water, June.

Government of South Australia 2023, *Save the River Murray Levy and Fund*, [Department for Environment and Water - Save the River Murray Levy and...](#)

Government of South Australia 2023, *Government Gazette*, [No. 43 - Thursday, 22 June 2023 \(pp. 1815–1872\) \(governmentgazette.sa.gov.au\)](#).

Hensher, D, Shore, N, Train L, 2006, *Water Supply Security and Willingness to Pay to Avoid Drought Restrictions*, *The Economic Record*, The Economic Society of Australia, vol. 82(256), pages 56-66, March.

Independent Competition and Regulatory Commission (ICRC) 2003, *Water Abstraction Charge: final report*, October.

ICRC 2023, *Regulated water and sewerage services 2023-28*, Final report, May.

Independent Panel 2021, *Second review of the Water for the Environment Special Account*, Report to Commonwealth Minister for Water Resources as required under Section 86AJ of the Water Act 2007, December.

Intergovernmental Agreement 2004, *National Water Initiative*, June.

Intergovernmental Agreement 2010 *NWI Pricing Principles*.

Independent Pricing and Regulatory Tribunal (IPART) 2020, *Review of prices for Sydney Water from 1 July 2020*, Final report, June.

Marsden Jacobs Associates (MJA) 2021, *Water for the Environment Special Account – 2nd independent review, Advice to the independent WESA review panel*, December.

Murray-Darling Basin Authority 2012, *Murray-Darling Basin Plan*, <https://www.mdba.gov.au/water-management/basin-plan>.

National Water Commission (NWC) 2011, *Urban water in Australia: future directions*, April.

Productivity Commission 2008, *Towards urban water reform: a discussion paper*, March.

Productivity Commission 2017, *National Water Reform*, Inquiry Report, December.

Productivity Commission 2023, *Murray-Darling Basin Plan: Implementation review 2023 interim report*, October.

Queensland Government 2023, [Water management fees in Queensland | Business Queensland](#).

Quinlivan, D. 2022, *Water market reform: final roadmap report*, September.

Reserve Bank of Australia (RBA) 2023, *Statement of Monetary Policy*, August.

Sibly, H. and Tooth, R. 2007, *Bringing competition to urban water supply*, UTAS School of Economics and Finance, Discussion Paper 2007-05.

Slattery and Johnson 2022, *Review on the reporting of the Water Abstraction Charge*, December.

Victorian Auditor General 2014, *Administration and Effectiveness of the Environmental Contribution Levy*, June.

Victorian State Government, Environment contributions, [Environmental contributions \(water.vic.gov.au\)](https://www.water.vic.gov.au/environmental-contributions).

Water Act 2007, compilation no.29, [Water Act 2007 \(legislation.gov.au\)](https://www.legislation.gov.au/idx/idx.cfm?act=2007&comp=29).

Water Amendment (Restoring Our Rivers) Bill 2023,
https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bld=r7076

Water Charge Rules 2010, made under section 92 of the Water Act 2007, compilation no. 2, [Water Charge Rules 2010 \(legislation.gov.au\)](https://www.legislation.gov.au/idx/idx.cfm?act=2010&comp=2).



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