ACT Government
Chief Minister, Treasury and Economic Development

Non-potable Water Review

Final Report

Chief Minister, Treasury and Economic Development Directorate

December 2021

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Definitions / Acronyms

A number of water-related terms are used throughout this paper. To ensure consistency in the meaning of each term, definitions are provided below.

ACAT	ACT Civil and Administrative Tribunal
CEP	Competition Equalisation Payment
CMTEDD	Chief Minister, Treasury and Economic Development Directorate
Effluent	Outflow of wastewater from any water processing system or device.
EPA	Environment Protection Authority
Ground water	Water located underground in permeable soil or rock. It includes both naturally occurring water and water pumped underground for storage. However, it does not include water held in underground tanks, pipes or other works.
ICRC	Independent Competition and Regulatory Commission
INRN	Inner North Reticulation Network
Integrated urban water management	A comprehensive approach to urban water services, where water supply, stormwater management and wastewater management are viewed as components of an integrated system.
kL	Kilolitres – one thousand (1,000) litres.
LMWQCC	Lower Molonglo Water Quality Control Centre
MES	Market Equity Scheme
ML	Megalitres – one million (1,000,000) litres.
Non-potable water	Water that is not of drinking quality, and has not been treated to the standards outlined in the Australian Drinking Water Guidelines (2011) and ACT Public Health (Drinking Water) Code of Practice. In the ACT, it is water in rivers, lakes, ponds, dams, aquifers, stormwater system and includes treated effluent as well as recycled water.
NWI	National Water Initiative
Overland flows	Rainwater that has fallen to the ground but not yet reached a defined surface watercourse, body or ground water source.
PAGA	Parliamentary and Governing Agreement of the 10th Legislative Assembly.

Potable water	Water suitable for human consumption (alternatively termed drinking water), which is of a quality suitable for drinking that meets the Australian Drinking Water Guidelines (2011).
Recycled water	Includes water sourced from wastewater (treated effluent from a water treatment plant or sewer mining scheme and greywater).
Reticulation	Distribution through a network of pipes used to transport water to the point where it is consumed.
Stormwater	Water that originates from rain falling in the urban area and is collected into the public stormwater network.
Surface water	Water on or flowing over land (including in a waterway) after having fallen as rain or hail or precipitated in any other way; or risen to the surface naturally from underground; or been returned to the environment following treatment or use.
TAMS	Territory and Municipal Services
TCCSD	Transport Canberra and City Services Directorate
UNFT	Utilities Network Facilities Tax
WAC	Water Abstraction Charge

Executive Summary

In the Parliamentary and Governing Agreement for the 10th Legislative Assembly (the PAGA) the Government has committed to ensuring clubs continue to support the community, while reducing harm from gaming.[1] One of the initiatives to achieve this goal is to:

> *"Conduct a review into water costs for high-intensity club users of non-potable water in 2021, with the goal to allow clubs to maintain operations while not requiring cross-subsidisation by other ACT water users."*[2]

The Non-potable Water Review (the Review) commenced on 1 March 2021 with the release of the Terms of Reference for the Review and a Discussion Paper. The Terms of Reference outlined the Review's objectives and process, including that the Review would be conducted by ACT Treasury supported by specialist advice from the Independent Competition and Regulatory Commission (the ICRC). In line with the terms of reference, the focus of the Review was on the non-potable water costs for high-intensity club users and did not necessarily cover broader water policy matters.

The Discussion Paper set out key issues to be considered and sought feedback and input from stakeholders.

On 9 April 2021, the Standing Committee on Economy and Gender and Economic Equality (the Standing Committee) made the follow recommendation in its *Report on Inquiries into Annual and Financial Reports 2019-20 and ACT Budget 2020-21*:

> "*The Committee recommends that any recommended changes to pricing frameworks for non-potable water arising from the Non-potable Water Review into water costs for high -intensity club users of non-potable water should be consistent with the following principles: (i) the price of non-potable water should generally reflect the cost of supply; (ii) any subsidy provided should be transparent and based on a demonstrated need; and (iii) cases for support should have regard to the ongoing wider benefits to the community such as economic, social and environmental outcomes."*[3]

The Government agreed in principle to the recommendation and noted that these principles would be considered in the Review.

This Final Report (the Report) set outs the key findings and recommendations, informed by feedback from the community, and government stakeholders and advice from the ICRC.

On behalf of the Government, Treasury thanks all stakeholders, including individuals, clubs, associations, utility providers, and other ACT government agencies for taking time to participate through making submissions, and/or providing advice, information and data.

[1] PAGA 2020.
[2] PAGA 2020.
[3] SCEGE 2021.

Overview of key findings and recommendations

The Review was established to examine the costs related to non-potable water use and provide advice to the Government on the appropriateness of the current pricing frameworks in the ACT, whether any adjustments could be made, and arrangements in other jurisdictions.

The findings and recommendations in the Report reflect the associated costs, prices and revenues from non-potable water use in the ACT, and arrangements in other jurisdictions.

Key findings

The key overarching findings of the Review are:

- Non-potable water usage and costs for high-intensity club users are closely linked to weather conditions and vary significantly from year to year. The revenue received by the Government and Icon Water from charges for non-potable water is equally volatile.
- Users with access to surface and ground water sources for irrigation purposes, and to a lesser extent recycled water and stormwater, have lower water usage costs than those who only have access to potable water sources for irrigation purposes.
- While water usage costs vary from year to year, they are generally less than 10 per cent of a club's overall costs and do not have a significant impact on the ongoing financial viability of most high-intensity club users. Other factors such as member base, prices charged, and other capital and operating costs can have a greater impact on a club's financial situation.
- Various assistance measures provided by the Government have resulted in golf clubs and rural irrigators paying significantly less for surface and ground water, compared to other users.

More specific findings relating to surface and ground water are:

- Users of surface and ground water incur the costs associated with infrastructure to store and pump the water for irrigation purposes. The extent of these costs depends on a club's circumstances and are relatively fixed.
- The charges for ground and surface water (including non-potable Water Abstraction Charge (WAC)) are sufficient to recover direct costs incurred by the Government.
- Charges vary significantly for different groups of surface and ground water users. Most high-intensity club users, including golf clubs, and rural irrigators have not had to pay the non-potable WAC for surface and ground water due to a range of assistances measures. However, some of the assistance measures have recently ended.
- The existing concessional arrangements are complex to administer, not as transparent as other concessional arrangements, and result in high administration costs.
- No other jurisdiction charges for surface water collected and stored in infrastructure located on users' premises (e.g. ponds). However, they do have licence arrangements.

More specific findings relating to recycled water from LMWQCC and stormwater from INRN are:

- As demand is volatile from year to year, pricing for stormwater and recycled water broadly reflect the average cost and usage over time.
- Recycled water supply costs are relatively fixed each year. This includes costs associated with the pumps and pipes required to transport the recycled water to the end user.
- Icon Water takes into account the National Water Initiative (NWI) and ICRC pricing principles when setting non-potable water prices, and these are broadly cost reflective. However, prices reflect the cost of infrastructure that was built for a greater capacity than current usage. As a result, the water usage costs for recycled water are higher than those for surface and ground water.
- Prices for INRN stormwater were initially set having regard to the tier two price of potable water and subsequently indexed by the Wage Price Index (WPI) each year.
- Given volatility in stormwater usage, prices for INRN stormwater are broadly cost reflective, but have not fully recovered the associated costs since inception.
- Some jurisdictions have either explicitly adopted NWI pricing principles for stormwater and recycled water pricing or use them as guiding pricing principles.

Recommendations

Taking into consideration the key findings above, the Review recommends the Government consider:

1. Adjusting ground and surface water charges to better align with the fixed and variable costs. This could be achieved through increasing licensing fees to ensure that all users contribute equally to cover the fixed costs and reducing the variable non-potable WAC.
2. Reforming assistance measures to make them simpler and more transparent and equitable.
3. Continuing to provide targeted short-term support to some sporting clubs in exceptional circumstances such as extreme or prolonged dry weather to reflect the social benefits of community clubs. Assistance should be targeted towards clubs that have no other option than to use significant quantities of recycled or potable water for irrigation purposes.
4. Reviewing the application of NWI pricing principles, that suggest full cost recovery for stormwater costs, in the forthcoming review of INRN stormwater prices.

1 Introduction

1.1 Background

As part of the PAGA for the 10th Australian Capital Territory Legislative Assembly, the Government committed to undertaking a review into water costs for high-intensity club users of non-potable water in 2021 (Appendix 1 – E.8). Funding for the Review was provided as part of the 2020-21 Budget in February 2021.

1.2 Terms of Reference

The Terms of Reference for the Review are at Appendix A. They require the Review to examine costs related to the usage of non-potable water by clubs and provide recommendations on:

- The appropriateness of the current pricing framework for non-potable water, informed through an analysis of the associated costs in its supply;
- Whether any adjustments can be made to the current framework which would enable clubs to continue operating, without entailing cross subsidisation from other users;
- Whether there are other relevant arrangements which could achieve the goals set out in the PAGA, such as those adopted by other jurisdictions; and
- Any other issues identified through the Review.

The PAGA makes clear that any recommendations from the Review that aim to assist clubs in maintaining operations should not involve cross-subsidisation from other ACT water users. This means that the actual costs of non-potable water use should be reflected either in the prices charged to clubs or, if less than the costs of provision, transparently covered by a subsidy from the Government.

The Terms of Reference also note that Treasury will undertake the Review with specialist advice from the ICRC.

1.3 The Review process

A Discussion Paper was released in March 2021, through the ACT Government's YourSay website, with written submissions due by 30 April 2021. Copies of the Discussion Paper and the responses received are available on the Review's YourSay website at https://www.yoursay.act.gov.au/non-potable-water-review.

Nine submissions were received, including three from high-intensity club users, and these have formed a key source of information in the Review. Relevant excerpts are cited throughout the report to provide more context.

As part of the Review, the Government asked the ICRC to undertake an investigation into Icon Water's costs of supplying recycled water to high-intensity club users, and to provide its findings to the Government. The ICRC has relevant legal powers to access information for this purpose. Much of the detail in the report provided by the ICRC relates to Icon Water's commercial arrangements and is commercial in confidence. As a result, while the detail of

the report and its findings informed the recommendations of the Review, they are only referred to at a general level in the Report.

Information regarding the operation and administration of the non-potable WAC and the INRN schemes was provided by the Environment Protection Authority (EPA) and the Transport Canberra and City Service Directorate (TCCSD), and regular contact was maintained through the course of the Review.

The Review also examines and draws upon various reports and studies conducted on economic regulation and pricing principles on non-potable water, mostly conducted by independent pricing regulators in other Australian jurisdictions. A list of key reference documents is at Appendix E.

The Final Report (the Report) of the Review will be provided to the Government for consideration.

1.4 Report structure

The remainder of the Report is structured as follows:

- **Chapter 2** provides background information on non-potable water in the ACT and its users.
- **Chapter 3** presents an overview of the information, data and submissions received.
- **Chapter 4** sets out an overview of the assessment framework used for the Review.
- **Chapter 5** examines the appropriateness of the current pricing framework for surface water and groundwater.
- **Chapter 6** examines the appropriateness of the current pricing framework for recycled water supplied by Icon Water.
- **Chapter 7** examines the appropriateness of the current pricing framework for water supplied from the INRN.
- **Chapter 8** concludes and provides recommendations in relation to the pricing framework for each source of non-potable water.

2 Types of non-potable water and its users

2.1 High-intensity club users of non-potable water in the ACT

The focus of the Review is on high-intensity club users of non-potable water who are associations incorporated in the ACT dedicated to promoting recreational, social, sporting, or athletic activities, and licenced by the EPA to take at least 3,000 kilolitres of surface and ground water each year.

2.2 Non-potable water

There are three key sources of non-potable water available to high-intensity club users for the purpose of irrigation of land providing services to the community:

- surface and ground water;
- stormwater; and
- recycled effluent (referred to as recycled water in this report).

Figure 2.1 below provides an overview of each source of non-potable water, the associated charges and the entities responsible for administering each charge.

Figure 2.1 - Overview of non-potable water sources

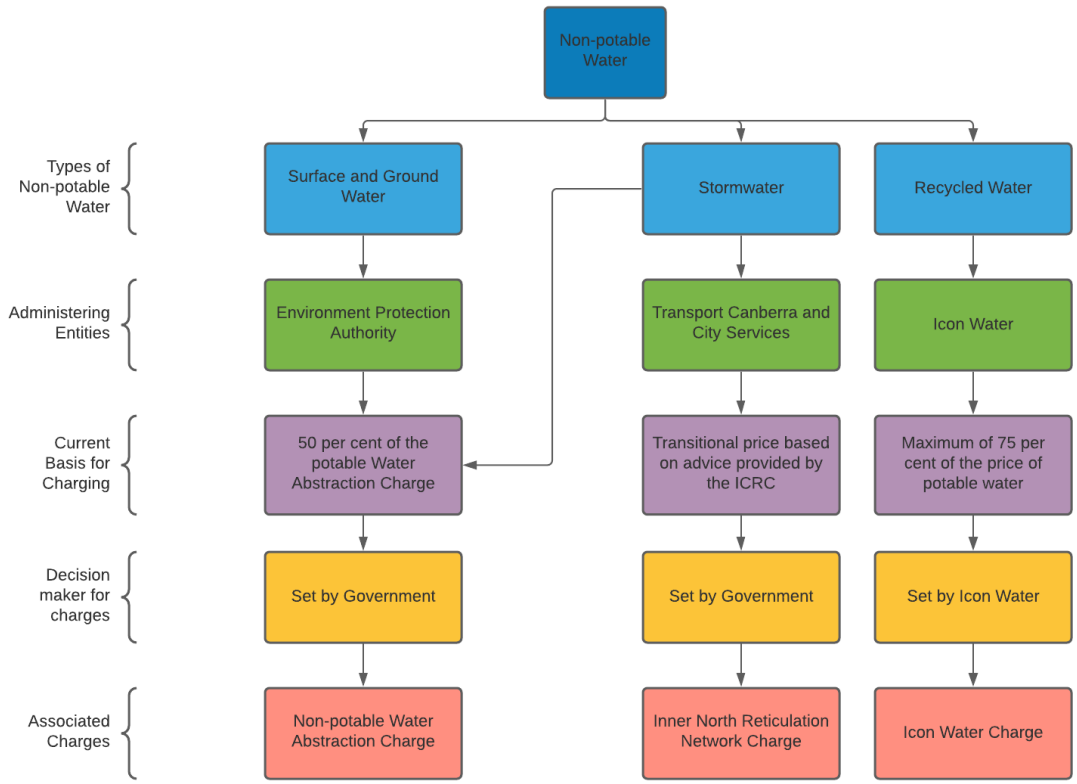


Table 2.1 below provides an overview of the associated non-potable water charges in the ACT and assistance measures available.

Table 2.1 – Water charges and assistance measures available 2021-22

Non-potable Water	Fixed Charges	Usages Charges	User type and assistance
Surface and ground water	$481 per year (administration fee)	Non-potable WAC – $0.314/kL *Set at 50 per cent of potable WAC.*	Rural irrigators receiving the Competition Equalisation Payment (CEP) • 99 per cent reduction of usage charges
			Golf clubs • Market Equity Scheme (MES) – 50 per cent reduction of usage charges • Infrastructure Offset Scheme – 100 per cent reduction of usage charges after applying MES, ended in 2020[4] • Non-potable water rebate – 100 per cent of 2020-21 usage charges • Non-potable water extension rebate – 100 per cent of usage charges from 1 July to 31 December 2021 up to applicable cap.
			Other high-intensity club users (excluding golf clubs) • Non-potable water rebate – 100 per cent on 2020-21 usage charges.
			Other users • No assistance.
Recycled water (LMWQCC)	N/A	$3.140/kL[5] *Set commercially and the non-potable WAC does not apply.*	High-intensity club users • Non-potable water rebate – 100 per cent of 2020-21 usage charges. • Non-potable water extension rebate – 100 per cent of usage charges from 1 July to 31 December 2021 up to applicable cap.
Stormwater (INRN)	N/A	$4.056/kL[6] *Originally set based on initial ICRC advice, then indexed. Non-potable WAC is applied.*	Community organisations (e.g. schools) • Community Service Obligation (CSO) payments reduce bills by 50 percent.
			High-intensity club users • Non-potable water rebate – 100 per cent of 2020-21 usage charges. • Non-potable water extension rebate – 100 per cent of usage charges from 1 July to 31 December 2021 up to applicable cap.
			Other users • No assistance

Source: Icon Water advice, ICRC 2021 and TCCSD data.

[4] Subject to remaining offset available.

[5] This is the standard recycled water prices for 2021-22. Lower prices can be negotiated between Icon Water and the user. For example, the Magpies noted in its submission to the Review that recycled water prices was $2.400/kilolitre in 2020-21.

[6] Figure is inclusive of non-potable WAC for 2021-22.

2.3 Non-potable Water Abstraction Charge framework in the ACT

The ACT Government plays a key role in water resource management. The WAC was initially implemented in 1999 as part of the *Water Resources Act 1998* (ACT), with the aim of fostering water conservation and providing a return on the use of a Territory asset. At a high level, the WAC provides a price signal to improve the efficiency of water use, and the charge is set at a level reflective of its value. The WAC is added to Icon Water's volumetric potable water charges to ensure that the full costs of service provision incurred in delivering potable water are reflected in charges.

The charge sends a signal to consumers about the true costs of water, by capturing its scarcity value along with the costs incurred by Government in providing water.

The WAC is based on a pricing framework consisting of three key components:

- the costs incurred by the ACT Government in maintaining water catchments;
- the environmental costs associated with the consumption of water in the ACT; and
- the scarcity value of water as a resource that holds significant value across the broader community.

Originally, the WAC was applied equally to both potable and non-potable water sources. In 2006, the WAC was separated into the potable WAC and non-potable WAC. The non-potable WAC was set at 50 per cent of the potable WAC.

The decision to base the non-potable WAC at 50 per cent recognised that the value of non-potable is much lower than potable water. The WAC for both potable and non-potable water has increased over time, primarily reflecting the scarcity value of water. This Review provides an opportunity to assess the level of the non-potable WAC in terms of:

- the costs incurred by the Government, which are primarily fixed; and
- the environmental costs and scarcity value.

The non-potable WAC is the volumetric charge for surface and ground water extracted by licence holders. The objective of the non-potable WAC is to encourage the efficient use of surface and ground water by ensuring that the charge paid by licence holders reflects the values set out above. This includes covering those costs incurred by Government as well as a component that reflects the value of the extracted water to the environment. Ground water comes from bores in aquifers, and its extraction has impacts on other users in the catchment.

The use of surface and ground water is regulated to ensure its impacts on the environment and availability for other users in a catchment is managed. The process of issuing a Water Access Entitlement for non-potable use by the Minister for Water, Energy and Emissions Reduction incorporates an efficient use assessment.

The ongoing water use licences have a maximum annual volume of water with ongoing compliance monitoring by the EPA. Restrictions on use can be put in place during extremely dry periods to ensure the protection of waterways and that use is equitably distributed amongst licences. Most of the costs associated with the regulation of non-potable water are fixed.

A significant component of the WAC for potable water is its scarcity value, which is set at a level to reflect the social values of potable water and the impacts of supply decreasing. It is important to note that a key difference between potable and non-potable water relates to the security of supply and the consumption purpose. If the supply of non-potable water runs out due to dry weather conditions, then there are alternative mechanisms for supply. In some cases, irrigators may pay to cart water from another catchment area (usually outside the ACT) or even purchase potable water, but the non-potable water provider is not required to find alternative sources in the same way that Icon Water and the Government would be if potable supplies run low.

For this reason the scarcity value of non-potable water is considerably lower than potable water.

2.4 Surface and ground water

The use of surface and ground water is regulated in the ACT by the EPA. All users must be licenced to use water for non-urban purposes under the *Water Resources Act 2007* (ACT). This licence is based on a water access entitlement that specifies a water management area that licensees are entitled to take surface water and groundwater from. For clubs, the water management area typically encompasses water sources such as reservoirs and bores located on or near each club's premises.

The EPA is a statutory office responsible for administering the *Water Resource Act 2007* (ACT), which aims to ensure the sustainable use and management of the Territory's water resources. As part of these responsibilities, the EPA oversees actual collection of the non-potable WAC through the regulatory process associated with the granting of licences. The EPA bills users annually based on meter readings and taking into account the MES, CEP and Infrastructure Offset Scheme.

Fees and charges

All users of surface and ground water are subject to the non-potable WAC of $0.314 per kilolitre as set out in the *Water Resources (Fees) Determination 2021* (ACT).

The non-potable WAC is set at 50 per cent of the potable WAC, which takes into consideration the differences between the two water sources, such as the associated environmental costs, availability of the resource and its relative scarcity value. The basis of the non-potable WAC is outlined in further detail earlier in this chapter.

In addition to the non-potable WAC, an annual administration fee of $481 applies to those licensed to use up to 1,000 megalitres of water in 2021-22. A higher administration fee of $9,336 applies to those licensed to use more than 1,000 megalitres.

While licence holders do not face a higher administration charge for exceeding the amount specified in their licence, a maximum of 50 penalty units[7] can be charged to those who contravene their licence conditions, under section 77A of the *Water Resources Act 2007*.

[7] Under section 133 of the *Legislation Act 2001*, a penalty unit is $160 for an offence committed by an individual and $810 for an offence committed by a corporation.

Government assistance schemes

There are several Government assistance schemes related to surface and ground water use, with each targeting specific segments of the ACT community. In addition, while the Review was being undertaken, the Government introduced a temporary rebate for high-intensity club users for all non-potable water sources.

Assistance to golf clubs

There have been two schemes that provide assistances to golf clubs through discounts and offsets to the non-potable WAC:

- The Infrastructure Offset Scheme allowed clubs to offset their non-potable WAC obligations against investments into water saving infrastructure projects undertaken by the end of 2015, with approved offsets claimable until 31 December 2020.
- The Market Equity Scheme (MES) was introduced in 2014 to provide golf clubs with a 50 per cent discount on the non-potable WAC. The scheme was introduced to provide parity between ACT and NSW golf clubs, which do not pay a charge for water stored on their own land. This aimed to provide the same support to all golf clubs regardless of their ability to invest in significant infrastructure upgrades to improve water efficiency.

The MES was intended to replace the Infrastructure Offset Scheme. However, a transitional period was subsequently implemented to allow golf clubs to claim offsets for infrastructure projects undertaken until the end of 2015, with offsets available until the end of 2020.

The aim of the Infrastructure Offset Scheme was to encourage clubs to invest in water efficiency infrastructure that would enable optimal use of ground and surface water.

The combination of these two assistance programs has meant that many golf clubs have not paid the non-potable WAC for a number of years. With the conclusion of the Infrastructure Offset Scheme in December 2020 some golf clubs will now be paying the non-potable WAC. Golf clubs will continue to receive an ongoing subsidy for water prices under the MES.

Assistance to high-intensity club users

While this Review was being undertaken, the Government put in place a temporary rebate for non-potable water usage by high-intensity club users from 1 July 2020 to 30 June 2021, and extended the rebate up to a capped amount until 31 December 2021 as part of the 2021-22 Budget.

Assistance to rural irrigators

The Competition Equalisation Payment (CEP) scheme was established in 1999 to provide a subsidy to ACT rural irrigators. The CEP was designed to reduce the impact of increased water costs experienced by ACT rural irrigators as a result of the WAC through effectively providing them with similar water charges to those applied to water from the Murrumbidgee River. This allowed them to better compete with nearby irrigators in NSW. The net cost of surface and ground water to CEP recipients is between $0.002 per kilolitre and $0.008 per kilolitre.

The CEP is only applied to irrigated agricultural production.

Assistance to ground water users through a data sharing agreement

The EPA may enter into an agreement with ground water licence holders to enable it to access ground water sources for the purpose of monitoring and data collection. In return, the licensee does not have to pay the annual licence fee, which is $481 for 2021-22. These arrangements augment ACT Government water monitoring programs.

Arrangements in other jurisdictions

There are a range of arrangements in place throughout all other Australian jurisdictions for surface and ground water, with each jurisdiction's water rights system encompassing different sources of surface and ground water.[8]

In general, water rights systems in most jurisdictions require users to obtain rights before taking water located in most surface and ground water sources such as aquifers, rivers, lakes, creeks and streams.

The treatment of overland flows[9], however, varies significantly. The ACT is the only jurisdiction that places a universal restriction on users from harvesting overland flows without a licence.[10] In other jurisdictions, overland flows are only included in the water rights system should they meet certain conditions, such as:

- in New South Wales, users must obtain a licence to collect overland flows if the users intend to harvest more than 10 per cent of average run-off, as part of the Harvestable Rights Orders;[11]
- in Queensland, overland flows can be taken for any purpose unless there is a moratorium notice or a water plan that limits what can be taken.
- in Victoria, unlicensed collection of overland flows is limited to stock and domestic purposes; and
- in non-prescribed areas of South Australia, overland flows are not limited and can be harvested without a licence on the condition that the taking of water does not detrimentally affect other users of the same water source.

Jurisdictions also differ in their setting of fees and charges associated with the use of surface and ground water. A comparison of this is set out in Table C2 of Appendix C, and covers the following:

- New South Wales (WaterNSW) – fixed annual charge based on the size of the meter and variable charge for unregulated river and ground water only, not surface water collected or stored on the premises (e.g. ponds).
- Victoria – fixed annual charges based on volume of entitlement and no variable charge.
- Queensland – fixed annual charges to cover licence fees and meter service charges, and variable charge based on water usage or harvesting charges.

[8] Productivity Commission 2003, Page 116.
[9] Rainwater that has fallen to the ground but not yet reached a surface water channel or aquifer.
[10] Productivity Commission 2003, Page 87.
[11] NSW Government 2006, Pages 1,628 to 1,631.

- South Australia – fixed annual charges reflecting access entitlements based on total water allocations, no variable charge, but a penalty charge to discourage excess taking of water.
- Western Australia – fixed annual charges to cover administrative and licence fees, and no variable charge.

In general, these jurisdictions have adopted either just a (fixed) access fee or a combination of a fixed access fee and a (variable) consumption-based charge to recover the various costs associated with surface and ground water, including:

- fixed annual fees to cover the costs involved in allocating, administering, monitoring and enforcing water rights;
    - In most jurisdictions, these fixed annual fees are calculated based on each user's total entitlement access or size of meter as a proxy for usage;
- variable usage charges where a two-part tariff pricing approach is adopted by having a charged based on entitlement and a charged based on usage, for a majority of the rural bulk water services in NSW; and
    - In its review of prices for rural bulk water services provided by WaterNSW, IPART noted that variable charges should ideally be set to recover variable costs and in some instances reflect the variability of supplementary water access.[12]
- penalty charges are in place for breaches of licence conditions such as the excess taking of water, which are in place as a deterrent and to recover some of the environmental costs associated the overuse of water.

2.5 Recycled water

The LMWQCC reuse scheme was established to supply treated effluent in the form of recycled water to nearby vineyards, water carters and golf courses for irrigation.

Fees and charges

Icon Water, the regulated sole provider of potable water and sewerage services in the ACT, provides recycled water on a commercial basis under their non-drinking water standard customer contract that can be viewed through Icon Water's webpage. The contract sets out the standard terms by which Icon Water provides recycled water services to customers connected to a recycled water network in the ACT.

The price is not regulated; however, it is currently capped by Icon Water at a maximum of 75 per cent of the current price set for potable water. This is in line with NWI pricing principles relating to substitutes available to ensure that the cost of providing non-potable water does not exceed that of potable water.

[12] IPART 2017, Pages 116 to 119.

The non-potable WAC is not included in recycled water prices as the potable WAC has already been charged to users prior to it being recycled and supplied to the recycled water users. Similarly, Icon Water has excluded the Utilities Network Facilities Tax from recycled water prices. Customers can choose whether to accept the offer or negotiate a lower rate through volume discounts.

Arrangements in other jurisdictions

The ICRC was asked to examine arrangements in other jurisdictions in Australia for the pricing of recycled water and found that Icon Water's arrangement is broadly in line with those arrangements and with the NWI pricing principles.

The ICRC also found cost allocation for determining prices was generally reflective of a user pays basis, where any revenue shortfalls were recovered through community service obligation payments or the potable water system if it was seen to provide broader social benefits from the continuing operation of such user. However, the ICRC also noted such benefits are difficult to measure. Also, the treatment of sewerage water was generally excluded from the cost of supplying recycled water, as it is a required step regardless of whether recycled water is subsequently sold to customers.[13]

The ICRC also provided a cross-jurisdictional comparison for recycled water, which showed the NWI pricing principles have been adopted in full in several jurisdictions, including Queensland, South Australia, and Western Australia. Other jurisdictions such as NSW have chosen to align with the NWI pricing principles with a focus on ensuring prices recover the costs of supplying the recycled water minus any avoided or deferred costs in the potable water and sewerage systems.[14]

For the ACT, Icon Water has stated that it takes into account *NWI Pricing Principles for recycled water and stormwater use* (2010) and the pricing principles outlined by the ICRC in the *Final report: Regulated Water and Sewerage Services Price 2018-23*.[15]

2.6 Stormwater from the Inner North Reticulation Network

The INRN is Canberra's first neighbourhood-scale stormwater harvesting and managed aquifer recharge system, constructed with financial support from the ACT and Australian Governments. The system captures urban stormwater in constructed wetlands and treats it before pumping it through a reticulation network for irrigation of urban green spaces.

The INRN provides significant environment, social and economic benefits through reducing inflows of nutrient rich stormwater into Lake Burley Griffin, potentially reducing algal blooms in the lake. It also reduces demands on potable water through providing users with fit-for-purpose stormwater for irrigation.

[13] ICRC Advice 2021.
[14] ICRC Advice 2021.
[15] Icon Water Submission 2021

TCCSD is responsible for the management of the stormwater network, which includes the management of the INRN.

Fees and charges

For 2021-22, the INRN supplied water to users at a rate of $4.056 per kilolitre, consisting of the INRN's water usage charge ($3.742 per kilolitre) and the non-potable WAC ($0.314 per kilolitre). Income generated from water sales is used for operation and maintenance and to recover capital costs over the life of the infrastructure associated with the INRN.

The price of stormwater from the INRN is based on advice provided by the ICRC in 2009 reflecting the second-tier potable water price at the time. This resulted in an initial price of $3.32 per kilolitre in 2015-16, which has increased by the WPI each year. This was a transitional price while the INRN became established. The intention is for the price to reflect the full costs of the scheme, after it has been in place for a sufficient period for these costs to be able to be reasonably estimated.

Assistance to community organisations

Community groups such as schools and churches receive a 50 per cent concession on the use of stormwater supplied through the INRN. This concession does not apply to the non-potable WAC charge, which is still required to be paid. The concession mirrors the 50 per cent price discount Icon Water provides to community organisations for potable water.

This assistance is funded by the Government under the Concessions Program.

Arrangements in other jurisdictions

There is less uniformity across jurisdictions in setting stormwater prices as there is a wide variety of stormwater harvesting and reuse schemes that differ significantly depending on particular circumstances in each jurisdiction. A summary of the pricing principles for stormwater reuse products from each jurisdiction can be found in Table C4 of Appendix C.

While there are a number of stormwater harvesting and reuse projects in New South Wales, Victoria, Queensland, and South Australia that are comparable to the INRN, there is limited publicly available information on the prices associated with these networks.

A key issue is that prices must be set to raise sufficient revenue to cover the costs of operation; however, annual revenue can differ from year to year depending on weather conditions, both in terms of supply and demand. It is also important to ensure that the prices charged for stormwater do not exceed that of potable water, as reflected in the fourth pricing principle for recycled water and stormwater use,[16] to ensure that the scheme is economically efficient in the medium to long term.

[16] NRMMC 2010, Page 16. The fourth pricing principle states that "Regard to the price of substitutes (potable water and raw water) may be necessary when setting the upper bound of a price band."

Given these complexities, approaches to regulating stormwater prices differ significantly across jurisdictions. As an example, South Australian utilities are bound to apply pricing principles, consistent with the NWI, and provide pricing statements for stormwater to the independent regulator, whereas New South Wales chose not to establish pricing principles for stormwater. Further information on stormwater harvesting projects and pricing approaches in other Australian jurisdictions can be found in Appendix D.

3 Submissions to the Discussion Paper

Nine submissions to the Discussion Paper were received from a range of stakeholders, as detailed in Table 3.1 below. A summary of each submission can be found at Appendix B.

Table 3.1 – Submissions

Organisation type	No. of submissions	Stakeholders
Golf clubs/associations	3	• GolfNSW and the ACT Monaro District Golf Association • Magpies Belconnen Golf Club (Magpies) • Yowani Country Club
Other groups/associations	3	• ACT Equestrian Association • Australian Sports Turf Managers Association • Phillip Oval Management Group (POMG)
Water service providers	1	• Icon Water
Individuals	2	• Mr Ray Trewin • Mr John McMaster

Overall, the submissions highlight a range of different circumstances faced by high-intensity club users in the ACT which mostly stem from differences in access to non-potable water sources, usage requirements and associated water usage charges.

Some common themes shared across submissions include:

- water related expenses account for only a small proportion of the overall operating costs of most high-intensity club users, roughly 2.5 to 7 per cent;
- the desire for lower non-potable water charges in the ACT, with several submissions highlighting the significantly higher charges ACT organisations face in comparison to their NSW counterparts;
- support for the continuation of Government assistance schemes to provide high-intensity club users subsidised non-potable water in recognition of the community benefits they provide; and
- the desire for additional Government assistance to expand the scope of recycled water and stormwater systems to allow more users to access them, recognising that the option to access cheaper sources of water for irrigation provides a significant economic advantage to many organisations.

Further, the Magpies Belconnen Golf Club (Magpies) highlighted the club's unique circumstances relative to other golf clubs in the ACT, in that its water costs are much higher. Magpies does not have as much access to surface and ground water as other golf clubs and relies on recycled water. Magpies indicated that the cost of recycled water is significantly higher per kilolitre than other forms of non-potable water, which is the case for ground and surface water.

The submission from GolfNSW & AMDGA indicates that ACT golf clubs provide significant benefits to the ACT community that they estimate to be around $160 million per annum taking into account health, economic, environmental and charitable benefits.

Information and data from the submissions received is referred to throughout the Report in relevant chapters.

4 Review's Approach

Treasury adopted the following framework in assessing whether the current arrangements are appropriate for non-potable water in the ACT. The principles below are in line with the NWI pricing principles that were used by the ICRC in their advice on recycled water, and also cover the additional elements set out in the TOR.

- **Cost recovery / cost allocation** – prices charged for each type of non-potable water should be cost reflective and in line with the NWI assessment principles.
- **Water usage charge** – the inclusion of a water usage charge to promote efficient water use (for example, prices reflecting a scarcity value and environmental costs).
- **Substitutes / differential pricing** – prices charged should have regard to the costs associated with substitutes (for example, other types of non-potable water and potable water) and reflect the differentiation in reliability and quality of the water supply.
- **Assistance and price transparency** – degree of transparency of:
    - assistance provided by the Government (for example, CSO payment for concessions/subsidies); and
    - prices applicable to all consumers, which should reflect the relevant costs to avoid cross subsidisation between users.
- **Financial viability** – the impact of non-potable water costs on high-intensity club users' ongoing financial viability (for example, the proportion of non-potable water costs compared to overall operational costs).
- **Demand and supply volatility** – the impact of non-potable water demand and supply on high-intensity club users and providers of non-potable water.

The NWI is an intergovernmental agreement signed by the Council of Australian Governments (COAG) in 2004 to achieve a more cohesive national approach to the management, planning, and pricing of water.[17]

Four sets of pricing principles were developed to assist states and territories in meeting their commitment to the NWI,[18] covering the:

- recovery of capital expenditure;
- setting urban water tariffs;
- recovery of the costs of water planning and management activities; and
- pricing of recycled water and stormwater use.

The principles for 'pricing of recycled water and stormwater use', which includes nine pricing principles set out in Table C1 in Appendix C, are most relevant to the Review. The principles are flexible in recognition of the diverse and evolving nature of recycled water and stormwater reuse products, and the very different circumstances under which these schemes are implemented.[19]

[17] The objective of the NWI is to create a nationally compatible market for managing water resources for both rural and urban use that optimises economic, social, and environmental outcomes.
[18] NRMMC 2010, Pages 2-3.
[19] NRMMC 2010, Page 16.

The following approach was adopted to assess these principles :

1. estimate the annual usage of non-potable water by type over time, based past usage volumes and user types;
2. review the relevant capital and operating costs incurred by high-intensity clubs to access, store and purchase non-potable water;
3. review the costs incurred by non-potable water providers and the impact that volatility of demand has on ability to recoup these costs on an annual basis;
4. assess the appropriateness of government assistance measures to date;
5. consider relevant arrangements in other jurisdictions and whether they could be applied in the ACT to achieve the goals set out in the PAGA, including any suggestions made through submissions; and
6. based on the results of the above steps, assess whether any adjustments should be made to the current pricing framework, including government assistance, for all non-potable water users where appropriate.

To obtain information from the interested stakeholders, the Government released a Discussion Paper on the Yoursay.act.gov.au platform and in addition and sought submissions and made data requests to relevant directorates on the following key questions:

- costs to maintain non-potable water infrastructure;
- costs of purchasing non-potable water;
- assistance measures in place or other measures that could be considered;
- key factors impacting on the viability of clubs, including the cost of non-potable water in the short or long term;
- experiences from other jurisdictions; and
- any other matters relating to the costs of supplying non-potable water for high-intensity club users.

Further details on the assessments on each type of non-potable water is set out in the following sections.

4.1 Surface and ground water

To assist the Review's approach and to consider whether any adjustments should be made to surface and ground water related charges, the Report reviewed:

- the user types and consumption levels;
- the revenue, costs and assistances associated with surface and ground water; and
- any relevant cross-jurisdictional experiences that could be adopted in the ACT.

4.2 Recycled water

To assist with the Review's approach and to consider whether any adjustments should be made to recycled water charges in the ACT, the Government commissioned the ICRC to review Icon Water's costs to supply recycled water from the LMWQCC, and to compare these costs to the charges in place.

The ICRC's advice on appropriateness was based on most of the NWI pricing principles and closely aligns with cost-reflective approaches used within a regulatory setting.

4.3 The Inner North Reticulation Network

To assist the Review's approach and to consider whether any adjustments can be made in relation to the INRN charges, the INRN is considered from a financial and economic perspective, taking into account:

- users and their respective consumption levels;
- revenue, costs and associated concessions; and
- any relevant cross-jurisdictional arrangements that could be considered in the ACT.

While a holistic evaluation of the INRN would require consideration of other aspects such as its environmental and social impacts, it is beyond the scope of this Review and will be considered in TCCSD's triple bottom line assessment which is set to occur in 2022.

5 Surface and ground water

Box 1 – Summary of key findings for surface and ground water

- Non-potable water usage and costs for high-intensity club users are closely linked to weather conditions and vary significantly from year to year. The revenue received by the Government and Icon Water from charges for non-potable water is equally volatile.
- Users with access to surface and ground water sources for irrigation purposes, and to a lesser extent recycled water and stormwater, have lower water usage costs than those who only have access to potable water sources for irrigation purposes.
- While water usage costs vary from year to year, they are generally less than 10 per cent of a club's overall costs and do not have a significant impact on the ongoing financial viability of most high-intensity club users. Other factors such as member base, prices charged, and other capital and operating costs can have a greater impact on a club's financial situation.
- Various assistance measures provided by the Government have resulted in golf clubs and rural irrigators paying significantly less for surface and ground water, compared to other users.
- Users of surface and ground water incur the costs associated with infrastructure to store and pump the water for irrigation purposes. The extent of these costs depends on a club's circumstances and are relatively stable over time.
- The charges for ground and surface water (including non-potable WAC) are sufficient to recover direct costs incurred by the Government.
- Charges vary significantly for different groups of surface and ground water users. Most high-intensity club users, including golf clubs, and rural irrigators have not had to pay the non-potable WAC for surface and ground water due to a range of assistances measures, resulting in significant forgone revenue. However, some of the assistance measures for golf clubs have recently ended.
- These concessional arrangements are complex to administer, not as transparent as other concessional arrangements, and result in high administration costs.
- No other jurisdiction charges for surface water collected and stored in infrastructure located on users' premises (e.g. ponds). However, they do have licence arrangements.

5.1 Surface and ground water users and consumption

There are four broad categories of users of surface and ground water in the ACT as shown in Table 5.1 below. The 2019-20 data shows that there are about 13 high-intensity clubs[20] and 14 active rural irrigators[21] that account for over 60 per cent of total surface and ground water usage in 2019-20.

[20] High-intensity club users are defined to be clubs licenced by the EPA to take over 3,000 kilolitres of surface and ground water each year.

[21] This category comprises of rural irrigators receiving the CEP, and include farms, nurseries, and vineyards.

There is significant diversity in 'other' users, with five large users and the remaining being small.[22] The large users require a significant amount of water to maintain and carry out their operations and accounted for 23 per cent of total use in 2019-20.

The remaining small 'other' users and ACT Government users together account for the remaining usage of surface and ground water, about 17 per cent of the total surface and groundwater charge in 2019-20.

Table 5.1 – Surface and ground water users[23]

Category	No. of users in 2019-20	Total surface and ground water used in 2019-20 (kL)	Average usage in 2019-20 (kL)	Approximate usage range in 2019-20 (kL)
High-intensity Club Users	13	1,152,000 (42%)	89,000	2,000 to 340,000
Rural irrigators receiving the CEP	14[24]	499,000 (18%)	36,000	1,500 to 320,000
ACT Government[25]	21[26]	179,000 (7%)	89,000	400 to 74,000
Other users	126[27]	909,000 (33%)	10,000	1 to 220,000

Source: EPA WAC data as of May 2021.

Table 5.1 shows the combined surface and ground water usage across all users from 2015-16 to 2019-20. The figure shows that usage varies considerably from year to year for all groups.

Peak usage of about 3.7 million kilolitres occurred in 2017-18 and a trough of 2.7 million kilolitres in 2019-20. While there are a number of factors that drive volatility, the key one is the level of rainfall throughout the year, which impacts on both supply and demand.

Lower levels of rainfall lead to higher levels of demand for surface and ground water, and vice versa.

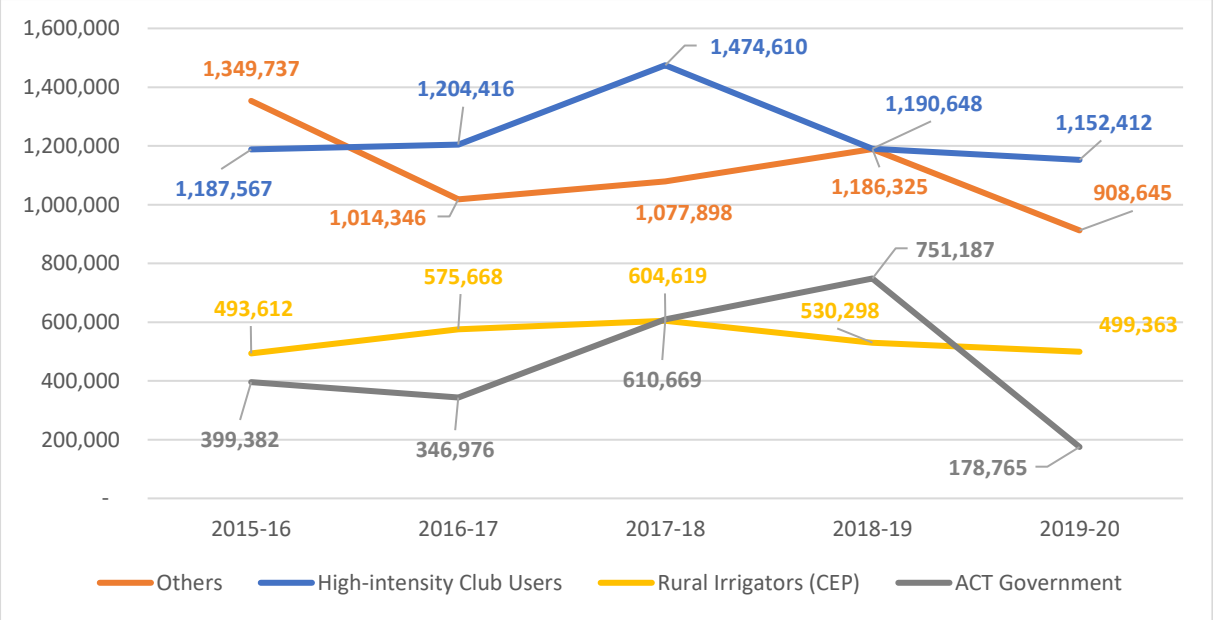
- Extremely dry weather from January 2017 to December 2019 resulted in higher-than-normal use of non-potable water.
- La Nina weather conditions, with higher rainfall, in January to April 2020 led to lower-than-normal use of non-potable water.[28]
- Above average rainfall during 2020 and 2021 resulted in little to no commercial supply of non-potable water to golf clubs by the ACT Government or Icon Water.

[22] This category is made up of users who do not fall under the other three categories.
[23] Usage figures are rounded to the nearest 1,000 kilolitres.
[24] Total number of users are 17, but 3 have no consumption in 2019-20.
[25] This category consists of licences held under various ACT Government Directorates, of which a majority belong to the Transport Canberra and City Services Directorate.
[26] Total number of users are 21, but 8 have no consumption in 2019-20.
[27] Total number of users are 126, but 38 have no consumption in 2019-20.
[28] Australian Government Bureau of Meteorology 2020.

Figure 5.1 also shows the proportions of surface and ground water used across the four broad user categories.

- High-intensity club users on average used the most surface and ground water across all categories, accounting for 37 per cent of the total volume of surface water and groundwater used in the ACT over the five-year period.
- Rural irrigators receiving the CEP on average account for 16 per cent of the total usage volume each year.
- On average, high-intensity clubs and rural irrigators consume 54 per cent of the total volume of surface and ground water each year, with the 'other' users and the ACT Government accounting for 33 per cent and 13 per cent, respectively.
- The use of surface and ground water by high-intensity club users and rural irrigators is less volatile than by ACT Government and other users

Figure 5.1 - Surface and ground water used by user category from 2015-16 to 2019-20 (kL)



Source: EPA WAC data as of May 2021

As the cheapest source of non-potable water, ground and surface water use will be maximised before alternatives are used. It should also be noted that most users in the ACT do not have access to alternative sources of non-potable water.

5.2 Non-potable WAC, revenue and costs

Revenue and regulatory costs

Revenue collected for surface and ground water taken under EPA licences from each user category over the past five years was compared with the associated regulatory costs to government.

Due to a significant amount of assistance provided, most of the revenue collected is from 'other' users despite their small proportion of total usage.

The data shows that the ACT Government and 'other' users paid on average 90 per cent of all revenue collected over the past five years. On the other hand, high-intensity club users and rural irrigators only paid about 10 per cent of total revenue collected, with a significant portion coming from administration fees.

Revenue associated with surface and ground water comes primarily from the non-potable WAC collected, with the fixed annual administration fee only being a small component. From 2015-16 to 2019-20, average annual non-potable WAC revenue was around $460,000 and average annual administration fee revenue was around $80,000. However, this revenue is heavily influenced by weather conditions. From 2015-16 to 2019-20 total charges collected ranged from about $440,000 to $620,000.

In terms of the costs to Government in administering the non-potable WAC, the main portion comes from EPA staffing costs, which average about $130,000 per year. These costs amount to roughly a quarter of the total revenue collected each year, which is not fully covered by the administration costs alone.

There are additional costs of regulating the surface and ground water licences along with their associated subsidy schemes, such as costs incurred by Shared Services and other units within Access Canberra that provide support to the EPA.[29] The costs incurred by the Government are primarily fixed.

Feedback on the Discussion Paper

The Review received a number of submissions on how much non-potable water costs contribute to operating costs and the appropriateness of the non-potable WAC for surface and ground water collected and stored in infrastructure located on users' premises (e.g. ponds).

Feedback from Golf NSW & AMDGA indicated that the annual costs of purchasing non-potable water vary significantly from club to club, ranging "from around $40,000 to over $240,000… [which accounts for] 2.5 per cent of total operating costs up to 7 per cent at most clubs."[30] However, for Belconnen Magpies Sports Clubs (Magpies) this percentage is significantly higher at 15 per cent in 2018-19 and about 20 per cent in 2019-20 due to the use of recycled water from the LMWQCC.[31] Further discussion on the cost of recycled water for Magpies is discussed in Chapter 6.

In their submission, Magpies indicated that surface and ground water accounted for only small proportion of overall costs, as the majority of non-potable water used on the premises is recycled water from the LMWQCC.[32]

[29] Some of the additional costs relates to Shared Services invoicing costs, Access Canberra finance costs, compliance work associated with debt recovery and breach of licence and audit costs.
[30] Golf NSW Submission 2021, Page 9 and 10.
[31] Golf NSW Submission 2021, Page 10 and Magpies Submission 2021, Page 7.
[32] Magpies Submission 2021.

A majority of the submissions indicated that the non-potable WAC is significantly higher than the charges faced by their NSW counterparts.[33] The two main reasons for this are that:

- charges for accessing river and ground water in NSW are much lower than the non-potable WAC; and
- surface water collected and stored on site in NSW does not attract any usage fees.

Table 5.2 was provided by Golf NSW & AMDGA, which shows the significantly higher costs faced by surface and ground water users in the ACT compared to NSW users, depending on the type of user.[34] In addition to these figures, INRN equivalent charge per ML is $3,995 for 2020-21.

Table 5.2 – Comparison of usage charges in NSW and ACT

Usage Based Charges (per ML)		
Jurisdiction/User	Pricing Scheme	Charge per ML
WaterNSW – Bulk Water (Murrumbidgee)	General Security Entitlement Charge + Combined Usage Charge (2016-17 prices)	$5.33
	Groundwater Water Management charges (2020-21 prices)	$4.64
ACT Rural Irrigators	Competition Equalisation Payment (ACT) (net cost after assistance to rural irrigators)	$2-$8
ACT Golf Clubs	Non-potable WAC (ACT) (under MES – 50 per cent reduction on $0.305 per kL – 2020-21)	$152.50
	Treated Effluent network (ACT) (Icon Water at $2.40 per kL or about 75 percent of tier two potable water price[35] – 2020-21)	$2,400
	INRN stormwater (ACT) (TCCSD at $3.995 per kL – 2020-21)	$3,995

Source: GolfNSW & AMDGA Submission 2021, page 14 and INRN prices for 2020-21.

Further to the table above, IPART has since determined the minimum access charge for 2021-22 is $221.50. The variable prices relating to non-potable water taken from the Murrumbidgee is $2.58 per ML for regulated rivers, $9.47 per ML for unregulated rivers and $5.04 per ML for ground water.[36]

A number of submissions provided suggestions on the current framework for surface and ground water:

- Dr Ray Trewin's submission suggested that the non-potable WAC should adopt NSW's arrangement of not charging for surface water stored on users' own land. [37]
- GolfNSW & AMDGA's submission suggested adjusting the non-potable WAC rate to more closely reflect the usage-based charges found in NSW, in particular

[33] Golf NSW Submission 2021, Page 14, Magpies Submission 2021, Pages 9 and 16, Ray Trewin's Submission 2021, Page 2, and John McMaster's Submission 2021, Page 1.
[34] GolfNSW Submission 2021, Page 14.
[35] Icon Water 2020, excluding the WAC and UNFT.
[36] IPART 2021a, IPART 2021b and IPART 2021c.
[37] Dr Ray Trewin Submission 2021.

WaterNSW's bulk water charges for unregulated river water and ground water taken from the Murrumbidgee.[38]

- Magpies Belconnen Golf Club's submission, which highlighted the greater level of support provided by the NSW Government to golf courses in the NSW, stated that:[39]
    - Queanbeyan Golf Course access water from the Queanbeyan River, just prior to entering the ACT water system, in what is understood to be a small license fee of $300 per 10 years, 0.9 cents per kilolitre to an agreed volume per license, equating to a total cost of less than $1,000 per year; and
    - Yass Golf Course operates with free access to the Yass River and pumps directly for use on the Golf Course.

5.3 Government assistance programs

As outlined in Chapter 2, the Government provides a range of assistance programs to a number of surface and ground water users. Viewed overall, these assistance measures result in golf clubs and rural irrigators paying significantly less for surface and ground water, compared to other users.

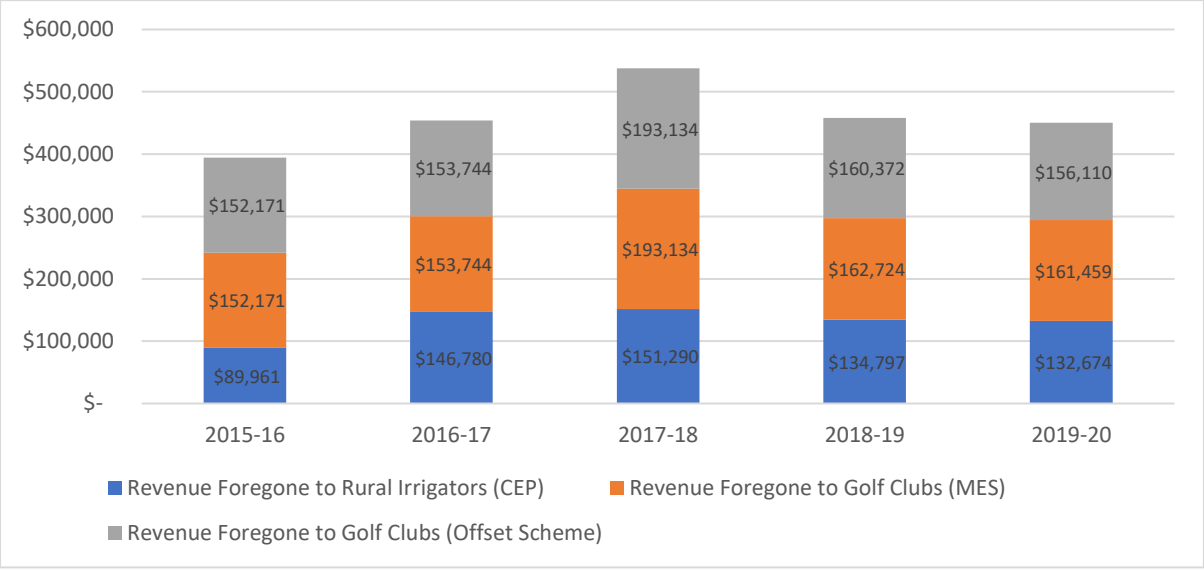
MES, Infrastructure Offset Scheme and CEP

Figure 5.2 compares the total amount of assistance provided under the MES, Infrastructure Offset Scheme and CEP to users from 2015-16 to 2019-20 and the actual non-potable WAC collected, which shows:

- About 50 per cent of the total non-potable WAC charges from 2015-16 to 2019-20 are not collected by the ACT Government as a result of assistance provided through the CEP, MES and Infrastructure Offset Scheme.
- As a result of the CEP, MES and the Infrastructure Offset Scheme, 90 per cent of all the non-potable WAC collected each year comes from ACT Government users and other users.
- Golf clubs receive a majority, about 75 per cent, of the total subsidies provided each year through the MES and the Infrastructure Offset Scheme.
- Rural irrigators receiving the CEP account for roughly 25 per cent of the total assistance provided by the ACT Government each year.

[38] GolfNSW and AMDGA Submission 2021, Page 14.
[39] Magpies Submission 2021, Page 13.

Figure 5.2 – Value of non-potable WAC assistance provided from 2015-16 to 2019-20



Source: EPA WAC data as of May 2021

The CEP and Infrastructure Offset Scheme are complex to administer relative to the MES and the amount of assistance provided. For example:

- For the CEP – each year, rural irrigators are required to submit an application to the EPA to determine their eligibility for the CEP. The process includes checking how the water was used, to ensure it aligns with those specified in the scheme.
- For the Infrastructure Offset Scheme – the EPA had to manually keep track and deduct the non-potable WAC charged from the available offset amount for each golf club before invoices could be finalised each year. Also, the EPA undertook the initial assessment process to determine which infrastructure projects would be eligible. Projects from 2002 were considered and then the offsets were monitored and backdated appropriately.
- For the MES – the EPA automatically applies the 50 per cent discount on non-potable water applicable to golf clubs' invoices in the year prior to applying any offsets available to the club.

The CEP has been in place for over twenty years, providing significant discounts to rural irrigators for agricultural production. The higher level of assistance under the CEP is for agricultural producers who are in direct competition with similar NSW businesses. However, the administration of the CEP is relatively complex as it requires applications and declaration by users each year.

While the Infrastructure Offset Scheme has compensated golf clubs for investments in water saving infrastructure, its effectiveness in promoting greater water security and less reliance on potable water is unclear as the scheme applied to infrastructure investments that were made prior to its introduction.

As of 1 July 2020, $2.9 million in offsets had not been claimed under the Infrastructure Offset Scheme. Although this suggests that golf clubs have invested a significant amount of resources to reduce their reliance on potable water or more expensive non-potable sources,

further analysis shows that most of this amount applies to half of the eligible golf clubs. The other half have already exhausted or are close to exhausting their available offset amounts.

This highlights an equity issue with the Infrastructure Offset Scheme, where larger clubs have had greater opportunities and more funding available to invest in infrastructure.

The MES was introduced on the basis of providing water price parity with NSW golf clubs. However, the extent to which Canberra golf clubs eligible for the MES are in direct competition with those in NSW is subject to some debate given that membership and choices of where to play golf are influenced by a range of factors other than the price.

Further, the MES has provided significant discounts to a selected cohort of high-intensity club users, and allowed offsets to be claimed for an extended time period.

Both the CEP and MES provide assistance to a selected cohort of users regardless of their circumstances, and could be modified to ensure assistance is targeted towards those most in need.

Feedback on the Discussion Paper

GolfNSW & AMDGA have acknowledged that ACT golf clubs have benefited from both the MES and the Infrastructure Offset Scheme, stating that:

> "The general consensus amongst golf clubs is that the discount provided through the current Market Equity Scheme [MES] reduces costs for clubs, and the Infrastructure Offset Scheme incentivises clubs to invest in and develop water infrastructure.
>
> …
>
> Golf clubs in the ACT recognise the benefits of being able to offset infrastructure investment costs against the charges for accessing non-potable water. Such an arrangement incentivises clubs to make prudent investments in water management strategies. Off-set arrangements are seen as important and easily managed. Consideration should be given to the retention of proven off-set schemes (where appropriate) as well as consideration of new off-set arrangements."[40]

However, as noted earlier, they suggested similar prices currently available to rural irrigators under the CEP be made available to ACT golf clubs to reflect prices faced by NSW counterparts.

5.4 Ongoing operating and maintenance costs of infrastructure

The Discussion Paper sought feedback from high-intensity club users on the costs incurred in accessing surface and ground water, in addition to the non-potable WAC and administration fee paid. There are a range of ongoing operating and maintenance costs relating to pumps, storage tanks, dams and ponds.

[40] GolfNSW & AMDGA Submission 2021, Page 12.

Feedback on the Discussion Paper

The Review received a range of submissions with information about the non-potable water infrastructure costs for high-intensity club users.

The GolfNSW & AMDGA indicated that: [41]

> "The annual costs of operating and maintaining non-potable water infrastructure vary, ranging from as low as $2,000 to over $75,000 for each club per annum.
>
> In total, the clubs involved in this submission spend, on average, approximately $24,000 per annum, per club…
>
> …
>
> While the data provided demonstrates there are not significant changes year-on-year, there are a number of factors which influence operating and maintenance expenditure. These include:
>
> - Weather and rainfall.
> - Machinery/equipment failure.
> - Capital investment into new water management initiatives."

In addition, Magpies' response indicated that its annual costs to maintain infrastructure for non-potable water was $35,000 in 2018-20 and $39,000 in 2019-20, which covered electricity costs, irrigation repairs, pump maintenance, desilting of the dam to increase storage.[42]

For a smaller high-intensity club user like ACT Equestrian Association (ACTEA), there are one-off infrastructure costs associated with purchasing a new pump, battery and irrigator which total about $6,300. Ongoing costs for the ACTEA are attributed to the cost of diesel used to operate the pump, which typically amounts to $400 to $700 each year.

5.5 Capacity to expand non-potable water infrastructure

The Review also sought feedback about clubs' capacity to expand surface and ground water infrastructure.

The extent to which clubs can expand capacity depends on a range of factors as outlined in the next chapter.

Feedback on the Discussion Paper

There were a range of responses but generally the capacity to expand varies considerably depending on factors including:

- the topography of the site;
- availability of land to accommodate the infrastructure upgrade; and
- access to capital for investment in infrastructure.

[41] GolfNSW & AMDGA Submission 2021, Page 8, figures exclude depreciation costs and relate to cash outlays only.

[42] Magpies Submission 2021, Page 5.

For example, Magpies has indicated there is land available to increase capacity to expand dams and water storages, but:

> "The excessive water pricing and the resulting uncertainty on our financial future has meant we have been unable to consider longer term investment in water infrastructure."

Mr John McMaster, the Captain of the Magpies, also indicated that Magpies has:[43]

> "…limited financial capacity to undertake such works and the course owner has no interest in such matters. Without such financial injects, we have no capacity to upgrade our water storage capabilities and must rely on…the LMWQCC."

Similarly, Phillip Oval Management Group (POMG) indicated that:

> "…[it is] unable to access non-potable water…POMG would support the extension of non-potable network to the Phillip Oval precinct as this would enable POMG to utilise non-potable water, rather than potable water as this finite resource is wasted on turf irrigation."

ACTEA also stated with regards to the costs of infrastructure that:

> "Most of these costs are beyond the capacity of a non-for-profit volunteer organisation."

ASTMA was also supportive of additional investment into non-potable water sources, and suggested prioritising the accessibility of recycled water and associated storage dams to create meaningful capacity for irrigation purposes:

> "…all of which are considered opportunities to help secure the long-term effective management of water resources and maintaining economic viability of Golf Clubs and Sportfields in the ACT."

Further, Dr Ray Trewin stated that while there is capacity to increase non-potable water infrastructure at the Royal Canberra Golf Club through the use of less water-demanding grasses, this should not be undertaken without some form of assistance under the current economic circumstances.[44]

Feedback provided by GolfNSW & AMDGA on behalf of its members indicated the following for upgrading infrastructure on premises:

> "The cost of implementing these measures is significant for any clubs, ranging from $150,000…to $3 million for full resowing of drought tolerant grasses across courses.
>
> In some instances, clubs must cover the significant capital expenditure required through a levy on each round of golf. Generally, this is only viable for projects of up to $100,000, after which the cost to play becomes a barrier to participation. This makes the sport less accessible to the local community and impacts the ongoing financial viability of clubs."

[43] Mr John McMaster Submission, Page 2.
[44] Dr Ray Trewin Submission, Page 2.

On the other hand, Yowani and Royal Canberra Golf Club have made significant investments of $1.5 million and $2.3 million in the past, respectively.[45] Yowani also indicated future commitments of around $1 million to construct two extra storage dams to increase its water storage and usage capabilities, to ultimately eliminate its reliance on town water supplies.[46]

5.6 Cross-jurisdictional Analysis

Chapter 2.4 of the Report provides background information on arrangements in other jurisdictions for charging surface and ground water, which shows that most jurisdictions do not include a volumetric charge, and if they do, it is not for water collected and stored by the user.

Chapter 5.2 shows examples provided in submissions that understandably are focused on arrangements in areas close to Canberra and NSW more broadly. These examples show that the ACT charges are significantly higher, noting that there have been assistance programs in place that in most cases effectively mean the variable charge does not apply to rural irrigators or golf clubs.

The submissions generally supported an adjustment in the prices to be reflective of NSW to provide parity across the border and to acknowledge the additional benefits such as social, health and environment.

5.7 Appropriateness of the current framework for surface and ground water

To date the arrangements for surface and ground water do not seem to have adversely impacted any high-intensity club users since the introduction of the non-potable WAC in 2006, largely as a result of the targeted assistance measures.

The analysis shows that current arrangements are complex and expensive to administer and provide high levels of discounts to selected users. Assistance measures are not transparent and have undermined the policy intent of the non-potable WAC that seeks to reflect the environmental costs and scarcity value of surface and ground water.

Submissions to the Discussion Paper highlight the costs incurred by surface and ground water users in accessing this water source. These costs include maintaining, expanding and operating their infrastructure and equipment. The submissions conclude that these costs, along with the surface and ground water charges will place an unreasonable cost burden on golf clubs.

The submissions argue that the Government should continue financial assistance measures to offset the surface and ground water charges in recognition of the range of benefits that community clubs provide.

The submissions also make comparisons with other jurisdictions noting fixed annual fees are set on a user-pays principle, but only to recover costs around water licence monitoring and compliance activities.

[45] GolfNSW Submission 2021, Page 11.
[46] Yowani Submission 2021, Page 2.

Implementing such changes in the ACT would be a significant departure from the non-potable water framework currently operating that provides price signals to reflect the environmental impact and scarcity value of surface and ground water use.

It is possible to make improvements to equity within the existing non-potable water policy framework by increasing the licensing fee to ensure that all users contribute equally to cover the fixed costs. This could be accompanied by a lower non-potable WAC to cover the environmental and scarcity costs.[47]

Increasing the transparency of the current assistance measures and ensuring that they are targeted to those users most in need of support would also improve the current arrangements. Noting the impact of weather conditions on the supply and demand for non-potable water, the need for assistance could be considered on a case-by-case basis in drier seasons. This would take into account individual circumstances of each user, such as their capacity to access ground and surface water, overall demand for potable water or more expensive non-potable water sources and the level of community benefits they provide. This could be implemented in the same way as other assistance measures, by establishing clear eligibility criteria for the assessment process and with the amount of assistance provided by the Government reported annually.

[47] It is important to note that any adjustments made to the non-potable WAC would stand to directly impact the overall prices for stormwater supplied by the INRN, given that the non-potable WAC that applies to TCCS is currently treated as a direct pass-through cost.

6 Recycled Water Supplied by Icon Water

Box 2 – Summary of key findings for recycled water supplied by Icon Water

- Recycled water supply costs are relatively fixed each year. This includes costs associated with the pumps and pipes required to transport the recycled water to the end user.
- Icon Water takes into account the NWI and ICRC pricing principles when setting non-potable water prices, and these are broadly cost reflective. However, prices reflect the cost of infrastructure that was built for a greater capacity than current usage. As a result, the water usage costs for recycled water are higher than those for surface and ground water.
- Some jurisdictions have either explicitly adopted NWI pricing principles for recycled water pricing or use them as guiding pricing principles.

6.1 Summary of ICRC's final report

The ICRC's analysis was based on commercially sensitive data from Icon Water, and the report was provided in confidence to Treasury. The information is based on the only facility in the ACT that actively recycles water and supplies recycled water to users on a commercial basis. Further, the network only has one current user – Belconnen Magpies Golf Club.[48]

The key findings from the ICRC's advice are: [49]

- recycled water from LMWQCC is a by-product of treating wastewater and there are no additional costs to produce recycled water;
- costs to supply recycled water relate to common or dedicated infrastructure and are largely fixed, such as pumps, storage tanks and pipes;
- in addition to the supply related infrastructure costs, there are also small variable costs that depend on usage and corporate overheads for billing, contract negotiation and annual price updates;
- Icon Water's prices are reflective of the total relevant costs of supplying recycled water from the LMWQCC to its user(s);
- prices are transparent and clearly listed in the contract between Icon Water and the Magpies;
- the prices are based on a network with a larger capacity than what is required at present for the current user;
- there were multiple users in the past and costs were shared between them, but since 2010 only one user has continued to use recycled water from the LMWQCC; and
- most jurisdictions in Australia, including the ACT, have adopted the NWI pricing principles, with the exception of NSW and Victoria.

In addition, the ICRC advised that based on NWI principles, recycled water prices could be adjusted to recognise the size of the network needed for the current user, which would result in a lower price than what is currently being charged.

[48] Magpies Submission 2021, page 10 and Icon Water Submission 2021, page 1.
[49] ICRC 2021.

This approach is in line with what would apply in a regulated market where only the prudent and efficient costs of production are able to be recovered. However, as Icon Water are operating in a commercial environment the costs charged are reasonable and lower than those in the INRN.

Alternatively, the Government could consider paying a subsidy to ensure that price paid by users reflects the smaller size of the network that would be required to deliver this service. Further discussion on these options is made later in Chapter 8.

6.2 Cost-reflective prices versus usage

As noted, weather conditions are a significant contributor to how much water is used each year, and whether the source is potable or non-potable water. The ICRC also advised that water usage is seasonal and most water is used in the summer months of December, January, February and December.[50]

Coupled with the relatively high fixed costs of supplying recycled water, this means that cost-reflective prices in any given year based on actual usage would vary significantly more than other sources. For example, 2019 was a very dry year and 2020 significantly wetter year.[51] During this period, Magpies used about 76,000 kilolitres of recycled water in 2019-20 but estimated in its submission that usage could be less than 25,000 kilolitres in 2020-21.[52]

This shows that while costs are largely fixed, usage is the only other major factor that would influence what a cost-reflective price would be in any given year and that it is quite volatile year on year. For illustrative purposes, if 2020-21 usage was 25,000 kilolitres then Icon Water's recycled water price would need to more than double to recover the relevant costs in that period.[53]

Alternatively, if usage was to increase to pre-2010 levels where there were other users of the network and average annual usage was over triple current usage, prices could fall to a third of current prices.[54]

As these examples show, it would be difficult to set a cost-reflective price that was appropriate from year to year. Therefore, a balance needs to be struck when setting prices to provide certainty on what prices are on a long-term basis and the recovery of costs through these prices.

Overall, the ICRC's advice shows that Icon Water has been charging prices reflective of relevant supply costs, notwithstanding the difficulties in setting prices that are

[50] ICRC 2021, Page 20.
[51] Icon Water website accessed 24 June 2021: Water Storage Levels | Icon Water
[52] Magpies Submission 2021, Page 7.
[53] Magpies Submission, Page 7. Recycled water usage for 2019-20 was 76,871 kilolitres, and for 2020-21, it is estimated at less than 25,000. The magnitude of change in prices assumes the current price are largely fixed and changes in volumes reflects a commensurable change in price.
[54] The magnitude of change in prices assumes the current price are largely fixed and changes in volumes reflects a commensurable change in price.

cost-reflective given that revenue is contingent on usage levels linked to a low customer base.

Feedback on the Discussion Paper

Magpies' submission indicates significant increases in recycled water prices for Magpies from $0.09 per kilolitre in 2006 to $2.40 per kilolitre in 2020-21, and that other ACT golf clubs' net water costs are at least 90 per cent lower.[55]

Magpies' submission outlined significant increases in total non-potable water costs since 2006, from 2.5 per cent of total operating costs in 2006 to 20 per cent in 2019-20. For 2019-20, Magpies' annual water usage costs from the LMWQCC and non-potable water charges amounted to $151,111, which is a $56,000 increase from 2018-19 when total usage fell between the years.[56]

GolfNSW & AMDGA stated that:[57]

> "Investigation should occur ascertain if clubs that have a current reliance on recycled water might be able to access other forms of non-potable water directly through the recycled infrastructure, i.e. in the case of Magpies Belconnen Golf Club, if they could receive river water through the pipe currently carrying recycled water."

While river water (surface water) attracts a lower non-potable WAC per kilolitre, the price charged by Icon Water reflects the costs associated with supplying the water from the treatment plant to Magpies and does not include any costs associated with treating sewerage water to a higher standard for release. Therefore, if the same pipe and pumps were used to supply an alternative source like river water, similar costs would be incurred by the Magpies.

The Magpies also indicated:[58]

> "most ACT golf clubs net water costs are at least 90% lower than the costs paid by Magpies. Unless LMWQCC pricing is brought in line with WAC, or the MES is amended to allow for the LMWQCC pricing, then the assistance measures will continue to fail in their objectives to provide an even playing field across ACT and local NSW clubs."

The submissions received and analysis of the data show that Magpies are in a unique location and the club has limited access to lower cost non-potable water sources like surface and ground water for irrigation purposes. The situation facing Magpies does not appear to affect any other ACT golf clubs, but would affect other organisations like POMG that use potable water for irrigation purposes.

Since the time of Magpies' April 2021 submission, Icon has reverted the price for recycled water for Magpies from a lower customised price of $2.40 per kilolitre back to the standard recycled water price of $3.14 per kilolitre. However, the higher standard price for recycled water remains below the $4.056 per kilolitre paid by INRN users.

[55] Magpies Submission 2021, Page 7.
[56] Magpies Submission 2021.
[57] GolfNSW and AMDGA Submission 2021.
[58] Magpies Submission 2021.

6.3 Cross-jurisdictional Analysis

The ICRC provided a summary of the approaches used in other jurisdictions in Australia, which largely reflected NWI pricing principles being adopted. Chapter 2 provides further background on other jurisdictions in Australia and the extent at which NWI principles have been adopted.

Other jurisdictions provide some regulatory framework around how recycled water prices are set. Approaches range from a light touch approach to ensure pricing principles are adhered to (Essential Services Commission in Victoria), to a heavier regulatory approach of requiring proposals to be submitted each regulatory period (Essential Service Commission of South Australia).

Icon Water outlined in its submission that:[59]

> "In setting its non-potable water prices, Icon Water takes in to account the National Water Initiatives (NWI) *Pricing Principles for recycled water and stormwater use (2010)* and the pricing principles outlined by the ICRC in their *Final report: Regulated water and sewerage services price* 2018-23.
>
> …
>
> We recommend any future pricing framework for determining recycled water prices continue to align with the NWI and ICRC pricing principles. This could be achieved by maintaining the current approach of Icon Water setting recycled water prices or alternatively, given the complexity of separating assets on the regulatory asset base, it may be considered appropriate for CMTEDD to recommend that non-potable water prices be regulated through the ICRC."

While Icon Water notes that non-potable water such as recycled water could be regulated by the ICRC, there is not a strong case for regulation because prices are broadly reflective of the costs and have regard to the NWI and the ICRC pricing principles.

If this service was regulated it could result in higher prices, noting the very small customer based and volatility of demand. Price regulation would also impose additional regulatory costs on the community.

6.4 Appropriateness of current prices for recycled water from the LMWQCC

The setting of prices for recycled water from LMWQCC is not within the Government's remit as it is not a regulated market. Therefore, the current framework for recycled water is a commercial arrangement between Icon Water and its user. However, the Review has received a number of submissions about the significant costs incurred by the Magpies and the impact on their ongoing viability.

This is particularly the case in extreme weather conditions where for example very dry weather results in the less supply of ground and surface water and the need to use significantly more water. It also potentially widens the gap between the Magpies and other

[59] Icon Water Submission 2021.

users that are able to access greater amounts of surface and ground water, which cost significantly less even if the full non-potable WAC is charged.

While the cost of recycled water is significantly more than surface and ground water, the cost per kilolitre is lower than stormwater under the INRN used by other irrigators or those required to use potable water as they do not have access to recycled water sources.

As set out in ICRC's advice, the current recycled water prices means that while Icon Water does recover its full costs associated with providing the service and reflect an oversized network for the current user as Icon Water has lost users over the years.

In response to ICRC's advice, the Government could choose to:

1. do nothing as Icon Water's price were reflective of the full costs;
2. regulate recycled water prices to be consistent with ICRC's advice going forward;
3. provide a transparent concession through community service obligation payments to enable Icon Water to recover the full costs, but also ensure users are charged the prices reflecting the size of the network for the current user(s); or
4. in considering the significant volatility in water demand, provide some form of assistance in periods of extreme weather conditions to those users with limited access to lower cost surface or ground water that provide significant social benefits to the community.

The extreme volatility in weather conditions and resulting demand for recycled water suggests there is a case to adjust the current arrangements to address the issues raised in this Review. The 'do nothing option' does not appear to be viable.

The NWI pricing principles assist consideration of approaches to water regulation. Those principles note that light handed and flexible regulation is preferred, than formal price regulation, as it is generally more cost-efficient.[60]

Regulation of recycled water prices would also require a significant resourcing in a market with only a few users. The demand of recycled water is extremely volatile depending on weather conditions and in some years this can be zero.

Viewed overall, there is limited merit in regulating recycled water prices and it would likely not be cost-efficient due to significant costs that are incurred.

There could be some merit for the Government to further consider the third and fourth options above to be consistent with the NWI pricing principles of having light handed and flexible regulation, while also targeting assistance when most appropriate.

Providing assistance in times of need would acknowledge the impact of extreme weather that results in some years being particularly dry with some clubs incurring significant costs in purchasing recycled water compared to other clubs depending on the club's topography and

[60] NRMMC 2010.

ability to access non-potable water. The clubs that incur more significant costs generally have limited access to ground and surface water compared to other clubs.

Therefore, in recognising the economic, community and social benefits to the ACT economy, there could be merit for the Government to consider providing assistance to those that provide social benefits to the community as a whole with limited access to lower cost surface or ground water, and/or also limiting assistance to periods of extreme weather conditions.

While potable water club users have not been captured in this Review specifically, any assistance provided to clubs for recycled water may also warrant being extended to potable water club users for equity reasons. Moreover, any assistance to non-potable water user clubs should also be consistent with the general principles underlying government support and not seek to offset the normal variability in operational costs and revenues.

The merits of the options mentioned above would require further consideration by the Government as there are unique circumstances facing Magpies and other clubs using potable water for irrigation purposes.

7 The Inner North Reticulation Network

Box 3 – Summary of key findings for stormwater supplied by the INRN

- Stormwater usage and costs for high-intensity club users are closely linked to weather conditions and vary significantly from year to year. The revenue received by the Government from charges for non-potable water is equally volatile.
- Users with access to surface and ground water sources for irrigation purposes, and to a lesser extent recycled water and stormwater, have lower water usage costs than those who only have access to potable water sources for irrigation purposes.
- Prices for INRN stormwater were initially set having regard to the tier two price of potable water and subsequently indexed by the WPI each year.
- Given volatility in stormwater usage, prices for INRN stormwater are broadly cost reflective, but have not fully recovered the associated costs since inception.
- Some jurisdictions have either explicitly adopted NWI pricing principles for stormwater pricing or use them as guiding pricing principles.

7.1 INRN users and consumption

The INRN supplies stormwater to its users who have water storage tanks to receive and store the stormwater before it is pumped into their irrigation systems. The three broad user categories include the ACT Government, high intensity club users and 'others'.

As shown in Table 7.1, there has not been a significant increase in the INRN's customer base since it commenced operations in 2015-16. This base consists of 10 ACT Government entities belonging to either the Education Directorate or Economic Development (Sports and Recreation) within CMTEDD, two high-intensity club users (Yowani Golf Club and the Canberra Racing Club) and four other private entities.

Only two additional users have been added to the INRN since its inception, both being private entities grouped under the 'others' category.

Table 7.1 Users of the INRN in 2015-16 and 2019-20

Category	No. of users in 2015-16	Proportion of water use in 2015-16 (%)	No. of users in 2019-20	Proportion of water use in 2019-20 (%)
High-intensity Club Users	2	24	2	22
ACT Government	10	63	10	77
Others	4	13	6	1

Source: ACT Government data on INRN.

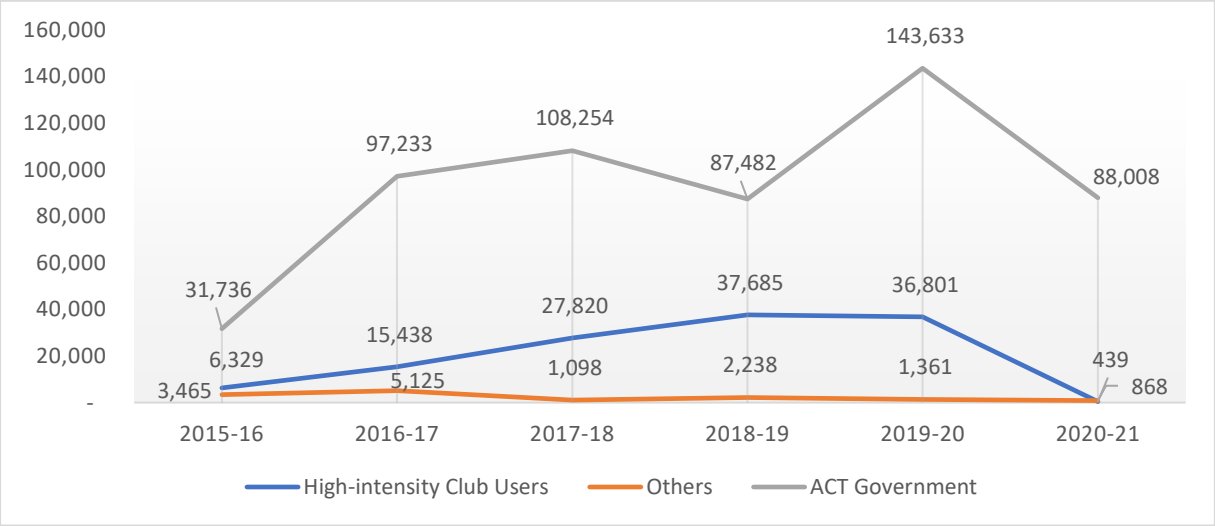
Figure 7.1 shows stormwater usage across all users from 2015-16 through to 2020-21[61]. The INRN saw little usage in 2015-16 as the network was not fully operational, but since then, usage has risen steadily until 2019-20, suggesting that users have opted to use water from the INRN on a more frequent basis. The increase in usage is also likely due to the dry period

[61] Usage figures in 2020-21 have been estimated based on usage data recorded in the first three quarters of the financial year.

leading up to 2020,[62] which provided high-intensity club users with an alternative supply of non-potable water for irrigation once their own source of surface and ground water ran dry.

The ACT Government has been the primary user of the INRN, using on average about 80 per cent of the total amount of water supplied by the INRN across all years. The other two categories, high-intensity club users and 'others' have on average accounted for about 18 per cent and 2 per cent of total usage respectively.

Figure 7.1 - INRN stormwater usage from 2015-16 to 2020-21



Source: TCCSD data as of May 2021.

The large fall in usage across all user categories in 2020-21 is the result of weather conditions and rainfall on usage, as 2020-21 was an extremely wet period, with total rainfall recorded in August 2020 being the highest the ACT has experienced in the past 20 years.[63]

Where INRN users have access to multiple sources of non-potable water, such as the two high-intensity club users that have access to their own surface water and ground water, they would opt to exhaust the lower priced source first. This is shown through the extreme fall in water used by high-intensity club users, from 36,801 kilolitres in 2019-20 to 439 kilolitres in 2020-21.

7.2 Revenue and Costs

Revenue and Government assistance programs

As outlined in Chapter 2.6, users of the INRN pay a usage charge and the non--potable WAC. The INRN's usage charge is by far the larger of the two revenue streams, accounting for over 90 per cent of the total revenue collected each year.

The ACT Government currently provides schools with a 50 per cent concession on their INRN usage charge. Since 2015-16, the INRN has provided water to three schools. Of the three schools, only one used over 100 kilolitres in any single year, with the other two using

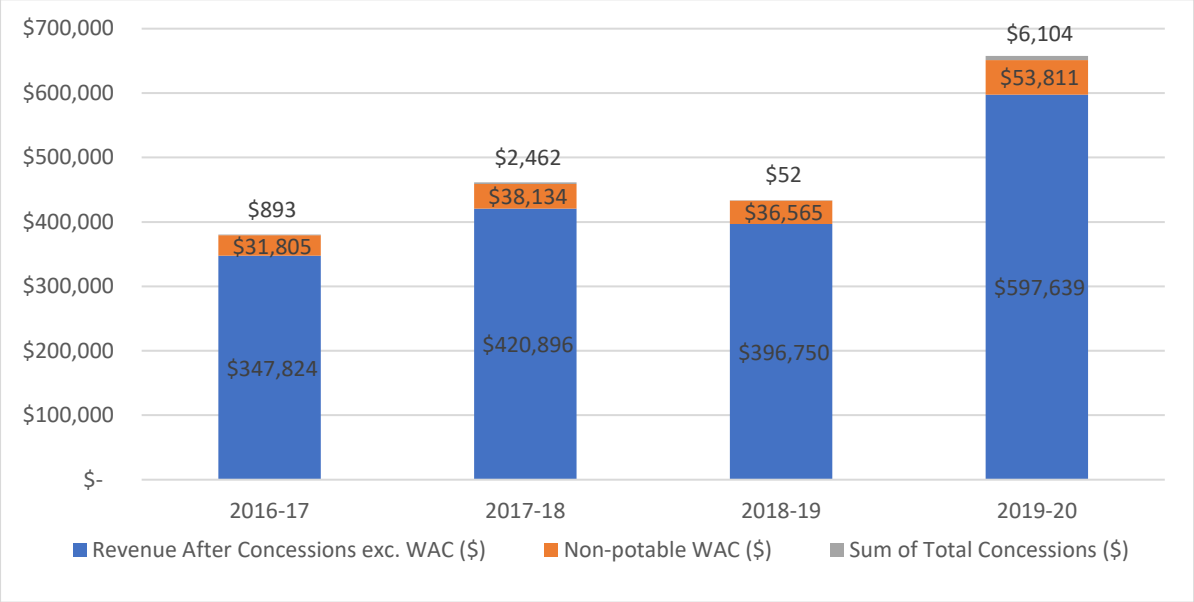
[62] Australian Government Bureau of Meteorology 2020.
[63] Australian Government Bureau of Meteorology 2021.

negligible amounts. Given the low overall usage, the total amount of concessions provided has been relatively small.

Figure 7.2 shows the total revenue collected through both the INRN usage charge and the non-potable WAC, from 2016-17 to 2019-20.[64] It also shows the assistance provided to schools as part of the 50 per cent discount on their INRN usage charges.

- on average, the annual concession amount provided by the ACT Government to schools was $2,378 accounting for less than one per cent of total INRN usage charges;
- the average revenue collected through INRN charges each year was approximately $440,000; and
- the non-potable WAC revenue collected averaged around $40,000 per year.

Figure 7.2 – Revenue and Concessions ($)



Source: TCCSD data as of May 2021

Total revenue collected by the INRN is highly dependent on weather conditions, with high levels of rainfall experienced in 2020-21 leading to lower revenue than the previous four financial years which were relatively drier. The data also highlights that given the INRN's small customer base, decisions by individual users to access alternative water sources[65] could have a significant impact on the total revenue collected.

Overall, in terms of revenue, the INRN faces similar issues as recycled water, whereby volatility in usage, a small customer base and weather conditions significantly affect revenue.

[64] The total revenue for 2020-21 has been estimated based on usage figures recorded for the first three quarters.
[65] Yowani Submission 2021.

INRN costs

The INRN's costs comprise primarily of operating and maintenance costs, depreciation costs and staffing costs.[66] A number of key observations include:

- The largest contributor to the INRN's total cost in most years has been its operation and maintenance costs, which account for approximately 43 per cent of total costs. This cost has varied significantly each year due as it depends on usage levels and the need for maintenance to the network.
- Depreciation costs make up the second largest component of total costs, and account for around 39 per cent. These costs are calculated based on a number of infrastructure assets which directly relate to the INRN's water supply elements, such as the pumps and pipes used to supply water to users.
- Staffing costs for the INRN have averaged $75,000 each year and account for 12 per cent of the total costs each year.
- Other minor components include the non-potable WAC costs, overhead costs that account for less than 1 per cent of total costs and regulatory costs incurred by the Utilities Technical Regulator.

Total revenue and cost comparison

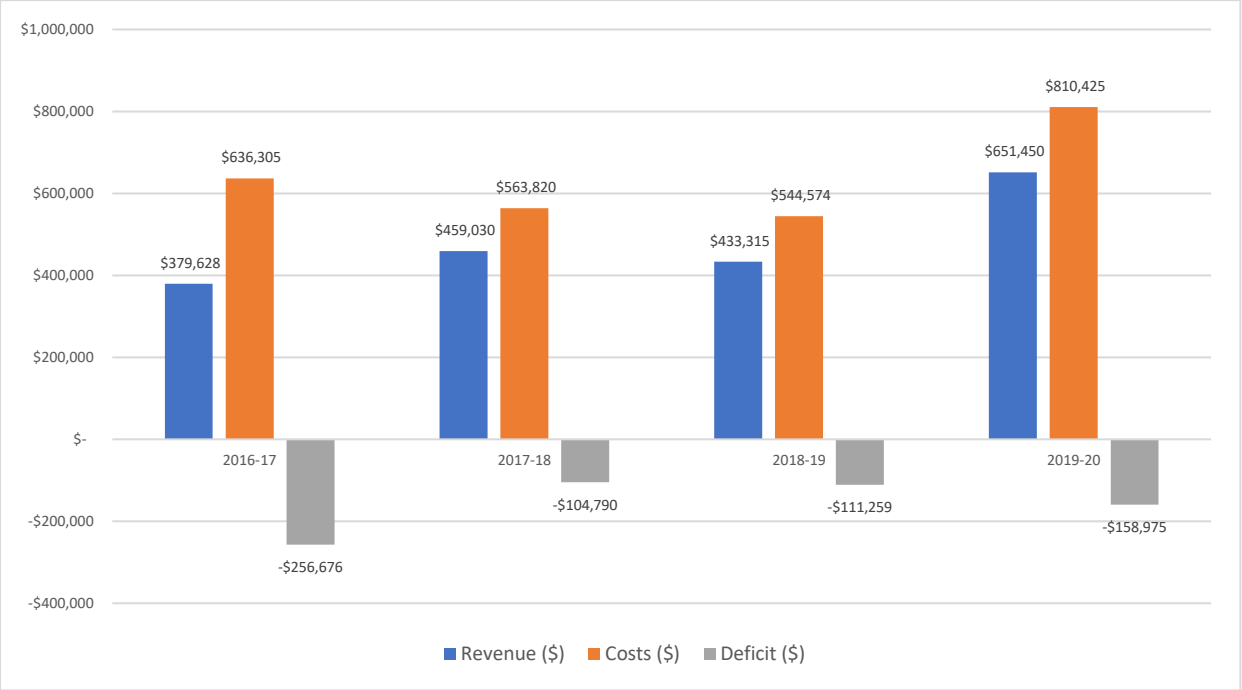
Figure 7.3 compares the total revenue and costs associated with the INRN from 2016-17 to 2019-20, with total revenue being consistently lower than total costs[67] and an average deficit of $157,925 each year. One of the primary reasons for this is that the total costs associated with the INRN are attributed to variable costs associated with operational and maintenance costs, which are positively correlated with usage. This differs from other sources of non-potable water whose costs comprise mostly of fixed costs (staffing costs for surface and groundwater, and capital infrastructure costs for recycled water).

As a result, it is unlikely that an increase in usage will guarantee a net positive outcome, and a better understanding of the relationship between operation and maintenance costs and total usage would be necessary in setting a cost-reflective price.

[66] INRN costs reported are broadly indicative and will be further investigated as part of the triple bottom line assessment in 2022.

[67] The revenue and costs for 2015-16 have been omitted due to the INRN not being fully functional till 2016-17. Similarly, 2020-21 has been excluded due to the lack of complete data for the whole financial year.

Figure 7.3 – Revenue and cost comparison



Source: TCCSD data as of May 2021

Comparison of the per kilolitre costs and revenue of supplying non-potable water

Given that the original intention for the INRN was to allow any income generated from water sales to fund its operation and maintenance costs, while also recovering capital costs over the life of its infrastructure, charges should be set to be cost-reflective.[68]

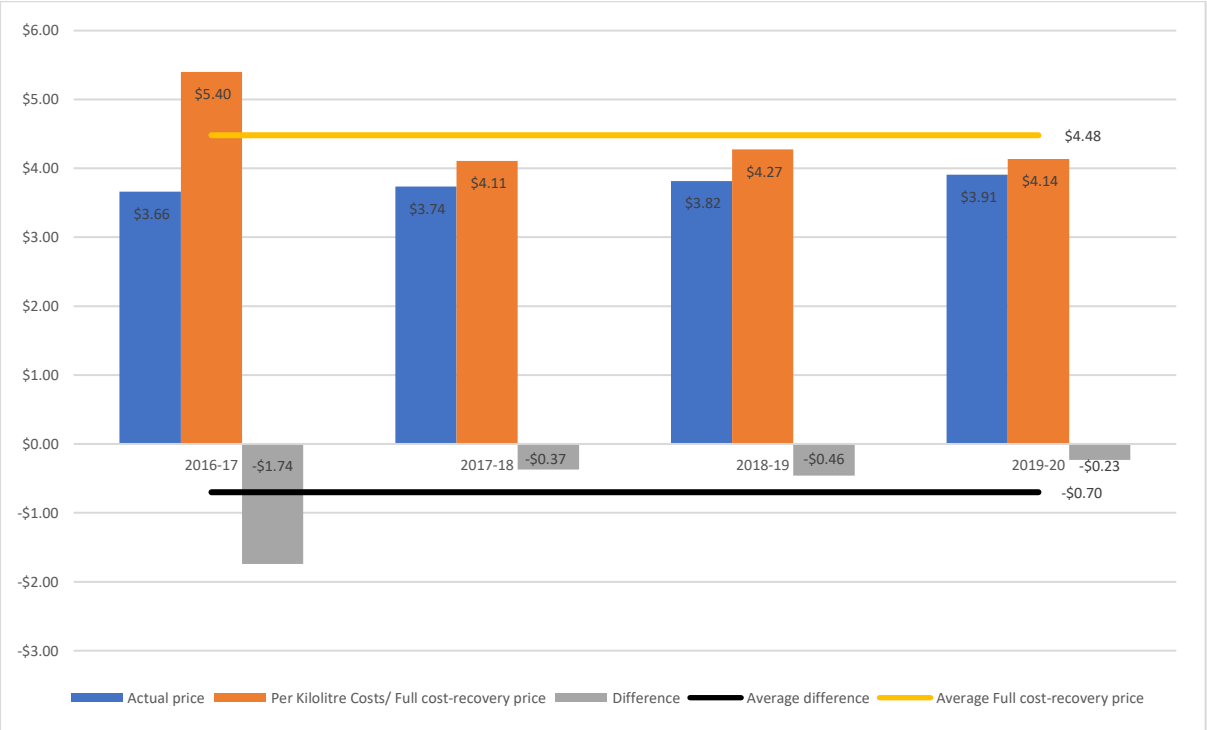
Figure 7.4 compares the actual price to purchase stormwater from the INRN each year to the full-cost recovery price necessary for the INRN to recuperate its total costs. It shows that:

- While actual prices have been consistently lower than the full-cost recovery price in all four years since the INRN was made operational, the difference in prices has narrowed significantly.
    - On average there has been a $0.70 per kilolitre deficit each year.
- The average full-cost recovery price across the four years is estimated to be $4.48 per kilolitre, which includes the non-potable WAC costs.
    - However, recognising that financial data and expected consumption volumes for the INRN are currently limited, this average price is not sufficient to determine a long-term price, although it indicates that current prices are not cost-reflective.

An INRN triple bottom line assessment is required in 2022. This will consider NWI pricing principles for stormwater and the costs of the network and charges that should apply.

[68] ACT Government 2014, Page 21.

Figure 7.4 - Revenue and costs from 2016-17 to 2019-20 ($ per kL)



Source: TCCSD data as of May 2021

7.3 Cross-jurisdictional Analysis

As shown in Chapter 2 and Appendix D, there are several examples of stormwater harvesting arrangements in other jurisdictions in Australia, with a range of approaches adopted by each jurisdiction. The Review has not received any submissions about the pricing of stormwater from INRN, noting that the customer base is primarily ACT Government users.

Approaches taken by other jurisdictions show there are a number of practical difficulties associated with pricing stormwater. This stems from the wide variety of stormwater harvesting and reuse schemes that differ substantially depending on particular circumstances within each jurisdiction.

As such, while some jurisdictions have opted to reference or implement the NWI pricing principles for stormwater, the majority have adopted different approaches to tackle this complex issue. Given these complexities, the pricing of stormwater in the ACT should aim to eventually align with the NWI pricing principles, with an emphasis placed on allowing prices to be flexible, cost reflective, and where possible set in a manner which fully recovers costs.

7.4 Appropriateness of the current pricing framework for the INRN

The current pricing framework for stormwater from the INRN, set to cover its first five years of operation, has been found to not have adversely impacted any high-intensity club users since the network became fully operational in 2016-17. However, volatility of usage and the small customer base impacts significantly on whether the network is recouping all the associated costs.

While the analysis has not identified any major issues with the pricing framework for INRN, the network warrants close monitoring as it is still maturing in terms of usage levels and customer bases. Therefore, it will be important to review the revenue and cost base associated with the INRN periodically to ensure costs incurred are appropriate and stormwater prices are set appropriately.

Further, the stormwater prices for INRN were set based on ICRC advice from 2009 and while it may have been appropriate at that time, it would be timely to review whether there is a case for an alternative fee structure to align more closely with NWI pricing principles.

Given that the INRN is to be reviewed in 2022, it would be an appropriate time to revisit the prices set, costs and overall revenue as well as the overall cost and benefits associated with the network from a wellbeing perspective.

8 Recommendations

The Report outlines a range of key findings from the Review and four broad recommendations for the Government to consider.

In summary, the findings and analysis indicate it may be appropriate to adjust the current arrangements in place for surface and ground water, for INRN stormwater prices to be more cost-reflective, for recycled water arrangements to allow for targeted assistance when needed due to extreme weather conditions and more broadly, for support to be provided in exceptional circumstances rather than as the default of ongoing levels of subsidies.

The four recommendations for the Government to consider are:

1. Adjusting ground and surface water charges to better align with the fixed and variable costs. This could be achieved through increasing licensing fees to ensure that all users contribute equally to cover the fixed costs and reducing the variable non-potable WAC.
2. Reforming assistance measures to make them simpler and more transparent and equitable.
3. Continuing to provide targeted short-term support to some sporting clubs in exceptional circumstances such as extreme or prolonged dry weather to reflect the social benefits of community clubs. Assistance should be targeted towards clubs that have no other option than to use significant quantities of recycled or potable water for irrigation purposes.
4. Reviewing the application of NWI pricing principles, that suggest full cost recovery for stormwater costs, in the forthcoming review of INRN stormwater prices.

The first and second recommendations recognise the complexity of the current arrangements for surface and ground water and the high level of discounts currently being provided to specific user groups.

High-intensity club users operate businesses that should be able to remain financially viable, without requiring subsidisation of their water costs by Government under business as usual settings. However, it may be appropriate to assist high-intensity users of water in extreme weather events in the same way as support for business may be considered in response to other extreme events.

The third recommendation recognises the unique circumstances some users face due to their limited access to surface and ground water which results in their reliance on more expensive sources such as stormwater, recycled or potable water.

Assistance measures could be designed for these users to apply in drier years when demand is significantly higher than average, and the additional water is required to retain the quality of the grounds for the benefit of the broader community. It is also recommended that eligibility criteria be established to ensure assistance is transparent and targeted to those who have limited financial capacity.

For example, assistance measures could have the following key characteristics:

- support should be provided to users that have experienced a significant increase in water usage for irrigation purposes due to exceptional circumstances such as extreme dry weather (e.g. assistance could be applied when a drought has been announced or significant reduction of rainfall over a period of time);
- support should take into account the water usage costs and its share of user operating costs (e.g. assistance could be applied to those that have water usage costs exceeding 15 per cent of overall operating costs);
- support could be provided on application for targeted assistance rather than automatically, to ensure that individual user's circumstances are taken into consideration (e.g. targeted assistance during extreme weather conditions could be provided on application with Government assessment); and
- support should be targeted to users whose services and grounds provide broader community benefits (e.g. assistance could be targeted to users that are high--intensity water users that irrigate grounds available to the public for sporting or community services).

The value of any assistance provided should be limited to ensure there is still a sufficient price signal to ensure the efficient use of water and/or to encourage users to make infrastructure investments to be more viable and less reliant on more expensive water sources used for irrigation.

Alternatively, the Government could consider whether adjustments could be made to the recycled water arrangements by way of a transparent concession funded through CSO payments to enable Icon Water to recover the full cost. This would recognise the wider social benefits of clubs being charged the price reflective of the size of the network applicable to the user.

The fourth recommendation recognises that while the INRN stormwater prices have been broadly cost-reflective, it is also timely to review this as part of the upcoming review in 2022 for the INRN.

In conclusion, there is merit in the Government considering adjustments to non-potable water pricing arrangements to ensure they are simple, transparent, and that appropriate concessional arrangements are in place for those most in need.

Appendix A: Terms of Reference

As part of the ACT Labor and ACT Greens Parliamentary and Governing Agreement (PAGA) for the 10th Australian Capital Territory Legislative Assembly, the Government has committed to undertaking a review into water costs for high-intensity club users of non--potable water in 2021 (the Review), with the aim of allowing clubs to maintain operations while not requiring cross-subsidisation from other ACT water users.

The Review will be led by ACT Treasury and will incorporate specialist advice from the Independent Competition and Regulatory Commission (ICRC) on recycled water pricing. It will examine costs related to the usage of non-potable water by clubs, such as that incurred in the form of usage charges, infrastructure costs, operation costs and maintenance costs for various sources of non-potable water.

Within this context, the Review will investigate and provide recommendations on:

- The appropriateness of the current pricing framework for non-potable water, informed through an analysis of the associated costs in its supply;
- Whether any adjustments can be made to the current framework which would enable clubs to continue operating, without entailing cross-subsidisation from other users;
- Whether there are other relevant arrangements which could achieve the goals set out in the PAGA, such as those adopted by other jurisdictions; and
- Any other issues identified through the Review.

Consultation: The Review will invite submissions from high-intensity club users of non--potable water and other Government business units involved in water supply management and regulation.

Appendix B: Summary of Discussion Paper Submissions

Stakeholder	Key issues raised/information provided
ACTEA	The submission provides background information on how the ACTEA operates and how it uses non-potable water. The submission responded to a number of questions raised in the Discussion Paper: • The ACTEA estimates its non-potable water infrastructure related costs include $6,225 for one-off capital costs and $873 - $1173 in annual costs, depending on the level of rainfall each year. • These costs do not vary significantly. • There are a number of possible avenues to expand the ACTEA's use of non-potable water. However, most options are too costly to pursue. • The ACTEA's non-potable water usage costs were $618.64 in 2019-20 and approximately $300 in 2020-21. • The non-potable water usage costs make up roughly 3 per cent of the ACTEA's total operational costs.
ASTMA	The submission from the Australian Sports Turf Managers Association relates to the relevance of non-potable water to the management of turf playing surfaces at facilities used for sport and recreation. The submission supports the continuation of Government assistance programs which aid golf courses and sports fields to maintain their turf playing surfaces, coupled with further Government investment into expanding recycled water schemes to accommodate a greater amount of high-intensity water users. The submission raises the following points: • The continual maintenance of safe, healthy and environmentally sustainable playing surfaces is important to facilitate community engagement in sports. • Drought conditions in Australia have prompted turf managers to look for alternative water sources given the prohibitive costs of potable water. • The non-potable WAC is too high, thereby siphoning away funds which could have been spent on additional water saving infrastructure. • The Government should consider the removal of charges associated with accessing surface and ground water from user's own facilities, especially if they have incurred additional infrastructure costs.

GolfNSW & ACTMDGA	This submission was made on the behalf of golf clubs in the ACT that are impacted by the non-potable water review.
	The submission responded to a number of questions raised in the Discussion Paper:
	• The average annual cost of operating and maintaining non-potable water infrastructure across golf clubs in the ACT was estimated to be $23,878 in 2018-19 and $24,585 in 2019-20.
	• These costs vary depending on a number of factors:
	  ○ weather and rainfall;
	  ○ machinery/equipment failure; and
	  ○ capital investment into new water management initiatives.
	• The capacity to expand non-potable water infrastructure varies for each club, dependent on usage requirements, available land and each club's access to capital.
	• The annual non-potable water usage costs amongst golf clubs varies widely from $40,000 to $240,000, depending on each clubs' access to various types of non-potable water.

Stakeholder	Key issues raised/information provided
	• The annual cost of non-potable water makes up roughly 2.5% to 7% of an ACT golf club's overall annual operational costs, with an exception being Magpies which reported 15.2% in 2018-19 and 19.8% in 2019-20. • One additional cost that should be considered is Royal Canberra GC's lease agreement with the ACT Government to maintain and protect the Westbourne Woods Arboretum. • One possible assistance measure suggested was to set the price of non-potable water at a level similar to NSW through administering water allocations based on each club's indicative usage. • The impact of non-potable water pricing on each club's viability in the short-term and long-term varies. • In response to key factors that impact viability, the submission stated that golf clubs are generally not-for-profit entities which run a very marginal business, where a minor shift in any expense line is likely to affect membership fees which will then have detrimental flow-on effects on membership numbers. • For alternative arrangements from other jurisdictions that may be considered in the ACT, the submission provides examples of pricing schemes found in NSW and VIC. • The submission requests the situation surrounding Magpies to be thoroughly examined to provide a fair and equitable outcome to the club. • In addition, the submission quantifies the benefits that golf clubs provide to the ACT community.
Icon Water	The submission provides background information on the role and responsibilities of Icon Water, and how it operates with respect to the supply of recycled water. The submission notes that Icon Water has revised its approach towards recycled water pricing and has provided the revision to the Independent Competition and Regulatory Commission (ICRC). The submission recommends that any future pricing frameworks set for recycled water should align with the National Water Initiatives and the ICRC's pricing principles.
Magpies	The submission responded to a number of questions raised in the Discussion Paper: • The club's non-potable water infrastructure costs amounted to $35,500 in 2019-20 and $39,000 in 2020-21. • Infrastructure costs do not vary significantly from year to year. • While there is a potential to expand the club's non-potable water infrastructure, the excessive pricing of recycled water has resulted in the club being unable to consider longer term investment into water saving infrastructure. • The club's non-potable water costs have contributed significantly to its overall operation costs, amounting to 20% in 2019-20. • The submission notes that the Review should examine the cost of recycled water provided by Icon Water through the Lower Molonglo Water Quality Control Centre (LMWQCC). • The submission argues that the Market Equity Scheme (MES), while providing a fairly equitable support mechanism for most ACT golf clubs, does not assist the Magpies. In contrast, the MES is widening the cost paid by Magpies and other ACT golf clubs. • The submission suggests that assistance measures should work to create an equitable playing field, either through Government subsidies or changes to underlying pricing frameworks. • The submission recommends that the MES should revolve around golf clubs' having a set allocation of non-potable water based on their usage requirements determined by each club's previous usage. Furthermore, should any club exceed their allocated amount, they should be charged an increased penalty rate.

Stakeholder	Key issues raised/information provided
	• The submission emphasises that Magpies cannot operate under the existing recycled water prices set by Icon Water. • For alternative arrangements from other jurisdictions that may be considered in the ACT, the submission provides examples of non-potable water prices for golf clubs found in NSW. ○ The submission argues that Icon Water's pricing of recycled water from the LMWQCC is based on a failed strategy to increase the sale of recycled water in the ACT.
Phillip Oval Management Group	The submission notes that the Phillip Oval precinct does not have access to non-potable water to support its turf irrigation requirements and encourages the ACT Government to develop assistance measures to reduce water prices for not-for-profit organisations who are unable to access non-potable water. The submission also supports the extension of the non-potable water network to the Phillip Oval precinct.
Yowani Country Club	The submission notes that circumstances surrounding water access, usage arrangements and water costs vary substantially between each golf club in the ACT. The submission provides information on Yowani Country Club's situation in relation to non-potable water infrastructure. The submission recommends the continuation of the Infrastructure Offset Scheme, and that the non-potable Water Abstraction Charge (WAC) be revised to resemble the bulk water pricing rates available in other jurisdictions.
John McMaster	The submission notes that Magpies are the only user of recycled water provided by Icon Water through the LMWQCC, and that the club is facing unreasonably high prices. The submission requests that the Review allow for recycled water to be priced in a fair, reasonable and equitable way.
Dr Ray Trewin	The submission notes that various non-club water users are being cross-subsidised or provided rebates. The submission argues that non-potable water prices are currently not transparently set. The submission responded to a number of questions raised in the Discussion Paper: • Non-potable infrastructure costs vary significantly, especially when comparing between drought and non-drought years. • The cost associated with the loss or depreciation of infrastructure such as grass where non-potable water is too expensive or unavailable should be considered. • A number of assistance measures were suggested, such as assistance measures in recognition of the non-market benefits provided by ACT clubs, assistance to expand non-potable infrastructure and adopting NSW's regulation to not charge for water stored on land owned by the club.

Appendix C: Other non-potable water arrangements

Table C1 - NWI pricing principles for stormwater use[69]

Pricing Principle	Description
Principle 1: Flexible regulation	Light handed and flexible regulation (including use of pricing principles) is preferable, as it is generally more cost-efficient than formal regulation. However, formal regulation (e.g. establishing maximum prices and revenue caps to address problems arising from market power) should be employed where it will improve economic efficiency.
Principle 2: Cost allocation	When allocating costs, a beneficiary pays approach — typically including direct user pay contributions — should be the starting point, with specific cost share across beneficiaries based on the scheme's drivers (and other characteristics of the recycled water/stormwater reuse scheme).
Principle 3: Water usage charge	Prices to contain a water usage (i.e. volumetric) charge.
Principle 4: Substitutes	Regard to the price of substitutes (potable water and raw water) may be necessary when setting the upper bound of a price band.
Principle 5: Differential pricing	Pricing structures should be able to reflect differentiation in the quality or reliability of water supply.
Principle 6: Integrated water resource planning	Where appropriate, pricing should reflect the role of recycled water as part of an integrated water resource planning (IWRP) system.
Principle 7: Cost recovery	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 standalone 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. Subsidies and Community Service Obligation (CSO) payments should be reviewed periodically and, where appropriate, reduced over time.
Principle 8: Transparency	Prices should be transparent, understandable to users and published to assist efficient choices.
Principle 9: Gradual Approach	Prices should be appropriate for adopting a strategy of 'gradualism' to allow consumer education and time for the community to adapt.

[69] NRMMC 2010.

Table C2 - Surface water and groundwater arrangements in other Australian jurisdictions

Jurisdiction	Relevant arrangements	Associated Fees and Charges
New South Wales (NSW)	The *Water Management Act 2000* (NSW) governs the issue of water access licences (WALs) and approvals for water sources (rivers, lakes, estuaries and groundwater) in New South Wales where water sharing plans have commenced. A WAL from WaterNSW is generally required to extract water from rivers or aquifers to use for irrigation, industrial or commercial purposes.[70]	Fixed charges • An annual metering service charge is imposed per meter owned, with the charge dependent on the size of the meter used. Variable charge • WaterNSW imposes a usage charge for regulated river water, unregulated river water and ground water. • These charges are reviewed by the Independent Pricing and Regulatory Tribunal (IPART).
Victoria (VIC)	Victoria's water resources are managed under a water entitlement framework set out in the *Water Act 1989* (VIC) which balances demands for water for both consumptive and environmental purposes.[71] There are several water entitlements under this framework, with each being required in different scenarios depending on where and how water is taken, and for what purpose. Several of these entitlements are relevant to the Review, being: • Water shares; • Water-use licences; and • Delivery shares. Water shares allocate water in dams to individuals and are not bound to the shareholder's property or land. There is an entitlement storage fee associated with owning a water share, which is used to cover the costs of operating and maintaining the dams in the water system. A water-use licence is an entitlement to irrigate a parcel (or parcels) of land using water from regulated river systems. Ownership of this licence is linked to the land described in the licence. In terms of fees, there is no annual fee associated with water-use licences unless they fall within a designated salinity impact zone, in which case a small fee applies. Delivery shares are entitlements to have water delivered to land in an irrigation area. Ownership of delivery shares is tied to the	Fixed charges • Water share – An entitlement storage fee is charged each year, based on the volume of each entitlement holder's water share. The purpose of this fee is to cover the costs of operating and maintaining the catchment dams. • Water-use licences – Typically there are no annual fees associated with this licence. However, should the licence fall within a designated salinity impact zone, a small annual fee applies. • Delivery shares – Fees depend on the water corporation managing the delivery share. Variable charge • None.

[70] WaterNSW 2021.
[71] Victorian Water Register 2021.

Jurisdiction	Relevant arrangements	Associated Fees and Charges
	land and stays with the property regardless of a change in ownership. Fees for delivery shares vary depending on the water corporation managing the delivery share.	
Queensland (QLD)	Under the *Water Regulation 2016 (QLD),* the Queensland Government undertakes a number of water planning and management activities to manage the state's water resources.[72] To cover some of the costs of these activities, water users in Queensland are subject to a number of fees and charges.	<u>Fixed charges</u> • Water-related application and administrative fees. • Annual water licence fees. • Meter service charges. <u>Variable charge</u> • Water usage/harvesting charges apply in water management areas where the water resource is more actively managed and regulated.
South Australia (SA)	Water resources in SA are managed under the *Landscape South Australia Act 2019* (Landscape SA Act). While there are no volumetric usage fees, SA does impose hefty penalty rates for taking water above or without an available allocation. These rates are reviewed on a quarterly basis taking into account the market value of water and the level of risk that water theft poses to the resource. Penalty rates are also progressive, with three tiers of rates that increase based on the degree of excess use.[73]	<u>Fixed charges</u> • Water-related application and administrative fees • A Landscape Water Levy is payable by holders of water licences and water access entitlements based on their total water allocation held on 1 July each year. <u>Variable charge</u> • None. <u>Penalty charge</u> • To provide an adequate disincentive to the excess taking of water, penalty rates in SA are set at a value substantially greater than the cost of purchasing water on the market.
Western Australia (WA)	Water resources in WA are managed by the Government of Western Australia under the *Rights in Water and Irrigation Act 1914* (WA). In WA, a water licence is required to take groundwater and/or surface water. A licence fee is charged on a user-pays principle, recognising that water licensees derive benefit from the regulatory services surrounding the use of surface and ground water. These services revolve around licencing, monitoring and compliance activities to ensure total water entitlements fall within their allocation limits. This in turn provides greater security to licensees, many of whom are reliant on these sources of water to run their businesses. [74]	<u>Fixed charges</u> • Water-related application and administrative fees. • Annual water licence fees. <u>Variable charge</u> • None.

[72] Queensland Government 2021.
[73] Government of South Australia 2021.
[74] Government of Western Australia 2021.

Jurisdiction	Relevant arrangements	Associated Fees and Charges
	The purpose of the licence fee is to recover the costs related to assessing water license and permit applications, not a volumetric charge for water entitlement.	

Sources: Government of South Australia 2021, Government of Western Australia 2021, Victorian Water Register 2021, WaterNSW 2021

- New South Wales – Any river, lake or estuary or any place where water occurs naturally on or below the surface of the ground. Includes overland flows collected in a dam only where the volume exceeds 10 per cent (or greater if so prescribed) of average runoff.
- Victoria – Water in a waterway (coastal, enclosed or inland waters including rivers, creeks, canals, lakes and reservoirs)[75] or bore. Unlicensed collection of overland flows is limited to stock and domestic purposes. Uses over and above this must be licensed.
- Queensland – Water in a watercourse (river, creek or other stream) lake or spring, and underground water. Groundwater sources may only be included within the rights system where a Water Resource Plan has identified a need to regulate the extraction of water. Overland flows are only licensed where a Water Resource Plan identifies this as a need. Otherwise, the collection of overland flows is only limited by dam height specifications.
- South Australia – Water in a watercourse (river, creek or other natural watercourse), lake or well and water overflowing land collected in a dam or reservoir in prescribed areas. Use of water in non-prescribed areas is subject to common law rights.
- ACT – Water in a waterway (defined as a river, creek stream or other channel, a lake, pond, lagoon or marsh), groundwater and overland flows.

Table C3 – Stormwater reuse schemes in other Australian jurisdictions

Jurisdiction	Relevant Project and details	Associated Costs and Pricing Structures
New South Wales (NSW)	Located in the regional city of Orange, the project is managed by the Orange City Council, and involves the harvesting and treatment of urban stormwater to a level suitable for potable uses. • The project encompasses two stormwater harvesting schemes at Blackmans Swamp Creek and Ploughmans Creek. • The project was designed and made operational in 18 months, with the Blackmans Swamp Creek stormwater harvesting scheme becoming operational in August 2008. • The schemes were primarily developed to augment the city's water supply in response to the millennium drought.	• The total costs associated with the Blackmans Swamp Creek scheme were $5m, while the Ploughmans Creek scheme cost $4.1 million. • In terms of pricing for the project in Orange, residents are charged the same for the use of potable water and stormwater.
Victoria (VIC)	Located south-east from Melbourne's CBD, the Clayton South Stormwater Harvesting scheme	• In a case study by Clearwater, the total budget (excluding ongoing

[75] Maritime Safety Victoria 2021.

Jurisdiction	Relevant Project and details	Associated Costs and Pricing Structures
	incorporates a wetland system to treat stormwater and enable its use for Kingston City Council to water surrounding parks and gardens. The scheme is an example of the benefits of integrated water cycle management, and how collaboration between the land-use planning and local government sectors can greatly benefit the community. • The project's design work was undertaken in September 2008, with construction commencing in January 2011 and finishing in April 2012. • Components of the scheme include a wetland, flood protection infrastructure and a stormwater harvesting system which supplies treated stormwater through pipes to nearby sporting grounds. • The scheme is able to provide up to 92 megalitres of harvestable stormwater each year.	maintenance costs) was $7.36 million. • Stormwater harvesting charges comprise of a licence service fee and a volumetric charge.
Queensland (QLD)	Brisbane City Council has constructed seven stormwater harvesting schemes located across various locations in Brisbane, with the objective of providing a sustainable source of water for the irrigation of parks and sports fields. • The seven schemes have different means of storing water, with three utilising open water storage, two using above-ground tanks and the last two utilising an in-channel storage system. • The schemes are estimated to save up to 185 megalitres per year, while also providing other benefits such as increased amenity of open spaces, improved waterway health and fostering habitat creation.	• The projects were jointly funded by the Australian Government's National Urban Water and Desalination Plan, and the Council's Clean Green and WaterSmart Initiative. • It was reported that the total cost of the project was $10.782m, with the Australian Government contribution of $5.391 million in funding.
South Australia (SA)	The Salisbury Alternative Water Scheme provides non-potable water termed Salisbury Water to the City of Salisbury and is a mix of treated stormwater and groundwater used to irrigate parks, reserves and schools. It is also used in industry and new residential developments. • The scheme consists of over 50 wetlands, managed aquifer recharge and over 150km of pipes making up the distribution network across the city. • The main benefits of the scheme were reported to be: ○ The creation of new urban ecosystems;	• Total capital investment for the project was estimated at $52 million as of 2009, with the Council, Commonwealth and State Government contributing $17.2 million, $20.3 million and $13 million respectively. • Sales of the harvested stormwater were primarily to the Council's own parks and gardens service, industrial users, schools and new residential subdivisions. • Salisbury Water is priced in accordance with State essential services regulations and guidelines,

Jurisdiction	Relevant Project and details	Associated Costs and Pricing Structures
	○ Improvement in stormwater quality; ○ reduction in mains water demand; ○ improvement to public open space amenities through a resilient water supply; and ○ the improved community awareness of non-potable water through education material developed around Salisbury Water.	with a standard usage charge of $2.78/kL in 2020-21 and a residential supply charge of $10 per quarter.

Sources: City of Salisbury 2021, Clearwater 2013, Cooperative Research Centre for Water Sensitive Cities (2018a, 2018b)

Table C4 - Approaches to pricing stormwater in other Australian jurisdictions

Jurisdiction	Pricing Principles
New South Wales (NSW)	The Independent Pricing and Regulatory Tribunal (IPART) has adopted a less intrusive approach in relation to regulating prices for stormwater harvesting services, and instead encourages stakeholders to enter into unregulated pricing agreements. • IPART has decided to defer determining prices for each stormwater harvesting scheme until it receives a request for a scheme-specific review.
Victoria (VIC)	The Essential Services Commission's principles for recycled water and stormwater harvesting services state that prices should be set so as to: • have regard to the price of any substitutes and customers' willingness to pay; • cover the full cost of providing the service (except for services required under specified obligations or to balance supply and demand); and • include a variable component. Where the water retailer does not propose to fully recover the costs associated with recycled water, it must demonstrate to the ESC that: • it has assessed the costs and benefits of pursuing the recycled water project; • it has clearly identified the basis on which any revenue shortfall is to be recovered; and • if the revenue shortfall is to be recovered from non-recycled water customers, either the project is required under government policies that apply to the retailer or there has been consultation with the affected customers about their willingness to pay for the benefits of greater water recycling.
Queensland (QLD)	The Queensland Competition Authority's (QCA) preferred approach is to subject stormwater reuse pricing to the same pricing principles as recycled water. This approach was selected as stormwater reuse schemes were deemed to be similar in concept to recycled water scheme.
South Australia (SA)	The Essential Services Commission of South Australia (ESCOSA) has imposed price controls for recycled water retail services set by SA Water. In setting prices, SA Water must comply with the NWI pricing principles for stormwater reuse. • SA Water is required to justify its recycled water retail services through the preparation of a pricing statement setting out a pricing schedule and pricing policy statement in respect of each regulatory year. ○ Recycled water retail services refer to the supply of treated sewage, greywater or stormwater.

Sources: ESC 2021, ESCOSA 2016, IPART 2019, Queensland Competition Authority 2014

Appendix D: Stormwater projects and pricing approaches in other Australian jurisdictions.

Stormwater harvesting projects

There are a number of stormwater harvesting and reuse projects found in other Australian jurisdictions which are comparable to the INRN. To assist with the consideration of these other schemes, the key findings of each scheme are set out in Table C3 of Appendix C, and outlined as follows:

- New South Wales – The stormwater harvesting project in Orange involves the treatment of urban stormwater collected from two creeks. However, unlike the INRN, the scheme at Orange treats stormwater extensively, to a level suitable for potable water uses. Given its ability to substitute for potable water, the stormwater supplied in Orange is charged at the same rate as potable water.[76]
- Victoria – The Clayton South Stormwater Harvesting scheme incorporates a wetland system to treat stormwater for use by the Kingston City Council to water surrounding parks, gardens and sporting grounds. An additional benefit of this scheme was its ability to reduce stormwater flows and reduce flooding experienced by nearby properties.[77]
- Queensland – Brisbane City Council has developed several stormwater harvesting and reuse projects with the objective of providing parks and sports fields with a sustainable source of water for irrigation.[78]
- South Australia – The Salisbury Alternative Water scheme comprises of wetlands, a managed aquifer recharge along with a pipeline for distribution across the city. The scheme prices stormwater in accordance with the State essential service regulations and guidelines, which as of 2016-17 was $2.61/kilolitre.[79]

In comparing the INRN to other stormwater harvesting and re-use schemes, it is apparent that all schemes were developed in response to the water shortage crisis brought about by the millennium drought, which highlighted the importance of developing sustainable alternative water supply options to all jurisdictions.

While each scheme may have similar intentions, they are often tailored to suit the specific needs of each community, which has resulted in schemes varying widely in scope and features. An example of this would be the stormwater harvesting scheme in Orange which treats stormwater to a level suitable for potable use, and the Clayton South Stormwater Harvesting scheme which also fulfilled a secondary purpose being to reduce flooding in the area.

[76] Cooperative Research Centre for Water Sensitive Cities 2018a, Page 25.
[77] Clearwater 2013.
[78] Brisbane City Council 2019.
[79] Cooperative Research Centre for Water Sensitive Cities 2018b, Page 4.

Therefore, while schemes in other jurisdictions provide an excellent opportunity to learn about the benefits and limitations of stormwater harvesting and reuse schemes, it would be impractical to compare their corresponding charges due. Rather, it would be more appropriate to examine approaches to stormwater pricing that are adopted by independent pricing regulators in other jurisdictions.

Pricing approaches in other Australian jurisdictions

Other jurisdictions have encountered a number of practical difficulties associated in considering approaches to regulate of stormwater prices, which stem from the wide variety of stormwater harvesting and reuse schemes that differ tremendously depending on particular circumstances within each jurisdiction. As such, while some jurisdictions have opted to reference or implement the NWI pricing principles for stormwater, it should be acknowledged that a majority have adopted different approaches to tackle this complex issue.

A summary of the pricing principles for stormwater reuse products from each jurisdiction can be found in Table C4 of Appendix C, with further details provided below.

New South Wales

In its 2019 review of pricing arrangements for recycled water and related services, the NSW Independent Pricing and Regulatory Tribunal (IPART) reviewed pricing arrangements for stormwater harvesting services provided by four public water utilities.

Through this review, IPART made the decision to not establish pricing principles for stormwater harvesting services due to the unique nature of individual schemes which make developing meaningful pricing principles difficult. Instead, IPART encourages unregulated pricing agreements between customers and stormwater service providers. Customers are protected from monopoly pricing through IPART's regulatory framework which involves undertaking scheme-specific reviews only upon receiving requests from customers.[80]

Victoria

In its 2021 Melbourne Water Determination, the Essential Services Commission (ESC) set out various pricing principles for recycled water which included stormwater harvesting services provided by the water retailer. The principles state that prices should be set so as to:[81]

- have regard to the price of any substitutes and customers' willingness to pay;
- cover the full cost of providing the service (except for services required under specified obligations or to balance supply and demand); and
- include a variable component.

Where the water retailer does not propose to fully recover the costs associated with recycled water, it must demonstrate to the ESC that:

- it has assessed the costs and benefits of pursuing the recycled water project;
- it has clearly identified the basis on which any revenue shortfall is to be recovered; and

[80] IPART 2019, Pages 71 and 72.
[81] ESC 2021, Page 30.

- if the revenue shortfall is to be recovered from non-recycled water customers, either the project is required under government policies that apply to the retailer or there has been consultation with the affected customers about their willingness to pay for the benefits of greater water recycling.

Queensland

In 2014, the Queensland Competition Authority (QCA) developed a long-term regulatory framework for recycled water and stormwater reuse services provided by South East Queensland (SEQ) retailers.

In considering stormwater reuse schemes, the QCA recommended that the same pricing principles that apply to recycled water schemes should be applied to stormwater schemes, given the similarities in their concepts.[82] The QCA's overarching recommendations for the pricing of recycled water services state that prices should consider:

- The revenue requirement for recycled water services should be based on the total additional cost of water recycling less avoided costs and less developer contributions;
- Where there are costs that cannot be recovered from recycled water customers, the gap should be allocated to other parties on a beneficiary pays basis;
- Recycled water volumetric prices should be based on long-run marginal costs for the established recycled water scheme where possible, less marginal avoided costs. If necessary, recycled water volumetric charges should be set lower than the long-run marginal cost to ensure demand clears supply (where the recycled water volumetric charge is higher than the potable water volumetric charge);
- Where volumetric charges do not ensure revenue adequacy, fixed charges in a two-part tariff should be set to recover remaining revenues, subject to willingness to pay;
- If the revenue requirement is still not achievable (that is, where fixed and volumetric charges exceed willingness to pay), unrecovered amounts should be allocated to potable and sewerage charges in proportion to avoided cost allocations; and
- The approach and charges should be reviewed periodically, as customer acceptance and use of recycled water increases.

However, the QCA also identified key areas of differences between the schemes, in that:

- stormwater systems may require larger volumes of storage due to the episodic nature of rainfall, resulting in fixed costs being potentially higher;
- water treatment costs for stormwater would typically be lower as the source water could be expected to be of higher quality; and
- depending on the scale, avoided costs of environmental impacts could be significant, in terms of reduced peak stormwater flows and reduced sedimentation. There may therefore be larger benefits to the broader community justifying CSOs.

[82] Queensland Competition Authority 2014, Page 122.

South Australia

In its 2016-20 price determination for SA Water's water and sewerage retail services, the Essential Services Commission of South Australia (ESCOSA) has required SA Water to comply with the NWI pricing principles (Appendix C) when setting prices for recycled water retail services.[83]

In doing so, SA Water must prepare a pricing statement to ESCOSA each regulatory year which includes:[84]

- a schedule of the prices SA Water will charge customers for the supply of recycled water retail services for that regulatory year; and
- a pricing policy statement that demonstrates how the prices meet the requirements of the NWI pricing principles.

[83] Recycled water retail services are defined as the "sale and supply of water which has been generated from sewage, greywater or stormwater and treated to a standard that is appropriate for its intended use.", and as such also apply to stormwater reuse services.

[84] ESCOSA 2016, Pages 14 and 15.

Appendix E: Reference Documents

ACT Government 2014, Canberra Integrated Urban Waterways Project – Final Report – February 2014, available at: https://www.environment.act.gov.au/__data/assets/pdf_file/0011/585965/FINAL-Report-CIUWP-Feb-2014.pdf

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Australian Government Bureau of Meteorology 2021, Climate summaries archive, available at: http://www.bom.gov.au/climate/current/statement_archives.shtml?region=act&period=month

Brisbane City Council 2019, Stormwater harvesting and reuse projects, available at: https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/creeks-and-waterways/protect-our-waterways/stormwater-harvesting-and-reuse-sports-fields

City of Salisbury 2021, Salisbury Stormwater Harvesting, available at: https://www.salisbury.sa.gov.au/Live/Environment_and_Sustainability/Wetlands_and_Water/Current_and_future_projects/Salisbury_Stormwater_Harvesting

Clearwater 2013, Clayton South Wetlands, available at: https://www.clearwatervic.com.au/resource-library/case-studies/clayton-south-wetlands.php

Cooperative Research Centre for Water Sensitive Cities 2018a, Orange Stormwater to Potable: Building urban water supply diversity, available at: https://watersensitivecities.org.au/wp-content/uploads/2018/05/Orange-stormwater-to-potable-Case-Study-180503-V8_WEB.pdf

Cooperative Research Centre for Water Sensitive Cities 2018b, Salisbury Alternative Water Scheme, available at: https://watersensitivecities.org.au/wp-content/uploads/2018/10/26-Salisbury-Water-Alternative-Water-Scheme_FINAL.pdf

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