Attachment 13

Form of control (revenue cap or price cap)

30 September 2024

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1 Form of Price Control

1.1 WaterNSW proposes a revenue cap for the 2025-30 determination period

A revenue cap is in the long-term interests of customers

WaterNSW's current tariff structure does not align to our predominantly fixed costs (in Greater Sydney and in most Rural Valleys). This results in pricing volatility for customers and revenue volatility for WaterNSW.

For the 2025-30 determination period, WaterNSW is proposing to transition from a price cap to a revenue cap, as a revenue cap supports the economic regulation objectives of price stability, cost recovery and efficient cost reflective tariff structures.

WaterNSW considers a revenue cap to be more closely aligned to the long-term interests of our customers and the most appropriate form of regulation for WaterNSW's long-term stability as a largely fixed cost business. The proposal to transition to a revenue cap has been informed through consultation with our customers.

The benefits of a revenue cap to customers includes:

- **Improved services to customers:** a revenue cap provides a greater incentive for WaterNSW to reduce its operational costs and drive further efficiencies for it to benefit from a fixed revenue. Quality, efficient services will be realised by the business for the benefit of customers, while any over recovery of revenue outside of the 5% and 2% constraint for the Rural Valleys and Greater Sydney, respectively, will be returned to customers.
- **Reduced risk to customers:** a revenue cap ensures accurate forecasting by removing any incentive to distort forecast demand. This is because any over-recovery of revenue is returned to customers through WaterNSW's proposed side constraint of +/-5% in the Rural Valleys and +/-2% for Sydney Water.
- **Bill certainty to customers:** under a revenue cap customers have certainty and predictability around their bills (within a band of 5% and 2% above or below the base level).
- **Sustainable water management:** WaterNSW is incentivised to promote sustainable management of water resources instead of relying on price signals, which may not directly incentivise appropriate water consumption practices as customers may simply pay the higher price (particularly businesses who are dependent on water delivery).
- **No more, no less:** modelling provided to customers demonstrated that in many valleys the current price cap approach would have resulted in permanent over payment of the revenue set by IPART. While the revenue cap may not balance the account in any given period it does ensure that the revenue retained by WaterNSW is no more or no less than the revenue set by IPART.
- **Aligns with customer preferences:** the majority of our customers recognised the benefits of a revenue cap including reducing the potential for 'bill shock' and lower costs over time. A revenue cap also provides greater opportunity for customers to manage their water use and bills compared to a price cap with a higher fixed charge. Some customers remained concerned about usage patterns and risk transfer.

Our proposal to move to a revenue cap form of control has been prepared in direct response to **Customer Outcome 6 – WaterNSW will be open and transparent (about customer charges and WaterNSW's expenditure.**

All regulated services provided by WaterNSW are currently governed by a maximum price cap form of control (price cap). As a consequence, WaterNSW's ability to recover its efficient costs is highly linked to the volume of water usage, which is largely outside of WaterNSW control. For the 2025-30 determination period, WaterNSW proposes to move to a revenue cap form of control (revenue cap) for the majority of its services. Under this arrangement, the following conditions would apply:

- A revenue cap with a side constraint of 5% for customers in nine Rural Valleys (Border, Gwydir, Hunter, Namoi, Lachlan, Macquarie, Peel, Murray, Murrumbidgee)
- A revenue cap with a side constraint of 2% for Greater Sydney Large Customers (i.e. Sydney Water).

WaterNSW considers that a change in the form of control for the 2025-2030 period is critical to both:

- The **long-term interests of our customers** and their communities by providing certainty over their prices (reduced price shocks between decisions) and potentially reduced prices (relative to a price cap) particularly following a period of high usage when water volumes are low, and customers are most vulnerable.
- Our **long-term sustainability** as an entity that is financially able to respond in a timely and efficient way to ongoing challenges such as ageing infrastructure, increasing regulatory and community expectations, climate change and extreme weather events.

The appropriate form of price control necessarily depends on the individual utility and its circumstances, including its fixed and variable cost structure, the ability to effectively manage demand and revenue volatility risk, and customer preferences. These factors and their associated risks may evolve over time, requiring ongoing reassessment of the appropriateness of the form of control being applied.

WaterNSW in developing its pricing proposal, has considered alternative forms of price control as well as the experiences and lessons learnt from other utilities and regulators in both the energy and water sector, and the preferences expressed by our customers. This analysis demonstrates that a **revenue cap balances the considerations of revenue and price stability and allocates risk in a fair and consistent way between WaterNSW and our customers**. As a large portion of our costs and revenue are fixed in nature, this form of price control also reduces the risk of material annual price variations.

Importantly, when we presented the concept of a revenue cap at our engagement forums, our **customers found it easy to understand, and the majority supported our proposal**.

1.2 Purpose of this attachment

This attachment outlines how a change from a price cap to a revenue cap form of control is in the long-term interests of our customers and stakeholders and responds to feedback provided through our engagement with our customers and stakeholders.

The purpose of this attachment it to:

- present **a case for change**
- outline **how the proposed form of control would operate**, the services affected, the control formula that would apply and the administrative arrangements that will be established
- provide data and supporting information that describes how the revenue cap would **provide appropriate signals to deliver efficient services** and how it is likely to impact price stability

- detail **how WaterNSW has consulted with potentially affected customers**, and how the feedback from our customers has informed the proposal to transition to a revenue cap
- demonstrate that **customers have helped shape and develop WaterNSW's proposed revenue cap**, including the application of a side constraint
- explain **how WaterNSW has considered risk allocation** and management
- explain **how the revenue cap would operate** should IPART approve its adoption.

1.3 Different control mechanisms and forms of price control

The form of price control is an important tool for ensuring regulated water businesses achieve sustainable revenue streams, to manage how risks are shared with consumers and to align incentives around water usage and water conservation over the determination period. The form of control mechanism that will apply to a regulated business should provide incentives to set efficient prices and provide the entity with sufficient revenue to remain financeable. Broadly speaking, efficient prices are those that reflect the cost of providing the service.

Figure 1 below is taken from IPART's 3Cs Handbook[1] and provides an overview of the different forms of price control that may be considered by IPART. Businesses can propose the form of price control that is supported by, and aligns with, the long-term interests of its customers. IPART has noted that businesses are best placed to determine the form of price control that is most appropriate for them and supported by their customers.[2]

Figure 1 – Forms of Price Control as per IPART's 3Cs Handbook

Different forms of price control

The different forms of price control include the following:

- **Price cap –** Maximum prices are set at the start of the determination period and may be adjusted each year for inflation. This approach provides predictable prices for customers, but the regulated entity bears volume-related risk to the extent that price structures do not perfectly match the business's cost structures.

- **Revenue cap –** A regulated business receives its annual revenue requirement for a determination period, irrespective of the volume of regulated services provided. Customers bear any volume-related risk through price increases or decreases over the determination period, while any additional costs of say increased volume need to be accommodated within the original revenue allowance, thereby affecting the business' profits.

- **Weighted average price cap –** A maximum average price (or formula for a price) is set for each group of the business's prices for the first year of the determination. The regulator can set limitations on the extent to which some or all individual prices within the groups can increase during the determination period.

  Businesses can rebalance prices, so long as the weighted average of the prices does not exceed the maximum average price, and they comply with any limitations imposed. The accuracy of volume forecasts will significantly affect the overall revenue that the business is able to earn while keeping within the cap.

- **Hybrid of the revenue and price cap controls –** A price control is in place but additional measures to mitigate the risk of the business under- or over recovering its revenue requirement are also used.

Source: IPART Water Regulation Handbook July 2023

2 The case for a revenue cap – lessons learnt from regulators in determining the form of control

As the water industry prepares for future challenges such as population growth, ageing infrastructure, climate change, and extreme weather events, it is **crucial water utilities respond effectively to these risks in the long-term interests of customers**. Therefore, determining the most suitable form of price control depends on various factors specific to each utility, including their fixed and variable cost structure and customer preferences. Imposing a specific form of price control as a default option limits the ability of utilities to explore alternative approaches that may better manage demand risk and revenue volatility.

In developing its proposed revenue cap, WaterNSW has considered the regulatory frameworks of other regulators, including the Australian Energy Regulator (AER) and the Essential Services Commission of Victoria (ESCV), which IPART's 3Cs Handbook draws inspiration from[3]. Additionally, WaterNSW has considered recent decisions made by economic regulators in other Australian jurisdictions, as well as international frameworks such as the one implemented by Ofwat, the water sector economic regulator in England and Wales.

A detailed assessment of the findings from other economic regulators regarding the form of control is shown below – a broader assessment is presented at Table 1 at Appendix A of this document.

WaterNSW is mindful that it considers the customer impact of regulatory settings, such as the form of control. WaterNSW engaged with customers over the past year on the issue of form of control. The feedback received through this process, including the capacity of customers to engage with the options presented, was highly instructive in forming our revenue cap proposal.

[3] Independent Pricing and Regulatory Tribunal, 2022, Our water regulatory framework final technical paper, available at <https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Final-technical-paper-Our-water-regulatory-framework-November-2022.PDF>

A revenue cap is the dominant form of regulation in other regulated markets and is increasingly being applied in the Australian water sector

Revenue caps have replaced price caps as the form of regulation in the UK. The AER, the ESC in Victoria, and ESCOSA in South Australia have also moved in the direction of revenue caps in recent years.

The Australian Energy Regulator (AER)

- In 2014, the AER implemented a **revenue cap for standard control services across all electricity distribution network service providers** in Victoria (VIC) and New South Wales (NSW).
- The AER's decision to move to a revenue cap was based on a comparison between Queensland distributors under a revenue cap and NSW distributors under a Weighted Average Price Cap (WAPC).
- The AER's comparison revealed that, contrary to theoretical expectations, **the WAPC in NSW did not incentivise distributors to set efficient prices**.
- The AER concluded that, given **distributors' costs are largely fixed and unrelated to energy sales**, revenue recovery should also be **primarily fixed and independent of sales.**
- The AER also determined that a revenue cap would likely benefit customers by **ensuring revenue recovery at efficient costs and reducing reliance on forecasts.**

Essential Services Commission (ESC)

- The **ESC accepted Goulburn Murray Water's proposal for a revenue cap in 2024** noting that it would provide sufficient revenue to recover the efficient costs of providing services and was consistent with the requirements of the regulator's guidance
- The **ESC accepted Yarra Valley Water's proposal for a revenue cap** noting that it would provide sufficient revenue to recover the efficient costs of providing services and was consistent with the requirements of the regulator's guidance.

Essential Services Commission of South Australia (ESCOSA)

- **ESCOSA approved SA Water's proposal for a revenue cap in 2024**, stating that the revenue cap will grant SA Water adequate funds to sustain prudent and efficient operations, as well as to finance prudent and efficient investments over the long term, while adhering to applicable health, safety, environmental, and customer service standards and obligations under the determination period.

Ofwat (regulator for the water sector in England and Wales)

- Ofwat considers its revenue cap to be working well by preventing excessive revenue volatility due to volume fluctuations. It ensures customer protection from unexpected price increases, promotes operational efficiency, and provides stable long-term infrastructure investments.

2.1 Australian Energy Regulator (AER)

The AER regulates all standard control services[4] in all electricity distribution and transmission networks in Australia under a revenue cap. This revenue cap, in addition to specific incentives schemes ensures a focus on providing service efficiency without service standards being compromised.

The AER considers a revenue cap results in benefits to consumers through:

- a higher likelihood of revenue recovery at efficient cost
- better incentives for demand side management
- less reliance on energy forecasts
- better aligns to the development of efficient prices. [5]

The AER, in determining an appropriate form of price control for regulated utilities, must take into consideration the National Electricity Rules (NER). Clause 6.2.5(c) of the NER requires the AER, in deciding on a control mechanism for standard control services, to have regard to:

- the need for efficient tariff structures
- the possible effects of the control mechanism on administrative costs of the AER, the Distribution Network Service Provider and users or potential users
- the regulatory arrangements (if any) applicable to the relevant service immediately before the commencement of the distribution determination
- the desirability of consistency between regulatory arrangements for similar services (both within and beyond the relevant jurisdiction)
- any other relevant factor.

In addition to the factors listed above, the AER also takes into consideration risk and revenue recovery, price flexibility and stability, and incentives for demand side management. For electricity regulated businesses, the AER considers that **a revenue cap best meets the factors set out above**.

In relation to risks that arise from errors in forecast demand, which may result in a revenue recovery above the allowed revenue, the AER has stated that[6]:

> *'Prices are based on estimates of future demand under both revenue cap and price cap approaches. Under the revenue cap approach, average prices are adjusted each year for errors in forecast demand that result in revenue recovery above or below the allowed revenue. Put simply, network businesses under a revenue cap are guaranteed to recover the allowed revenue over the regulatory period.'*

The AER considers that any risk associated with a revenue cap, such as pricing instability and weak pricing incentives, are able to be sufficiently mitigated (see below).[7]

The case for a revenue cap: Lessons from the AER's decisions in Victoria and NSW

In 2014, the AER proposed transitioning Victorian electricity distributors from a weighted average price cap (WAPC) to a revenue cap, effective from 1 January 2016. This decision was informed by the

[4] Standard control services are common network services that are central to electricity supply that consumers share the cost of, such as building and maintaining the network.
[5] AER 'Framework and Approach NSW DNSPs 2014-19' 2013 AER - Stage 1 Framework and approach - NSW distributors - March 2013
[6] Senate Standing Committee on Environment and Committees (2015) The Performance and Management of Electricity Network Companies: Interim Report, Parliament of Australia, Chapter 3: Chapter 3 – Parliament of Australia (aph.gov.au)
[7] Final Framework and approach for the Victorian Electricity Distributors Regulatory control period commencing 1 January 2016, October 2014

successful implementation of a revenue cap in Queensland and a comparative analysis of the mechanisms in place in Queensland (revenue cap) and NSW (WAPC).

The AER acknowledged some potential weaknesses associated with a revenue cap, but considered these could be effectively mitigated. Key weaknesses included the transfer of risk to customers due to variations in consumption. However, the AER argued that under a WAPC, this risk is exacerbated, especially during periods of unanticipated negative consumption trends. Under a WAPC, revenue variability within the regulatory period increases, leading to higher revenue risks for distributors and potentially increased costs through risk minimisation strategies. The AER was also concerned about price instability within a regulatory control period caused by the unders and overs account. However, the AER's analysis showed that the magnitude of adjustments in the unders and overs account are minor when compared to other benefits from a revenue cap.

For NSW, the AER assessed that the **WAPC had not provided, and was unlikely to provide, sufficient incentives for distributors to set efficient prices**. In response, NSW distributors expressed concerns that a revenue cap would not ensure efficient cost recovery. **The AER countered this by stating that distributors' costs are largely fixed and unrelated to energy sales, thus revenue recovery should also be fixed and unrelated to energy sales**. [8]

The AER also highlighted that the **WAPC could lead to greater price instability across regulatory periods compared to a revenue cap**. This instability would be particularly evident if there was a trend of falling volumes during the regulatory period, prompting a significant upward adjustment for the next period. Conversely, under a revenue cap, **forecasts are updated annually, allowing prices to rise gradually over the regulatory period rather than experiencing a sharp increase at the end**.[9]

The Productivity Commission in its inquiry into network regulatory frameworks agreed with the AER stating that it **recommends a revenue cap be the basis for controlling revenue collected from customers**, and that the WAPC does not appear, in practice to have achieved its theoretical potential for efficient pricing.[10]

2.2 Essential Services Commission (ESC) – Victoria

In assessing a proposed form of price control, the ESC places a strong weighting on the feedback a water business receives from its customers. It has recently **approved a revenue cap form of price control for Goulburn Murray Water in June 2024**[11] **and Yarra Valley Water in June 2023**[12].

The *Essential Services Commission Act 2001* section 8A(1)(f) requires the ESC to have regard to '**consistency in regulation between States and on a national basis**'. It assesses a proposal for a form of price control against the following factors[13]:

- the business's justification for the proposed form of control, including its consideration of efficiency and risk allocation and management
- the business's approach to consultation on the form of control and how the views of customers were taken into account

[8] AER, Stage 1 Framework and approach paper – NSW electricity distribution network service providers, page 10.
[9] AER, Stage 1 Framework and approach paper – NSW electricity distribution network service providers, page 51.
[10] Productivity Commission, 2013, Electricity Network Regulatory Frameworks Volume 1 page 19. Also page 51 recommendation 12.1 *The Australian Energy Regulator should use revenue caps, rather than weighted average price caps, in the regulation of all distribution businesses.*
[11] Essential Services Commission, 2024, Goulburn-Murray Water final decision, available at <https://www.esc.vic.gov.au/sites/default/files/documents/Goulburn-Murray-Water-price-review-2024-Final-Decision-20240618.pdf>
[12] Essential Services Commission, 2023, Yarra Valley Water final decision, available at <https://www.esc.vic.gov.au/sites/default/files/documents/FDP%20-%20Yarra%20Valley%20Water%20%20202~%20final%20decision%20pdf%20-%2020230622.PDF>
[13] Essential Services Commission, 2023, 2023 water price review: Guidance paper, available at <https://www.esc.vic.gov.au/sites/default/files/documents/2023-water-price-review-guidance-paper-20211026.pdf>

- where a change to the form of price control is proposed, whether the business has considered and demonstrated that appropriate transition strategies will be implemented for affected customers
- the administrative complexity of the proposed form of control
- the ability of customers to understand the resulting tariffs and tariff movements throughout the regulatory period.

Businesses are required to explain how their proposed form of price control meets the requirements set out in the Water Industry Regulatory Order (WIRO) 2014, that is, pricing should:

- enable customers to easily understand the prices and how they are calculated, determined or otherwise regulated
- provide signals about the efficient costs of providing services, while avoiding price shocks where possible
- take into account the interests of customers, including low income and vulnerable customers.

2.3 Essential Services Commission of South Australia (ESCOSA)

ESCOSA approved SA Water's regulatory proposal for a revenue cap for the 2024-28 determination period, stating that the **revenue cap will grant SA Water adequate funds to sustain prudent and efficient operations**, as well as to finance prudent and efficient investments over the long term, while adhering to applicable health, safety, environmental, and customer service standards and obligations under the determination period.[14]

ESCOSA regulates water and sewage companies in South Australia using two separate approaches. A regime for major retailers applies to SA Water, which is regulated under a building block revenue cap approach, while minor and intermediate water retailers are regulated under a set of pricing principles.

ESCOSA's primary objective regarding regulation is to protect the long-term interests of consumers with respect to the price, quality and reliability of essential services. When reviewing the proposed form of regulation, ESCOSA relies on the following criteria for assessment:

- provide water and sewerage services at the lowest sustainable price for the quality and reliability levels valued by customers, and
- have and deliver against sound long-term asset management, operating and financing strategies, which support the provision of those services for present and future customers.[15]

2.4 Ofwat – UK water sector regulator

Ofwat regulates regional water monopolies in England and Wales. Under its statutory duties Ofwat is required to set price controls in a manner that best achieves the following objectives:

- **Furthering the consumer objective:** Protecting the interests of existing and future consumers, wherever appropriate by promoting effective competition.
- **Ensuring proper function:** Ensuring that water companies properly carry out their functions.

[14] Essential Services Commission of South Australia, 2024, SA Water regulatory determination 2024, available at <https://www.escosa.sa.gov.au/projects-and-publications/projects/water/sa-water-regulatory-determination-2024>
[15] Essential Services Commission of South Australia, 2024, SA Water regulatory determination 2024, available at <https://www.escosa.sa.gov.au/projects-and-publications/projects/water/sa-water-regulatory-determination-2024>

- **Financial viability:** Ensuring that companies are able to finance the proper carrying out of their functions, particularly by securing reasonable returns on their capital.
- **Securing resilience:** Securing the long-term resilience of companies' systems.

When setting charges, Ofwat must also consider principles such as:

- fairness and affordability
- environmental protection
- stability and predictability
- transparency and customer-focused service.

Ofwat moved to revenue caps in its 2008 decisions based on a) avoiding disincentives to promote water efficiency, and b) removing the scope for a business to outperform or underperform on revenue due to demand. In 2016, **Ofwat stated that the revenue cap was performing well early in the control period for water and wastewater services**. Ofwat noted that the revenue cap was preventing excessive volatility of revenue due to fluctuations in volume and considered it would help to smooth prices over the longer term.[16]

In December 2015, Ofwat published a consultation paper on its regulatory framework for wholesale markets. Respondents expressed strong support for retaining total revenue controls, with no respondents expressing disagreement. [17]

Ofwat's current methodology, outlined in Price Review 24 (PR24), continues the revenue control approach. This approach provides water companies with greater flexibility and incentives to improve efficiency and customer service. The primary reasons for continuing with a revenue cap form of control include:

- **Customer Protection:** Ensuring customers are protected from unexpected price increases while promoting fairness and transparency in billing.
- **Efficiency:** Encouraging water companies to operate more efficiently by aligning revenues with performance rather than simply the volume of water sold.
- **Investment Stability:** Providing a stable and predictable revenue stream that supports long-term investment in infrastructure, crucial for maintaining and improving water services.[18]

Appendix A provides an overview of recent decisions on form of price control across Australia for both energy and water utilities.

[16] Ofwat, 2016, Water 2020: our regulatory approach for water and wastewater services in England and Wales, page 199.
[17] Ofwat, 2016, Water 2020: our regulatory approach for water and wastewater services in England and Wales, page 199.
[18] Ofwat, 2017, Delivering Water 2020: Our final methodology for the 2019 price review, PR19.

3 The drivers to change the form of price control

Drivers to change the form of price control

- WaterNSW's current tariff structure **does not align to our predominantly fixed costs**. In other words, the current pricing structure is not cost reflective. This results in pricing volatility for customers and revenue volatility for WaterNSW.
- Under IPART's new 3Cs Handbook, **WaterNSW can propose the form of price control** that is supported by and aligns with the long-term interests of its customers.
- WaterNSW is proposing to move from a price cap to a revenue cap as a revenue cap **supports the economic regulation objectives of price stability, cost recovery and efficient cost reflective** tariff structures.
- Under a revenue cap, **WaterNSW would earn the revenue set by IPART (no more, no less)** and WaterNSW would have flexibility to adjust its prices between fixed and variable charges, and for different customer types, in response to demand variation.
- A revenue cap **provides the right incentive for WaterNSW to better align with and meet community expectations to manage and conserve water** with no flow-on implications to WaterNSW's financeability and allowable revenue.

3.1 Uncertain operating environment and revenue recovery

Due to inherent weather variability, climate change and economic conditions, WaterNSW's reliance on water availability in addition to customer usage behaviours exposes the business to significant revenue volatility, compounded by an increasingly uncertain operating environment. WaterNSW highlighted in its 2017-21 proposal that there was no mechanism in place to manage the risk of a declining trend in usage revenue as a result of reductions in the availability of water (e.g., due to climate change), reductions in water allocations, and reductions in water usage and behaviour by customers and declining number of customers. As such, WaterNSW requested at that time that IPART consider a revenue cap form of price control in order to manage these risks to its revenue.

While IPART has provided a revenue volatility allowance for when sales differ from the 20-year rolling average, this has proven to be insufficient to account for the demand volatility and revenue risk that WaterNSW experiences. IPART allocated WaterNSW $1.23 million ($2022) over four years (approximately $300K per year) to manage the risk of lower than forecast water sales. However, this amount is $7.6 million less than what WaterNSW proposed.

WaterNSW notes that the features of the revenue cap proposed by WaterNSW includes a number of key elements for managing demand risk that can already be found in approaches applied by IPART to other water businesses. In particular, the Demand Volatility Adjustment Mechanism (DVAM) that IPART applies to organisations such as Sydney Water, Hunter Water, Essential Water, etc. This highlights that the mechanisms to manage demand risk that WaterNSW is proposing through the application of the revenue cap are neither novel nor outside of IPART's current regulatory practice.

These decisions, also provide insights into what are the bounds at which managing or being exposed to demand volatility exceeds reasonable expectations. For example, IPART's 2022 review of Essential Water services for Broken Hill included a 5% variance between forecast and actual water use as a trigger to review prices.

In many of the Rural Valleys, tariffs are highly variable, with around 60% linked to water usage, that is, a significant portion of our revenue is linked to demand (which is largely outside of our control).

As an infrastructure business, WaterNSW has predominantly fixed costs that do not vary with the volumes of water delivered; and as such has limited ability to materially adjust its costs to reflect any variation in the volume of water it delivers. Our analysis suggests that the proportion of our costs that vary with water sales is approximately 5-10%, while approximately 90-95% of our costs are fixed. Given that our costs are largely fixed and do not vary materially with customer usage, we face significant revenue risk under this variable tariff structure.

IPART's usage assumptions for the rural valleys are based on a historic 20-year rolling average of water usage. Implicit in this rolling average is the assumption that the volume of sales will revert to the average or mean. However, the impact of climate change indicates that the volume of water sales is broadly declining, thereby placing upward pressure on variable charges. Changes in the 20-year rolling average, particularly if not adjusted for within a regulatory period, have the potential to lead to large "inter-determination" price shocks for customers. We saw this in 2021 and are seeing this again for the 2025-30 determination period.

Revenue caps offer greater flexibility and certainty, particularly as demand and climate patterns become more unpredictable.

Figure 2 below (an example for Lachlan valley) was presented to our customer engagement sessions held on 16 May 2024, to highlight the significant portion of our costs that are fixed and the gap between fixed costs and fixed percentage of pricing structures. This leads to potentially significant pricing and revenue volatility when actual water usage differs from the forecasts used by IPART to set prices in the determination (i.e. the 20-year rolling average of water sales in each valley).

Table 1 – Lachlan valley fixed costs

Revenue from tariffs ($000s, $2020-21) - Lachlan	Current determination				
	Cost base – total	Cost base – total %	Cost base – fixed	Cost base – fixed %	Current fixed %
Accounts and billing	4161	1.8%	$161	99.9%	
Water delivery and operations	$1,601	17.5%	$1,580	98.7%	
Metering and compliance	$243	2.7%	$243	99.9%	
Water quality monitoring	$764	8.3%	$701	91.8%	
Asset management	$2,791	30.4%	$2,582	92.%	**40.0%***
Dam safety compliance	$441	4.8%	$414	93.9%	
Environmental planning and protection	$82	0.9%	$80	98.3%	
Water infrastructure assets funding costs	$3,090	$33.7%	$3,090	100.0%	
Total allowed efficient costs – Annual	**$9,172**	**100.0%**	**$8,852**	**96.5%***	

*There is a **57% percentage point gap** between the cost base fixed percentage and current fixed percentage

3.2 Demand forecasting uncertainty

Demand forecasts are a key factor in estimating future customer prices and inaccurate volume forecasting can have significant implications for customers.

Under the existing price cap form of price control, theoretical advantages are not being realised because it relies on (historic) demand volume forecasts which are often inaccurate. This has been a key consideration in the AER's decisions to move electricity distribution networks to a revenue cap model.

The AER considers that volume forecasts are more critical under a price cap than under a revenue cap. Under a price cap, the AER must determine consumption volumes forecast five years in advance (at the start of the determination period) for the length of the period. If the forecast is incorrect, it will have allowed an incorrect price path to be in place over the length of the control period.

In contrast, a revenue cap adjusts customers prices based on actual demand rather than long forecasts. The calculation for determining a revenue cap is presented in Figure 3 below.

Figure 2 – Revenue Cap

Revenue = Price x Demand
The regulator sets the revenue the business can recover, and then leaves the business to calculate prices using its demand forecasts.

Unlike price caps, revenue caps remove any perverse forecasting incentives for utilities to understate forecast demand because they operate symmetrically – that is, any over-recovery of revenue is returned to customers rather than retained by the business as increased profit. Under the revenue cap approach, prices are adjusted incrementally each year to remove any errors in forecast demand.

Under a price cap, there is often pricing volatility for customers and revenue volatility for WaterNSW due to actual demand and sales differing consistently from the regulator's assumptions and forecasts. While regulators such as IPART rigorously test the forecasts proposed by the businesses, it is has proven difficult to set forecasts that are accurate. For example, Sydney Water currently represents approximately 99% of WaterNSW's revenue requirement. However, four years into WaterNSW's current determination, usage for Sydney Water is down on average 14% (refer to Table 4 below) **and in the absence of a revenue cap this is revenue that is lost to WaterNSW**. Unlike Sydney Water, WaterNSW does not have a demand volatility adjustment mechanism in place to address significant volume variances against the forecasts used in the determination.

Table 2 – Sydney Water Usage Variation, IPART Allowance vs Actual

Sydney Water Corporation	2020-21	2021-22	2022-23	2023-24	2024-25*	Total**
Determination usage (ML)	564,558	570,070	577,503	585,545	585,545	2,884,220
Actual usage (ML)	505,452	489,151	461,149	515,998	505,531	2,477,281
Variance (ML)	-59,106	-81,919	-116,354	-69,547	-80,014	-406,940
Variance (%)	-10.5%	-14.3%	-20.1%	-11.9%	-13.7%	-14.1%

* Deferral year and not technically part of the 2020 Determination.

** Total includes the deferral year 2024-25 for illustrative purposes.

Annual water consumption (demand) can vary significantly, which may result in variations in revenue. Forecasting water demand beyond a few months is exceedingly difficult and likely to become more so as weather events become more volatile and frequent. Table 5 below represents the variations in water usage volumes for WaterNSW compared to the IPART allowance over the current determination period for the Rural Valleys.

Table 3– Rural Valleys water volume usage, IPART Allowance vs Actual

Rural Valleys *	2021-22	2022-23	2023-24	2024-25	Total
20 year rolling average of actual water usage (ML) Current Determination – MDB and Coastal Valleys	3,964,658	3,964,658	3,964,658	3,964,658	15,858,633
Actual – MDB and Coastal Valleys	4,499,136	4,076,672	5,195,270	3,730,043	17,501,121

Rural Valleys *	2021-22	2022-23	2023-24	2024-25	Total
Variance (ML) – Usage (MDB and Coastal Valleys)	534,477	112,014	1,230,612	-234,615	1,642,488
Variance (%)	13.5%	2.8%	31.0%	-5.9%	10.4%

* Excluding Lowbidgee and Fish River

A revenue cap removes any perverse forecasting incentives for utilities to understate forecast demand because they operate symmetrically, and any over-recovery of revenue is returned to customers.

3.3 Revenue volatility and financeability

The demand variation and forecasting uncertainty raised above exposes WaterNSW under a price cap to revenue volatility and financeability risk. If actual volumes differ from forecast volumes, either due to errors in forecasting or fluctuations due to climate, then the impact on revenues and prices depends on the form of control mechanism. Further, divergence between actual volumes and forecast volumes may result in significant changes in prices from one regulatory period to the next.

If IPART does not provide for the full costs of WaterNSW's proposed program to be recovered through customer charges or Government funding, this will likely **result in pressures to maintain our financial metrics and our standalone rating.** While IPART includes a financeability test in its decisions, it assumes actual performance matches IPART's decision (e.g. costs and sales volumes) thereby placing pressure on our credit metrics if actual costs and volumes differ. The flow on impact to reduced financeability over time is that it **may introduce risks to service levels and reduce business confidence to commit to improved customer service delivery and innovation**.

As a business with fixed costs of around 95% of our total costs, WaterNSW is at risk of not recovering its efficient costs if water deliveries fall below the usage forecasts set by IPART during the determination period.

3.4 Managing risk and demand management

WaterNSW acknowledges the predominant view of IPART that a revenue cap would transfer risk from the business to our customers and that the business is best placed to manage such risks. As such, WaterNSW has considered and investigated options to internally manage the risk of revenue volatility under the current price cap, including insurance products, which have proven to be expensive and are no longer available.

For example, in 2017 WaterNSW sought insurance to manage its revenue losses in the Rural Valleys over four years. This allowed WaterNSW to recover at least 74% of its expected revenue, costing the business $1.25 million per annum (which IPART allowed in its determination). WaterNSW drew on this insurance product in two successive years during the cover period, receiving payouts of approximately $15 million.

After this period, WaterNSW's insurance company did not re-offer WaterNSW insurance coverage and the market for a similar product became prohibitively expensive. Given there was no viable insurance product on offer, IPART instead provided WaterNSW a 'self-insurance' volatility allowance of $307k per year ($2020-21), roughly $8 million (87%) less than WaterNSW proposed in our July 2020 proposal. which in no way addresses the underlying risks.

WaterNSW considers that insurance products or volatility allowances (which necessarily increase customer costs and prices) are theoretical and impractical approaches to managing volume volatility (and to our knowledge we are the only water utility in Australia these approaches have applied to). Our

proposed revenue cap is a tried and tested approach to managing volume variation that WaterNSW considers is also appropriate to our Greater Sydney and Rural Valley bulk water services.

IPART, in previous determinations, has expressed concern that a revenue cap will expose customers to increased risk. This concern is primarily related to the potential for inaccurate volume forecasts leading to higher prices. For example, if the volume forecasts assume that there will be a lower volume of water delivery than what is actually required, customers would pay a higher price than is necessary and WaterNSW would recover a higher revenue than IPART had allowed. However, there are several factors that need to be considered to explore this issue.

- Under a revenue cap, this risk of erroneous volume forecasts become a temporary risk that is resolved through the operation of the under and overs mechanism over time
- Under a price cap any difference in actual volumes is a permeant difference with customers either paying more than IPART determined was the efficient revenue required by WaterNSW to deliver its services, or WaterNSW not recovering the minimum efficient costs as determined by IPART
- For risk transfer to be realisable there is a necessary pre-condition that the costs of the service are avoidable or transferable from one customer to another.
- As a regulated infrastructure provider, WaterNSW's services are dominated by the provision of infrastructure, not the provision of water itself. As a consequence, the service being provided by WaterNSW's assets are being delivered irrespective of the amount of resource availability.

It is also worth noting that IPART currently sets the volume forecasts for WaterNSW at the start of each determination, which has eliminated any capacity that WaterNSW may otherwise have regarding volume forecasts and volume forecast management. This has also resulted in the potential for material price increases between determinations that are unrelated to cost changes, which WaterNSW observes is expected to be realised in a number of valleys.

We contend that much of the debate over the introduction of a revenue cap and shifting risk to customers conflates concerns over the proportion of fixed charges and the impact this may have in times of low water use. Under our proposed revenue cap, we propose to maintain the current proportion of fixed charges for all valleys, with the exception of one (Lachlan) that supported both the move to a revenue cap and an increase in the proportion of fixed charges from 40% to 80%. The alternative approach to increasing fixed charges to align to our fixed cost structure received much less support from customers.

This highlights that the understanding of how/where the attribution of volume risk accrues needs to be revisited within a broader determination context (within and between periods) and should not be limited to single years on a standalone basis.

Finally, based on direct feedback from our customers, we believe customers are best placed to manage their own demand for water usage as they are the most informed as their circumstances and the prevailing water and economics conditions.

4 Feedback from our customers

WaterNSW engaged with customers to understand their priorities including presenting detailed valley-based analysis and exploring various price structure solutions.

The majority of customers recognised the benefits of a revenue cap including reducing the potential for 'bill shock' and lower costs over time. Some customers remained concerned about usage patterns and risk transfer.

Overall, the majority of customers **(86% of respondents) were in favour of adopting a revenue cap with a side constraint as their preferred form of control structure**.

4.1 Engagement on the form of control

To build a truly representative and evidence-based pricing submission, WaterNSW has focused on understanding the priorities of our customers and presented detailed valley-based analysis of long-term impacts on customer costs of applying different fixed to variable pricing structures for each of the valleys.

The feedback received from our customers has informed the proposal to transition to a revenue cap. Further details on the engagement undertaken and feedback received is outlined in **Appendix 2** to the WaterNSW Proposal - *Customer and Community Engagement Report (SEC Newgate report).*

In November 2023, the Customer Advisory Group (CAG) discussed a range of issues relating to the current economic environment and the economic outlook over the coming 5-year price proposal period. The following potential price structure solutions were presented (see Figure 7 below), which generally fall into one of three broad categories:

- maintain the status quo / current state with a 40:60 fixed to variable cost recovery pricing structure
- move to a price structure that aligns with our fixed and variable cost structure and is more cost reflective (i.e. 95% fixed charges)
- introduce a revenue cap form of price control with different pricing structures for different customer types.

Figure 3– Options presented to customers

Feedback from some CAG members indicated that the revenue cap option could:

- help reduce 'bill shock'
- bring down water costs over time
- create a disincentive for people with water licenses that are not using them, to either use them or trade the water – creating regional economic stimulus.

Other CAG members had concerns that a revenue cap would shift more risk to customers or create an operational cost burden to customers during periods of low water availability.

Participants requested further information, that directly reflected the circumstances in each valley over the last 10 years, to better enable them to understand WaterNSW's proposal for a revenue cap. In March 2024, CAG members received modelling on scenarios for each rural valley to demonstrate the differences in outcomes the valley would have seen based on real data from the last 10-years. These scenarios compared revenue cap and price cap tariff structure conditions to illustrate, cyclically, the differences in how much customers would pay over a 10-year period with all other things being equal based on real historic data on usage patterns.

In response to the analysis and materials provided, customers told us:

- they generally acknowledge the need for WaterNSW to recover its efficient costs over time, noting diverse views on whether tariff reform (e.g. higher fixed charges) is required or supported
- of the options put to customers, a revenue cap seemed to be most supported but only if a side constraint is incorporated (where 5% seemed 'about right')
- in some cases (i.e. Lachlan) a combination of higher fixed charges (80%) and the introduction of a revenue cap was supported
- in most valleys customers were concerned that retaining the current price cap approach with a higher fixed component (to increase cost reflectivity and address the issues raised above) could have significantly negative impacts on some customers
- smaller valleys or those with already relatively high fixed charges questioned the value of introducing a revenue cap.

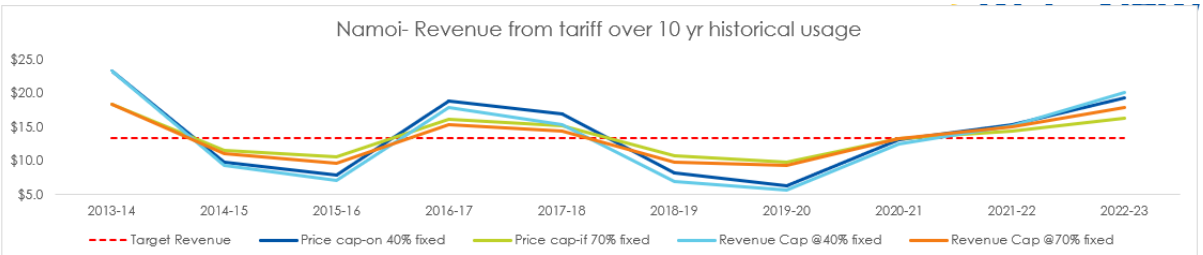
At the July 2024 CAG, WaterNSW presented its final proposal for a revenue cap to customers. Customer sentiment remained generally positive with the majority of customers recognising the benefits of a revenue cap and felt that their feedback had been sufficiently addressed. Some customers remained concerned about encouraging inappropriate usage patterns or pushing more risk onto customers.

During the final CAGs in August, **86% of respondents were in favour of adopting a revenue cap with a side constraint as their preferred form of control structure, while only 14% of respondents were in favour of a price cap and increased fixed charges.** 62% were in favour of adopting a revenue cap with the fixed portion maintained at the current rate and 24% in favour of a revenue cap with increased fixed charges.

WaterNSW recognises there may be some concerns with how a revenue cap form of price control might impact bills and affordability for customers. However, our analysis indicates that a revenue cap compared to a price cap should have minimal impact on bills and affordability in average years as water tariffs are primarily determined by the allowed revenue determined by IPART.

Figure 8 below demonstrates the different scenarios presented to the CAG for the Border Rivers and how under all scenarios customers paid less than was determined by IPART over the 10 years – regardless if under a revenue or a price cap.

Figure 4 – 10 year historical usage by different tariff options – Namoi



Namoi-Revenue from Tariff (Fixed and Variable) $millions, $2024-25	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	Total 10 years	Vs Target Revenue	
Target Revenue	$13.4	$13.4	$13.4	$13.4	$13.4	$13.4	$13.4	$13.4	$13.4	$13.4	$134.0		
Price cap-on 40% fixed	$23.3	$9.7	$7.9	$18.9	$17.0	$8.1	$6.2	$13.2	$15.4	$19.3	$139.0	-$5.0	Customers Overpaid
Price cap-if 70% fixed	$18.3	$11.6	$10.6	$16.2	$15.2	$10.8	$9.8	$13.3	$14.4	$16.4	$136.5	-$2.5	Customers Overpaid
Revenue Cap @40% fixed	$23.3	$9.3	$7.1	$17.9	$15.3	$7.0	$5.6	$12.4	$15.2	$20.1	$133.1	$0.9	Customers Underpaid
Revenue Cap @70% fixed	$18.3	$11.0	$9.6	$15.3	$14.4	$9.7	$9.3	$13.2	$15.0	$18.0	$133.9	$0.1	Customers Underpaid

Proposal Volume (updated 20 yr rolling Avg)	122 GL	122 GL	122 GL	122 GL	122 GL	122 GL	122 GL	122 GL	122 GL	122 GL
Historical Volume	272 GL	66 GL	38 GL	206 GL	176 GL	42 GL	13 GL	119 GL	152 GL	212 GL
	123% Up	-46% Down	-69% Down	69% Up	44% Up	-66% Down	-90% Down	-3% Down	24% Up	74% Up

WaterNSW has incorporated customer feedback into the revenue cap proposal, including:

- Implementing a revenue cap across most valleys, taking on board their unique circumstances and where the benefits would outweigh the costs (e.g. not proposed for Fish River or Greater Sydney).
- Ensuring each valley can have a different minimum fixed portion of the bill (but no less than the current proportion).
- Including an option for customers to increase the current fixed proportion of their bill if they wish in the future (above the minimum).
- Smoothing the annual revenue allowance across the 2025-26 to 2029-30 period (i.e. incorporating more constant real annual price increases over time).
- Including a side constraint of plus or minus 5% plus CPI[19]

5 Administrative and implementation considerations

WaterNSW's proposed revenue **cap aligns with the approach taken by other economic regulators in the water sector.**

WaterNSW's proposed approach will ensure **pricing stability, providing customers with predictability and transparency in pricing**.

Our proposed revenue cap will **reduce bill shock** for customers during and across regulatory periods, including more manageable and gradual pricing adjustments.

[19] Plus the subsequent real annual price increases

5.1 Proposed formula

In calculating the revenue cap, WaterNSW is proposing the formula outlined in Appendix B for each rural valley v, for time t (detailed definitions are found in Appendix B), summarised below:

$\boldsymbol{ARR_{v,t}^{RevCap}}$ is the Additional Annual Revenue Requirement to be recovered from tariffs for valley v, in year t, as per the Revenue Cap Mechanism:

$$\boldsymbol{ARR_{v,t}^{RevCap}} = \boldsymbol{Balance_{v,t}^{RevCap}}\ X\ (\mathbf{1} + \boldsymbol{WACC_{t-1}})$$

Where:

$$\boldsymbol{Balance_{v,t}^{RevCap}} = \boldsymbol{ARR_{v,t-1}^{ER+Rev\ Cap}} - \boldsymbol{ARR_{v,t-1}^{Forecast\ Rev(May)}} + \left(\left(\boldsymbol{ARR_{v,t-2\ (if\ applicable)}^{Forecast\ Rev(May)}} - \boldsymbol{ARR_{v,t-2\ (if\ applicable)}^{Actual\ Rev}}\right) X\ (\mathbf{1} + \boldsymbol{WACC_{t-2}})\right)$$

$\boldsymbol{ARR_{v,t}^{ER}}$ the Annual Revenue Requirement to be recovered from tariffs for standard water use customers for valley v, in year t, in accordance with the expected revenue from tariffs calculated under the building blocks model (i.e. without the additional revenue from the revenue cap mechanism).

The nominal WACC (Real WACC plus **CPI**) will apply.

It should be noted that the Revenue Cap will apply under the Cost Reflective Base Case (CRBC) for the Rural Valleys Determination and the Greater Sydney Determination. Should IPART adopt alternative scenarios 1 to 3 (affordability cap; below prudent and efficient costs), WaterNSW or IPART can track the current period cumulative revenue shortfall or excess revenue for entry into the Rural Valley RAB at the subsequent 2030-35 determination period. A Revenue Cap may also apply although we note that the implementation of a Revenue Cap may be problematic under an alternative scenario of capped pricing.

Actual and or forecast revenue as an input to the balance calculation is derived as follows:

Rural Valleys:

$\boldsymbol{ARR_{v,t}^{Actual\ Rev}}$ is $HS_{v,t}\ X\ HS\ Entitlements_{v,t}^{Actual} + GS_{v,t}\ X\ GS\ Entitlements_{v,t}^{Actual} + Var_{v,t}\ X\ Water\ Sales_{v,t}^{Actual}$

$\boldsymbol{ARR_{v,t}^{Forecast\ Rev(May)}}$ is $HS_{v,t}\ X\ HS\ Entitlements_{v,t}^{\boldsymbol{Forecast\ Rev(May)}} + GS_{v,t}\ X\ GS\ Entitlements_{v,t}^{\boldsymbol{Forecast\ Rev(May)}} + Var_{v,t}\ X\ Water\ Sales_{v,t}^{\boldsymbol{Forecast\ Rev(May)}}$

Greater Sydney:

$\boldsymbol{ARR_{LC,t}^{Actual\ Rev}}$ is $Fixed_{LC,t} + Var_{LC,t}\ X\ Water\ Sales_{LC,t}^{Actual}$

$\boldsymbol{ARR_{LC,t}^{Forecast\ Rev(May)}}$ is $Fixed_{LC,t} + Var_{LC,t}\ X\ Water\ Sales_{LC,t}^{Forecast\ Rev(May)}$

Summary of side constraints:

The $\boldsymbol{ARR_{v,t}^{ER}}$ and $\boldsymbol{ARR_{v,t}^{RevCap}}$ (both the expected revenue from tariffs and additional revenue requirement derived from the revenue cap balance calculation) are included in the calculation of

the notional cost reflective regulated charges as outlined in Appendix B1 for rural valleys and Appendix B2 for Greater Sydney. Then, the following side constraints will apply to determine the regulated charges to apply in each valley v for year t (whether the cost reflective regulated charge or the capped regulated charge) to implement the side constraint mechanism of +/-5% plus CPI for Rural Valleys and +/-2% plus CPI for Greater Sydney.

For the avoidance of doubt, CPI increases are passed on under the side constraint as well as the annual smoothing profile as defined in the starting charges in table 2 in Appendix B1 (for Rural Valleys) and Appendix B2 (for Greater Sydney).

Rural Valley High Security Fixed Charges

$HS_{v,t}^{Rev\ Cap\ Adjusted}$ is the High Security Fixed Charge determined under this price adjustment mechanism for Standard Water Use Customers for valley v, in year t, as follows:

The $HS_{v,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{v,t}^{High\ Security\ Fixed}$

The $Range_{v,t}^{High\ Security\ Fixed}$ is defined as the Maximum Range which is 5% higher than the High Security Fixed Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI) to the Minimum Range which is 5% lower than the High Security Fixed Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

If the $HS_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the High Security Fixed Charge will be capped at 5% of the High Security Fixed Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

Otherwise, the High Security Fixed Charge will be capped at 5% lower than the High Security Fixed Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

Rural Valley High General Fixed Charges

$GS_{v,t}^{Rev\ Cap\ Adjusted}$ is the General Security Fixed Charge determined under this price adjustment mechanism for Standard Water Use Customers for valley v, in year t, as follows:

The $GS_{v,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{v,t}^{General\ Security\ Fixed}$

The $Range_{v,t}^{General\ Security\ Fixed}$ is defined as the Maximum Range which is 5% higher than the General Security Fixed Charge in year t of valley v in table 2 (which includes CPI) in Appendix B1 to the Minimum Range which is 5% lower than the General Security Fixed Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

If the $GS_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the General Security Fixed Charge will be capped at 5% of the General Security Fixed Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

Otherwise, the General Security Fixed Charge will be capped at 5% lower than the General Security Fixed Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

Rural Valley Variable Charges

$Var_{v,t}^{Rev\ Cap\ Adjusted}$ is the Variable Charge determined under this price adjustment mechanism for Standard Water Use Customers for valley v, in year t, as follows:

The $Var_{v,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{v,t}^{Variable}$

The $Range_{v,t}^{Variable}$ is defined as the Maximum Range which is 5% higher than the Variable Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI) to the Minimum Range which is 5% lower than the Variable Charge in year t of valley v in table 2 in Appendix B 1 (which includes CPI).

If the $Var_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the Variable Charge will be capped at 5% of the Variable Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

Otherwise, the Variable Charge will be capped at 5% lower than the Variable Charge in year t of valley v in table 2 in Appendix B1 (which includes CPI).

For the Greater Sydney region, WaterNSW is proposing an equivalent side constraint for determine Large Customer prices (i.e. Rev Cap Adjusted charges for Sydney Water Corporation or SWC).

Sydney Water Fixed Charges

The $Fixed_{LC,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{LC,t}^{Fixed}$

The $Range_{LC,t}^{Fixed}$ is defined as the Maximum Range which is 2% higher than the Fixed Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI) to the Minimum Range which is 2% lower than the Fixed Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI).

If the $Fixed_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the Fixed Charge will be capped at 2% of the Fixed Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI).

Otherwise, the Fixed Charge will be capped at 2% lower than the Fixed Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI).

Sydney Water Variable Charges

The $Var_{LC,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{LC,t}^{Variable}$

The $Range_{LC,t}^{Variable}$ is defined as the Maximum Range which is 2% higher than the Variable Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI)to the Minimum Range which is 2% lower than the Variable Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI).

If the $Var_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the Variable Charge will be capped at 2% of the Variable Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI).

Otherwise, the Variable Charge will be capped at 2% lower than the Variable Charge in year t for Large Customers in table 2 in Appendix B2 (which includes CPI).

The 2030-35 determination period carry forward balance:

A carry forward balance will be determined as the current period cumulative revenue shortfall or excess revenue to be recovered in the subsequent 2030-35 determination period for entry into the Regulatory Asset Base for each valley, v. If the cumulative balance is either over 5%or under 5% of the current period revenue requirement (expected revenue) for Rural Valleys and over / under 2% of the revenue requirement (expected revenue) for Greater Sydney, then the 2025-30 revenue cap balance will then be cleared. The balance for entry into the RAB will be presented in 2029-30 real dollar terms for the 2030 pricing submission.

$$\sum \textbf{\textit{Cumulative Balance}} = \sum [t = 2025-26 \textit{ to } 2029-30]\ ARR_{v,t}^{ER} - ARR_{v,t}^{Actual\ Rev}$$

The 2030-35 determination period carry forward balance will also apply to the Rural Valleys Alternative Scenario 1-3 (to recover any shortfall or excess revenue associated with the difference between actual and expected revenue (as capped under the scenarios)

5.2 Under and Overs Mechanism

All of the forms of control mechanisms rely on forecast quantities expected to be demanded over the determination period. The forecasts are used to determine annual revenue requirements and as discussed above there is inherent difficulty in projecting forecast sales volumes over a determination period, given that there are a range of variables that need to be taken into account.

Demand variation adjustment mechanisms are common for regulated utilities operating under a revenue cap. In designing a mechanism there are several design choices.
For example, under a price cap model with a demand adjustment, the business bears the under-recovery within the period and passes through all true-up amounts to customers in the next period.

In contrast, a revenue cap would allow WaterNSW to begin passing through true-up amounts annually within the period, with only the remainder needing to be passed through to customers in the following period. This results in a smaller bill impact in the next period compared to a price cap that has a demand adjustment.

We propose an unders and overs statement to provide transparency on the allowed revenue and calculates any under or over-recoveries. The unders and overs account carries forward under and over-recoveries from previous years, applies the time value of money, and calculates the balancing adjustment to be applied to the revenue cap to balance the account each year. An example of an unders and overs statement is provided in **Attachment B.**

Should IPART determine that a revenue cap is to apply for the 2025-30 period, then WaterNSW proposes that an UOM should be introduced. WaterNSW would prepare an unders and overs statement and account to provide IPART and customers with greater transparency and certainty.

A final and additional feature of the application of the UOM that WaterNSW took to customers was how to address large UOM balances. In light of the discussion below regarding side constraints, WaterNSW is keen to ensure that at there should be a reasonable expectation that the allowed revenue would be

recoverable in any regulatory period. In other words, the balance of the OUM at the start of any determination period (positive or negative) should be less than what could be returned through pricing adjustments at the maximum side constraint level.

Where this is not the case WaterNSW discussed the option of eliminating large balances by making a RAB adjustment (positive or negative) to ensure that the UOM mechanism operates effectively within the determination period.

5.3 Side Constraints

The side constraint mechanism is intrinsically linked to the revenue cap form of price control and limits how much revenue can be recovered from customers relative to the revenue recovered in the preceding year. In practice, it prevents any rebalancing of revenue recovery and large price shocks for customers, during the regulatory period.

WaterNSW has examined various side constraint options (1%, 2%, 5%, 10%) to apply equally in each valley (i.e. tariff class) that would apply to each individual fixed and variable charge in each valley. Based on the analysis WaterNSW is proposing a side constraint of 5% as being a reasonable balance between managing pricing volatility for customers while still allowing some pricing reform.

In consultation with customers the application of a side constraint was considered a key feature of the revenue cap proposal and operates symmetrically. Customers were keen to ensure that the mechanism provides protection against the potential for significant annual price variation, and at the same time ensure that risk of any "over-correction" is managed.

Figures 12 and 13 below illustrate total revenue in a valley (Lachlan) with a scenario of actual water usage +/-25% p.a. together with the operation of a side constraint and determination periods with a static annual revenue requirement. The revenue cap is designed to ensure the IPART revenue allowance is recovered over the regulatory period. The light blue line is the IPART revenue requirement. The dark blue line is the pure revenue cap, and the orange line is the revenue cap with an annual 5% pricing side constraint. The bars illustrate the impact of the side constraint on revenues in any year. Adjustments are then made to customer charges in Year 2 to ensure prices target the allowed revenue. This adjustment occurs in each year as relevant until any over- or under- recovery is resolved.

Figure 5 – Side constraint with a volume increase

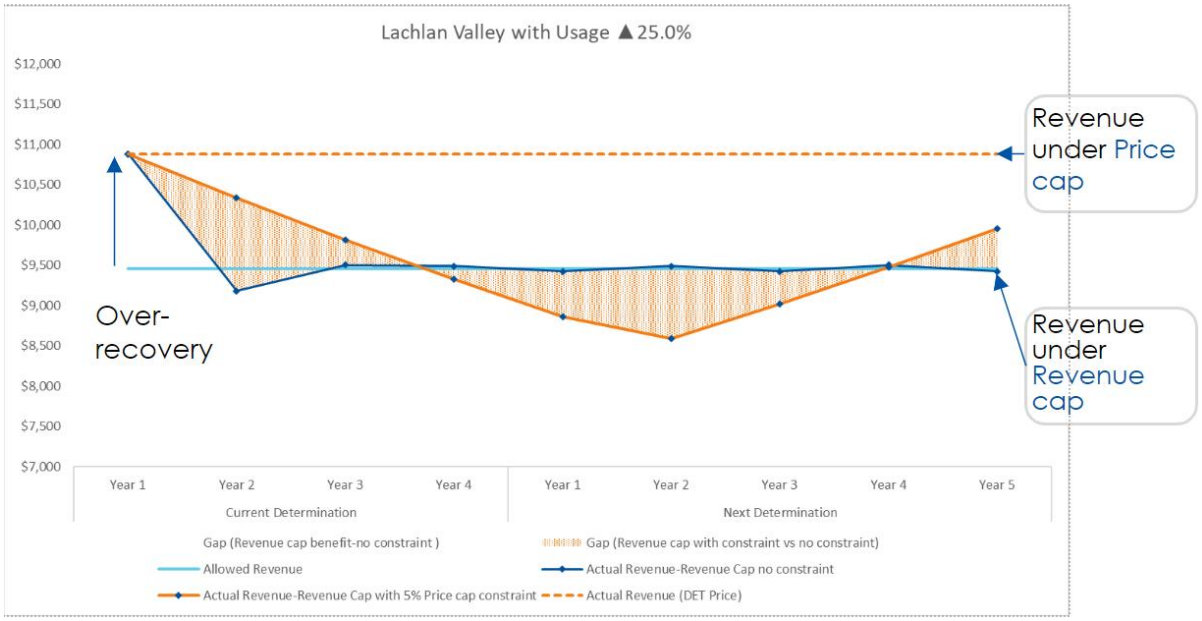
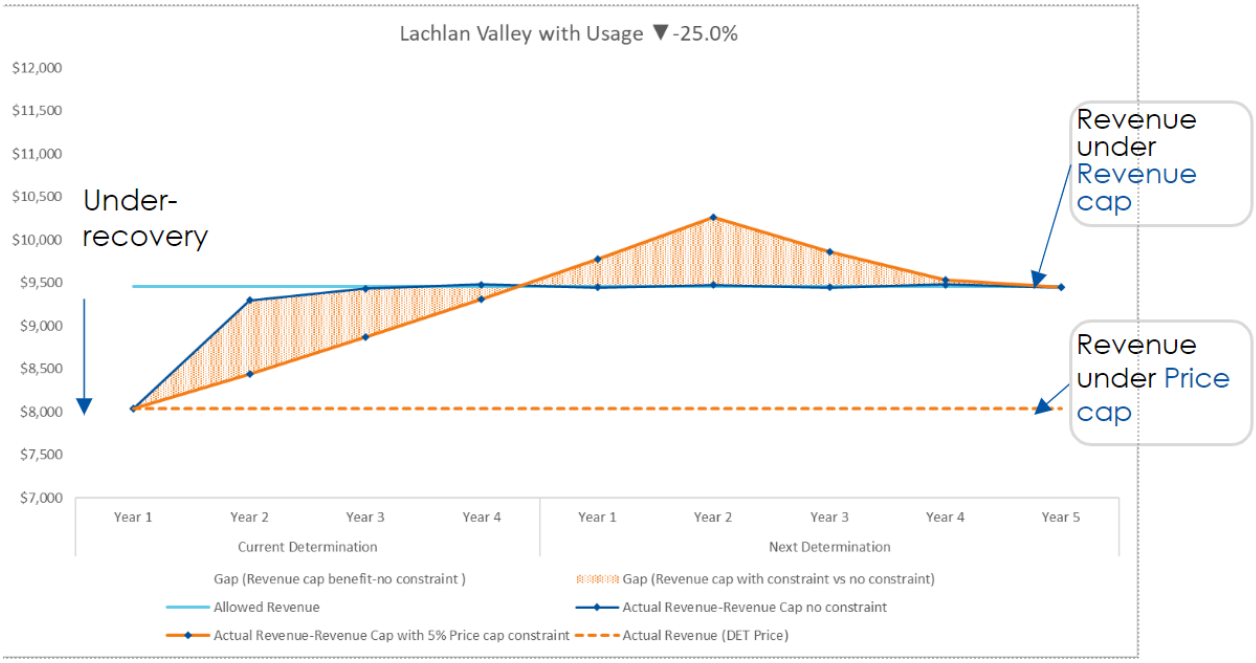


Figure 6 – Side constraint with a volume decrease



We note that the AER recently undertook a review of side constraint mechanisms to improve its application across energy utilities, particularly to address the situation of declining or changing volumes.[20] It is suggested that the lessons learnt from this review are taken into consideration should IPART approve a revenue cap form of control for WaterNSW.

5.4 How would the revenue cap apply against the proposed alternative scenarios

WaterNSW has provided three alternative scenarios aimed at achieving a more balanced outcome for its Rural Valleys customers. Each of the three alternative scenarios reflect **reductions in WaterNSW's Cost Reflective Base Case** and are based on the premise that bulk water price increases are **capped at 15% p.a. (plus inflation)**.

The below shows the revenue shortfall associated with each of the alternative scenarios. Each of these scenarios is described in full in our Proposal and in Attachment 26.

1. **Alternative scenario 1**: Results in a funding **shortfall of $60 million** on the user share revenue requirement compared to the CRBC for the 2025-30 determination period.
2. **Alternative scenario 2:** Results in **funding shortfall of $53.5 million** on the user share revenue requirement compared to the CRBC for the 2025-30 determination period.
3. **Alternative scenario 3:**
    - Scenario 3a: Results in a funding **shortfall of $154 million**
    - Scenario 3b: Results in a funding **shortfall of $82 million**

If IPART were to adopt an alternative scenario, including one of the three proposed by WaterNSW that incorporates a price cap, WaterNSW believes its revenue cap would still address any remaining revenue volatility caused by volume fluctuations.

[20] AER, 2022, Annual Pricing Process Review, Final position paper – side constraint mechanism, available at <https://www.aer.gov.au/system/files/Annual%20pricing%20process%20review%20-%20Final%20position%20paper%20-%20Side%20constraint%20mechanism.pdf>

WaterNSW considers that any price ceiling from the alternative scenarios would be a **hard cap** (i.e. 15% p.a. plus inflation) and that the revenue cap in this circumstance would simply track and capture any under- or over-recovery during the period, with adjustments made in the 2030 determination period rather than through annual price adjustments in the 2025 determination period.

That is, the difference between the Revenue Cap and the 15% price cap under these scenarios informs the revenue shortfall and/or subsidy that would be required from alternative funding sources. To the extent that there is any volume variance that is not addressed under a 15% price cap arrangement through the alternative scenarios, we would seek to have this resolved as part of the 2030 determination.

Appendix A - Form of price control for other utilities

Table 4– Assessment of the form of control and application among regulators in Australian jurisdictions, as well as in the UK

Jurisdiction	Entity	Form of price control	Regulators decision	Sharing	Administrative
NSW	Sydney Water	Price cap	**In June 2020,** IPART decided that for the **2020-24 determination period,** price caps relative to other options (such as a revenue cap) expose the utility to revenue volatility risk and to manage this, IPART **introduced a demand volatility adjustment mechanism**. Sydney Water has engaged extensively with its customers on a revenue cap for the 2025 determination period. Results from this engagement demonstrate that when customers are given the choice between a price cap or a revenue cap (that is, a binary choice), customers indicate a clear preference for a revenue cap, with the majority (64%) of customers selecting a revenue cap over a price cap (36%).		
ACT	Icon Water	Hybrid price and revenue cap	**In May 2023,** the Independent Competition and Regulatory Commission (ICRC) recommended to continue the hybrid price and revenue cap form of control from the **2018-23 determination period** with individual price caps for water and wastewater services for the **2023-28 determination period.** An end-of-period demand volatility deadband to be applied if water sales revenue over the regulatory period varies by more than ± 6 per cent of the regulatory allowance.[21] Under this approach, Icon Water bears the demand risk up to the level of the deadband and consumers bear the risk beyond the deadband. The Commission considered that an annual unders and overs mechanism would minimise the risk of under-recovery of revenue for Icon Water. But this approach also has disadvantages, the most notable of which is that implementation of an unders and	6% deadband	If the deadband is exceeded, the Commission is required to include in the revenue requirement for the 2023–28 regulatory period any under- or over-recovery of revenue associated with this deviation.[22]

[21] Independent Competition and Regulatory Commission, 2023, Regulated water and sewerage services 2023-28 Final Report, available at <https://www.icrc.act.gov.au/__data/assets/pdf_file/0006/2215455/Regulated-water-and-sewerage-services-2023-28-final-report.pdf>

[22] Independent Competition and Regulatory Commission, 2023, Regulated water and sewerage services 2023-28 Final Report, available at <https://www.icrc.act.gov.au/__data/assets/pdf_file/0006/2215455/Regulated-water-and-sewerage-services-2023-28-final-report.pdf>

Jurisdiction	Entity	Form of price control	Regulators decision	Sharing	Administrative
			overs mechanism would mean that consumers bear most of the demand risk. This would also entail potential price instability for consumers.		
VIC	Goulburn Murray Water	Revenue cap	The ESC's final decision in **June 2020** was to approve Goulburn-Murray Water's proposal to retain its 'revenue cap' form of price control for the **2020-24 determination period.** The ESC accepted Goulburn-Murray Water's proposed continuation of its current form of price control as they consider it balances the requirements of revenue and price stability. This means the revenue Goulburn-Murray Water can earn is fixed at the start of the regulatory period, but customer prices may vary annually – within pre-defined limits – so that it can meet its revenue requirement.[23] The ESC also decided to retain a revenue cap form of price control for the **2024-28 determination period.** However, this will now exclude Unmetered service point fees from the calculation of Goulburn-Murray Water's revenue cap. This means the business cannot recover the revenue reduction arising from our lowering of unmetered services point fees through other tariffs.[24]	10% deadband	The ESC stated that the revenue cap includes an appropriate rebalancing constraint on individual tariffs of +/- 10 per cent of the approved price path in each year. The ESC noted that Goulburn-Murray Water's revenue cap form of price control means that any changes in demand work their way through prices. Under this form of price control, Goulburn Murray Water does not receive any windfall and is required to update demand forecasts as part of its annual price approval.[25]
	Yarra Valley Water	Revenue cap	The ESC final decision in **September 2022** was to accept Yarra Valley Water's proposed revenue cap for the **2023-28 determination period** because it largely reflected a continuation of its previous approach **(2018-23 determination period)**, would provide sufficient revenue to recover the efficient costs of providing services and was consistent with the requirements of the regulator's guidance.	5% nominal cap	Yarra Valley Water's proposal included a nominal cap on changes in water and sewerage prices for 2023-24 and 2024-25 of 5 per cent, noting the cap was not breached in 2023-24 (the regulators final decision approves increases below the five per cent cap in nominal terms).[27]

[23] Essential Services Commission, 2020, Goulburn-Murray Water final decision, available at <https://www.esc.vic.gov.au/sites/default/files/documents/goulburn-murray-water-price-review-2020-final-decision-20200605.pdf>
[24] Essential Services Commission, 2024, Goulburn-Murray Water final decision, available at <https://www.esc.vic.gov.au/sites/default/files/documents/Goulburn-Murray-Water-price-review-2024-Final-Decision-20240618.pdf>
[25] Essential Services Commission, 2020, Goulburn-Murray Water final decision, available at <https://www.esc.vic.gov.au/sites/default/files/documents/goulburn-murray-water-price-review-2020-final-decision-20200605.pdf>
[27] Essential Services Commission, 2023, Yarra Valley Water final decision, available at <https://www.esc.vic.gov.au/sites/default/files/documents/FDP%20-%20Yarra%20Valley%20Water%20-%20202~%20final%20decision%20pdf%20-%2020230622.PDF>

Jurisdiction	Entity	Form of price control	Regulators decision	Sharing	Administrative
			This means its revenue is capped subject to annual updates for demand, the cost of debt, changes in bulk charges, and any other price adjustments approved in the price determination.[26]		
	AusNet Services, CitiPower, Jemena, Powercor, and United Energy	Revenue cap / Price cap	**In April 2021**, the Australian Energy Regulator approved the listed DNSPs proposal for a revenue cap for standard control services. The form of control mechanism for alternative control services is a price cap.[28]	The greater of CPI-X plus 2% or CPI plus 2%	The AER have applied a side constraint to ensure that it provides protections for consumers from movements in individual metering prices that are above average price movements.[29]
QLD	Seqwater	Price path debt	After the Queensland Government took over bulk water supply responsibilities from local councils in 2008, a 20-year price path was established to moderate the customer impacts of recovering the costs associated with a major investment program to increase water supply and security. The price path debt will be repaid by 2027-28. In **April 2022,** the regulator recommended that bulk water prices that provide Seqwater with sufficient revenue to recover the prudent and efficient costs of providing bulk water supply services and to repay 'price path debt' by 2027–28 under normal operating conditions for the **2022-26 determination period**.[30]		
	Ergon Energy	Revenue cap / Price cap	**In June 2020**, the Australian Energy Regulator approved Ergon Energy's proposal for a revenue cap for standard control services. For alternative control services, the form of control was decided to be a price cap. For each regulatory year after the first year of a regulatory control period, side constraints apply to the weighted average revenue raised from each tariff class.[31]	The greater of CPI-X plus 2% or CPI plus 2%	Ergon Energy proposed the AER amend the side constraint formula to include the incentive schemes and cost pass through factors. This was in response to the draft decision in which the AER removed these factors to be in line with the NER. However, these were included as a part of the side constraint.[32]

[26] Essential Services Commission, 2023, Yarra Valley Water final decision, available at <https://www.esc.vic.gov.au/sites/default/files/documents/FDP%20-%20Yarra%20Valley%20Water%20-%20202~%20final%20decision%20pdf%20-%2020230622.PDF>
[28] Australian Energy Regulator, 2021, AusNet Services, CitiPower, Jemena, Powercor, and United Energy Distribution Determination Attachment 14 Control Mechanisms, available at < https://www.aer.gov.au/system/files/AER%20-%20Final%20decision%20-%20Jemena%20distribution%20determination%202021%E2%80%9326%20-%20Attachment%2014%20-%20Control%20mechanisms%20-%20April%202021.pdf>
[29] Australian Energy Regulator, 2021, AusNet Services, CitiPower, Jemena, Powercor, and United Energy Distribution Determination Attachment 14 Control Mechanisms, available at < https://www.aer.gov.au/system/files/AER%20-%20Final%20decision%20-%20Jemena%20distribution%20determination%202021%E2%80%9326%20-%20Attachment%2014%20-%20Control%20mechanisms%20-%20April%202021.pdf>
[30] Queensland Competition Authority, 2021, Seqwater Bulk Water Price Review, available at <https://www.qca.org.au/wp-content/uploads/2021/12/seqwater-review-draft-report.pdf>
[31] Australian Energy Regulator, 2021, Ergon Energy Distribution Determination Attachment 13 Control Mechanisms, available at <https://www.aer.gov.au/system/files/Final%20Decision%20-%20Ergon%20Energy%20distribution%20determination%202020-25%20-%20Attachment%2013%20-%20Control%20mechanisms%20-%20November%202021%20-%20Clean.pdf>
[32] Australian Energy Regulator, 2021, Ergon Energy Distribution Determination Attachment 13 Control Mechanisms, available at <https://www.aer.gov.au/system/files/Final%20Decision%20-%20Ergon%20Energy%20distribution%20determination%202020-25%20-%20Attachment%2013%20-%20Control%20mechanisms%20-%20November%202021%20-%20Clean.pdf>

Jurisdiction	Entity	Form of price control	Regulators decision	Sharing	Administrative
TAS	TasWater	Price cap	**In May 2022,** the Office of the Tasmanian Economic Regulator (OTTER) accepted that in accordance with TasWater's Memorandum of Understanding with the Tasmanian Government of 1 May 2018, TasWater can adopt price cap of 3.5 % per annum until 30 June 2026 for the **2022-26 determination period.**[33]		
SA	SA Water	Revenue cap	ESCOSA approved SA Water's regulatory proposal for a revenue cap for the 2024-28 determination period, stating that the revenue cap will grant SA Water adequate funds to sustain prudent and efficient operations, as well as to finance prudent and efficient investments over the long term, while adhering to applicable health, safety, environmental, and customer service standards and obligations under the determination period.[34]	The determination excludes a materiality threshold. This is due to the previous determination period not reaching the previously set threshold of one percent.[35]	ESCOSA adjusted SA Water's proposal for: • $3,550 million ($Dec22) for water retail services, which is 3 percent less than SA Water's proposal, and • $1,785 million ($Dec22) for sewerage retail services, which is 1 percent less than SA Water's proposal
England and Wales	Water Services Regulation Authority (Ofwat)	Total revenue control / Revenue cap	Ofwat introduced a "total revenue control" in 2019 and continued to implement this in the recent 2024 price review, with the same control boundaries.[36] They noted that total revenue control provides incentives for water efficiency as companies still recover the same amount of revenue, even if they reduce demand.[37]	+/-2% deadband	Ofwat has set a deadband of +-2. This means that where companies either over or under recover revenue by more than 2% of the amount that they forecast they should recover in each year, they will be subject to a financial penalty (although this does not prevent them from adjusting charges in future years to "correct" for the revenue variation).[38]
NSW, NT, TAS, ACT	Ausgrid, Endeavour Energy, Essential Energy, Evoenergy, Power and Water Corporation and TasNetworks	Revenue cap / Price cap	**In April 2024**, the Australian Energy Regulator approved the listed DNSPs proposal for a revenue cap for standard control services. The form of control mechanism for alternative control services is a price cap (where applicable) in the 2024-29 period.[39]	Do not exceed +2% of increases provided under the control mechanism.	The AER has applied the NER guideline of implementing a smaller side constraint for standard control services to provide additional consumer protections through the operation of a side constraint on tariffs. This mechanism operates to

[33] Office of the Tasmanian Economic Regulator, 2022, Investigation into TasWater's Prices and Services for the period 1 July 2022 to 30 June 2026, available at <https://www.economicregulator.tas.gov.au/Documents/21%201681v7%20%202022%20Water%20and%20Sewerage%20Price%20Determination%20Investigation%20-%20Draft%20Report%20POST%20PUBLICATION%20VERSION(2)%20(002).pdf>

[34] Essential Services Commission of South Australia, 2024, SA Water regulatory determination 2024, available at <https://www.escosa.sa.gov.au/projects-and-publications/projects/water/sa-water-regulatory-determination-2024>

[35] Essential Services Commission of South Australia, 2024, Draft decision: Statement of reasons, available at <https://www.escosa.sa.gov.au/ArticleDocuments/22038/20240124-Water-SAWRD24-DraftRegulatoryDetermination2024-28-StatementOfReasons.pdf.aspx?Embed=Y>

[36] Ofwat, 2022, Our final methodology for PR24, page 32.

[37] Ofwat, 2022, Our final methodology for PR24, page 32.

[38] Ofwat, 2023, A consultation on the Revenue Forecasting Incentive, page 6.

[39] Australian Energy Regulator, 2024, Ausgrid, Endeavour Energy, Essential Energy, Evoenergy, Power and Water Corporation and TasNetworks Electricity Distribution Determination Attachment 14 Control Mechanisms, available at < https://www.aer.gov.au/system/files/2024-04/AER%20-%20Final%20Decision%20Attachment%2014%20-%20Control%20mechanisms%20-%20NSW%2C%20ACT%2C%20NT%20and%20Tas%20-%202024%E2%80%9329%20Distribution%20revenue%20proposal%20-%20April%202024_2.pdf>

Jurisdiction	Entity	Form of price control	Regulators decision	Sharing	Administrative
					ensure any increases in revenues for a particular tariff class do not exceed by more than 2%.[40]

[40] Australian Energy Regulator, 2024, Ausgrid, Endeavour Energy, Essential Energy, Evoenergy, Power and Water Corporation and TasNetworks Electricity Distribution Determination Attachment 14 Control Mechanisms, available at < https://www.aer.gov.au/system/files/2024-04/AER%20-%20Final%20Decision%20Attachment%2014%20-%20Control%20mechanisms%20-%20NSW%2C%20ACT%2C%20NT%20and%20Tas%20-%202024%E2%80%9329%20Distribution%20revenue%20proposal%20-%20April%202024_2.pdf>

Appendix B1 – Proposed revenue cap formulas Rural Valleys

This attachment sets out WaterNSW's proposed formulas to implement our proposed revenue caps.

Section 1 and Section 2 describe the Revenue Cap balance calculation together with the method of calculating the actual and forecast revenue used as an input to the Revenue Cap balance calculation for Rural Valleys.

Section 3 then describes the annual price adjustment mechanism used to calculate the 'Cost Reflective' regulated charges for each valley and in each regulatory year. If the 'Cost Reflective' Regulated charge is greater than or equal to the capped Regulated Charge, then the capped Regulated Charge will apply to implement the side constraint mechanism of +-5% plus CPI.

Section 4 then describes the calculation of the 2030-35 determination period Revenue Cap carry forward balance which will be added onto the 2030-35 revenue requirement for entry into the Regulatory Asset Base.

Definitions:

V are the Rural Valleys subject to the Revenue Cap; Border, Gwydir, Namoi, Peel, Lachlan, Macquarie, Murray, Murrumbidgee. Hunter.

T is the relevant regulatory year in the determination period, in this case 2025-26, 2026-27, 2027-28, 2028-29, 2029-30

$ARR_{v,t}^{ER}$ the Annual Revenue Requirement to be recovered from tariffs for standard water use customers for valley v, in year *t*, in accordance with the expected revenue from tariffs calculated under the building blocks model per Table 1.

$ARR_{v,t}^{RevCap}$ is the Additional Annual Revenue Requirement to be recovered from tariffs for valley v, in year t, as per the Revenue Cap Mechanism explained below in Section 1.

CPI_t the March-to-March CPI as published by the Australia Bureau of Statistics (weighted average of 8 capital cities) in April prior to year t or if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index determined by IPART for year t.

$WACC_t$ is the Weighted Average Cost of Capital as set by IPART (pre tax real WACC as relevant) in year *t* (if an annual cost of debt true up applies).

Section 1 - Explanation of WaterNSW's proposed Revenue Cap Balance Calculation

The Additional Annual Revenue Requirement under the Revenue Cap Mechanism is calculated by the Revenue Cap Balance, inflated by the nominal WACC (Real $WACC_t$ plus CPI_t) as determined by IPART to ensure the annual revenue requirement is converted to NPV neutral terms.

$$ARR_{v,t}^{RevCap} = Balance_{v,t}^{RevCap} \; X \; (1 + WACC_{t-1})$$

The Revenue Cap Balance ($Balance_{v,t}^{RevCap}$) is described as follows:

$Balance_{v,t}^{RevCap}$ is the Revenue Cap balance, calculated as the difference between forecast revenue and actual revenue in the regulatory year t, for valley v. This calculation will occur from the second regulatory year. Prices will be determined in May prior to the start of the next regulatory year, t. As actual revenue for the current regulatory year is not known by May prior to the start of the next regulatory year,

WaterNSW will provide a forecast of the likely actual revenue for the current year prior to the next regulatory year. The forecast revenue will be updated with actual revenue once known at the subsequent price adjustment process and the balance is calculated sequentially under the following formula:

$$\boldsymbol{Balance}_{v,t}^{RevCap} = \left(\boldsymbol{ARR}_{v,t-1}^{ER+Rev\ Cap} - \boldsymbol{ARR}_{v,t-1}^{Forecast\ Rev(May)}\right) + \left[\left(\boldsymbol{ARR}_{v,t-2\ (if\ applicable)}^{Forecast\ Rev(May)} - \boldsymbol{ARR}_{v,t-2\ (if\ applicable)}^{Actual\ Rev}\right) X\ (1 + \boldsymbol{WACC}_{t-2})\right]$$

Where the Balance (RevCap) is zero at the start of the 2025-30 Determination Period.

[explanatory note: for example, in determining the balance to set 2026-27 regulated charges subject to the revenue cap mechanism $\boldsymbol{Balance}_{v,2026-27}^{RevCap}$, we assume $\boldsymbol{Balance}_{v,2025-26}^{RevCap}$ and $\boldsymbol{ARR}_{v,2025-26}^{Rev\ Cap}$ is zero. We assume $\boldsymbol{ARR}_{v,2025-26}^{ER}$ is $1.0 million from the building blocks model expected revenue calculation, and as WaterNSW is required to set 2026-27 charges in May of 2026, WaterNSW provides a forecast of 2025-26 end of year revenue ($\boldsymbol{ARR}_{v,2025-26}^{Forecast\ Rev(May)}$) of $0.8 million. T-2 does not apply, as the T-2 year is prior to the start of the 2026-30 determination period (i.e. 2025-26). Therefore, $1.0 million – $0.8 million = $0.2 million Rev Cap Balance. This process is repeated in each regulatory year, t for each valley v.

Section 2 - Calculation of Actual and Forecast Revenue for the ARR

The calculation of Forecast Revenue (May) and Actual Revenue for Standard Water Use Customers is calculated by multiplying the applicable general security and high security charges by actual or forecast general and high security entitlements respectively in the relevant year for each valley and the applicable variable charge by actual or forecast water sales in the relevant year for each valley as shown below:

$\boldsymbol{ARR}_{v,t}^{Actual\ Rev}$ is $HS_{v,t}\ X\ HS\ Entitlements\ _{v,t}^{Actual} + GS_{v,t}$ X $GS\ Entitlements\ _{v,t}^{Actual} + Var_{v,t}$ X $Water\ Sales_{v,t}^{Actual}$

$\boldsymbol{ARR}_{v,t}^{Forecast\ Rev(May)}$ is $HS_{v,t}\ X\ HS\ Entitlements\ _{v,t}^{Forecast\ Rev(May)} + GS_{v,t}$ X $GS\ Entitlements\ _{v,t}^{Forecast\ Rev(May)} + Var_{v,t}$ X $Water\ Sales_{v,t}^{Forecast\ Rev(May)}$

In this Section 2, the following definitions apply:

$\boldsymbol{HS}_{v,t}$ is the High Security Fixed Charge levied on Standard Water Use Customers in valley v, in year t

$\boldsymbol{GS}_{v,t}$ is the General Security Fixed Charge levied on Standard Water Use Customers for valley v, in year *t*

$\boldsymbol{Var}_{v,t}$ is the Variable Charge levied on Standard Water Use Customers for valley v, in year *t*

$\boldsymbol{HS\ Entitlements}\ _{v,t}^{Actual}$ are actual billable high security entitlements for Standard Water Use Customers in valley v, in year t.

$\boldsymbol{GS\ Entitlements}\ _{v,t}^{Actual}$ are actual billable general security entitlements for Standard Water Use Customers in valley v, in year *t*.

$\boldsymbol{Water\ Sales}_{v,t}^{Actual}$ are the actual billable water sales for Standard Water Use Customers for valley v, in year *t*.

$\boldsymbol{HS\ Entitlements}\ _{v,t}^{Forecast\ Rev(May)}$ are forecast billable high security entitlements for Standard Water Use Customers in valley v, in year t, forecast in May prior to year t.

$GS\ Entitlements_{v,t}^{Forecast\ Rev(May)}$ are forecast billable general security entitlements for Standard Water Use Customers in valley v, in year t, forecast in May prior to year *t*.

$Water\ Sales_{v,t}^{Forecast\ Rev(May)}$ are the forecast billable water sales for Standard Water Use Customers for valley v, in year t, forecast in May prior to year *t*.

Section 3 - Price Adjustment Mechanism - setting the fixed and variable charges

This section only applies to the process of determining regulated charges to be levied on Standard Water Use Customers from the second regulatory year (2026-27) of the determination period. For the avoidance of doubt, the 2025-26 regulated charges are fixed in Table 2.

Once the $ARR_{v,t}^{RevCap}$ is determined per above in Section 1, the ARR is used to calculate the 'Cost Reflective' regulated charges for valley v, in regulatory year t. If the 'Cost Reflective' charge is greater than or equal to the capped Regulated Charge, then the capped Regulated Charge will apply to implement the +/-5% side constraint. For the avoidance of doubt, CPI increases are passed on under the side constraint as well as the annual smoothing profile as defined in the starting charges in table 2. The process is defined as follows:

$HS_{v,t}^{Rev\ Cap\ Adjusted}$ is the High Security Fixed Charge determined under this price adjustment mechanism for Standard Water Use Customers for valley v, in year t, as follows:

The $HS_{v,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{v,t}^{High\ Security\ Fixed}$

The $Range_{v,t}^{High\ Security\ Fixed}$ is defined as the Maximum Range which is 5% higher than the High Security Fixed Charge in year t of valley v in table 2 (which includes CPI) to the Minimum Range which is 5% lower than the High Security Fixed Charge in year *t* of valley v in table 2 (which includes CPI).

If the $HS_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the High Security Fixed Charge will be capped at 5% of the High Security Fixed Charge in year t of valley v in table 2 (which includes CPI).

Otherwise, the High Security Fixed Charge will be capped at 5% lower than the High Security Fixed Charge in year t of valley v in table 2 (which includes CPI).

$GS_{v,t}^{Rev\ Cap\ Adjusted}$ is the General Security Fixed Charge determined under this price adjustment mechanism for Standard Water Use Customers for valley v, in year t, as follows:

The $GS_{v,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{v,t}^{General\ Security\ Fixed}$

The $Range_{v,t}^{General\ Security\ Fixed}$ is defined as the Maximum Range which is 5% higher than the General Security Fixed Charge in year t of valley v in table 2 (which includes CPI) to the Minimum Range which is 5% lower than the General Security Fixed Charge in year *t* of valley v in table 2 (which includes CPI).

If the $GS_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the General Security Fixed Charge will be capped at 5% of the General Security Fixed Charge in year t of valley v in table 2 (which includes CPI).

Otherwise, the General Security Fixed Charge will be capped at 5% lower than the General Security Fixed Charge in year t of valley v in table 2 (which includes CPI).

$Var_{v,t}^{Rev\ Cap\ Adjusted}$ is the Variable Charge determined under this price adjustment mechanism for Standard Water Use Customers for valley v, in year t, as follows:

The $Var_{v,t}^{Cost\ Reflective}$ will apply if the charge is within the $Range_{v,t}^{Variable}$

The $Range_{v,t}^{Variable}$ is defined as the Maximum Range which is 5% higher than the Variable Charge in year t of valley v in table 2 (which includes CPI) to the Minimum Range which is 5% lower than the Variable Charge in year *t* of valley v in table 2 (which includes CPI).

If the $Var_{v,t}^{Cost\ Reflective}$ is over the Maximum Range, then the Variable Charge will be capped at 5% of the Variable Charge in year t of valley v in table 2 (which includes CPI).

Otherwise, the Variable Charge will be capped at 5% lower than the Variable Charge in year t of valley v in table 2 (which includes CPI).

In this section 3, the following definitions apply:

CPI is the March-to-March CPI as measured by the Australia Bureau of Statistics (weighted average of 8 capital cities) for the March Quarter released in April prior to year *t*

$FVR_{v,t}$ is the Fixed to Variable Ratio for valley v, in year *t*.

Valleys Border, Gwydir, Namoi, Macquarie, Murray, Murrumbidgee are 40%

Valleys Peel and Lachlan are 80%

Hunter Valley is 60%

in each regulatory year of 2025-26 to 2029-30

$GS_{v,t}^{Cost\ Reflective}$ is the Cost Reflective Revenue Cap Adjusted General Security Fixed Charge for Standard Water Use Customers for valley v, in year t calculated as:

$$\frac{FVR_{v,t}\ \mathrm{X}\ (ARR_{v,t}^{ER} + ARR_{v,t}^{RevCap})}{(HSP_{v,t}^{IPART}\ X\ HS\ Entitlements_{v,t}^{Forecast} + GS\ Entitlements_{v,t}^{Forecast})}$$

Where:

$HSP_{v,t}^{IPART}$ is the high security premium as per table 3.

$HS\ Entitlements_{v,t}^{Forecast}$ is WaterNSW's forecast of future high security entitlements for valley v, in year t derived using WaterNSW's forecasting methodology for Standard Water Use Customers

$\boldsymbol{GS\ Entitlements_{v,t}^{Forecast}}$ is WaterNSW's forecast of future general security entitlements for valley v, in year t derived using WaterNSW's forecasting methodology for Standard Water Use Customers

$\boldsymbol{HS_{v,t}^{Cost\ Reflective}}$ is the Cost Reflective Revenue Cap Adjusted High Security Fixed Charge for Standard Water Use Customers for valley v, in year t calculated as:

$$HSP_{v,t}^{IPART} X\ GS_{v,t}^{Cost\ Reflective}$$

$\boldsymbol{Var_{v,t}^{Cost\ Reflective}}$ is the Cost Reflective Revenue Cap Adjusted Variable Charge for Standard Water Use Customers for valley v, in year t calculated as:

$$\frac{(1\ -\ FVR_{v,t})\ \mathrm{X}\ (ARR_{v,t}^{ER}\ +\ ARR_{v,t}^{RevCap})}{Water\ Sales_{v,t}^{Forecast}}$$

Where :

$\boldsymbol{Water\ Sales_{v,t}^{Forecast}}$ is WaterNSW's forecast of future water sales for valley v, in year t derived using WaterNSW's forecasting methodology for Standard Water Use Customers

Section 4 - The 2030-35 determination period carry forward balance

A carry forward balance will be determined as the current period cumulative revenue shortfall or excess revenue to be recovered in the subsequent 2030-35 determination period for entry into the Regulatory Asset Base for each valley, v. If the cumulative balance is either over 5%or under 5% of the current period revenue requirement (expected revenue), then the 2025-30 revenue cap balance will then be cleared. The balance for entry into the RAB will be presented in 2029-30 real dollar terms for the 2030 pricing submission.

$$\sum \boldsymbol{Cumulative\ Balance} = \sum [\boldsymbol{t = 2025 - 26\ to\ 2029 - 30}]\ \boldsymbol{ARR_{v,t}^{ER}\ -\ ARR_{v,t}^{Actual\ Rev}}$$

Table 5– Annual Revenue Requirement for Standard Water Use Customers to be recovered from tariffs $2025-26 – Cost Reflective Base Case

Valley	2025-26	2026-27	2027-28	2028-29	2029-30
Border	$2,260,531	$2,761,934 x CPI_1	$3,375,095 x CPI_2	$4,125,042 x CPI_3	$5,042,431 x CPI_4
Gwydir	$7,098,631	$8,901,356 x CPI_1	$11,162,985 x CPI_2	$14,000,608 x CPI_3	$17,561,262 x CPI_4
Namoi	$9,265,688	$11,266,317 x CPI_1	$13,702,085 x CPI_2	$16,668,294 x CPI_3	$20,281,255 x CPI_4
Peel	$2,519,671	$3,389,483 x CPI_1	$4,560,612 x CPI_2	$6,137,833 x CPI_3	$8,262,504 x CPI_4
Lachlan	$9,210,938	$12,399,018 x CPI_1	$17,429,289 x CPI_2	$24,515,094 x CPI_3	$34,503,162 x CPI_4
Macquarie	$8,733,688	$10,652,933 x CPI_1	$13,008,713 x CPI_2	$15,903,298 x CPI_3	$19,463,501 x CPI_4
Murray	$7,611,401	$9,020,618 x CPI_1	$10,690,824 x CPI_2	$12,670,369 x CPI_3	$15,016,564 x CPI_4
Murrumbidgee	$14,728,520	$17,532,546 x CPI_1	$20,870,687 x CPI_2	$24,844,733 x CPI_3	$29,575,886 x CPI_4
Hunter	$8,093,017	$9,476,108 x CPI_1	$11,096,816 x CPI_2	$12,996,182 x CPI_3	$15,222,374 x CPI_4

Table 6 – Starting regulated charges for Standard Water Use Customers 2025-26$

Valley	2025-26	2026-27	2027-28	2028-29	2029-30
High Security ($/ML)					
Border	$8.80	10.75 x CPI_1	13.14 x CPI_2	16.06 x CPI_3	19.63 x CPI_4
Gwydir	$22.43	28.13 x CPI_1	35.27 x CPI_2	44.24 x CPI_3	55.49 x CPI_4
Namoi	$36.97	44.95 x CPI_1	54.67 x CPI_2	66.50 x CPI_3	80.91 x CPI_4
Peel	$101.40	136.41 x CPI_1	183.54 x CPI_2	247.01 x CPI_3	332.52 x CPI_4
Lachlan	$53.40	71.88 x CPI_1	101.04 x CPI_2	142.12 x CPI_3	200.02 x CPI_4
Macquarie	$26.73	32.60 x CPI_1	39.81 x CPI_2	48.67 x CPI_3	59.57 x CPI_4
Murray	$3.05	3.62 x CPI_1	4.29 x CPI_2	5.08 x CPI_3	6.03 x CPI_4
Murrumbidgee	$5.79	6.89 x CPI_1	8.21 x CPI_2	9.77 x CPI_3	11.63 x CPI_4
Hunter	$27.80	32.28 x CPI_1	37.48 x CPI_2	43.51 x CPI_3	50.52 x CPI_4
General Security ($/ML)					
Border	$3.37	4.11 x CPI_1	5.03 x CPI_2	6.14 x CPI_3	7.51 x CPI_4
Gwydir	$5.85	7.34 x CPI_1	9.20 x CPI_2	11.54 x CPI_3	14.47 x CPI_4
Namoi	$13.90	16.90 x CPI_1	20.55 x CPI_2	25.00 x CPI_3	30.42 x CPI_4
Peel	$9.16	12.33 x CPI_1	16.59 x CPI_2	22.32 x CPI_3	30.05 x CPI_4
Lachlan	$9.08	12.23 x CPI_1	17.19 x CPI_2	24.17 x CPI_3	34.02 x CPI_4
Macquarie	$5.07	6.19 x CPI_1	7.55 x CPI_2	9.23 x CPI_3	11.30 x CPI_4
Murray	$1.39	1.65 x CPI_1	1.95 x CPI_2	2.31 x CPI_3	2.74 x CPI_4
Murrumbidgee	$2.02	2.40 x CPI_1	2.86 x CPI_2	3.41 x CPI_3	4.06 x CPI_4
Lowbidgee	$2.48	2.99 x CPI_1	3.60 x CPI_2	4.34 x CPI_3	5.23 x CPI_4
Hunter	$21.61	25.08 x CPI_1	29.12 x CPI_2	33.81 x CPI_3	39.26 x CPI_4
Usage Charge ($/ML)					
Border	$10.58	12.93 x CPI_1	15.80 x CPI_2	19.31 x CPI_3	23.61 x CPI_4
Gwydir	$24.09	30.21 x CPI_1	37.89 x CPI_2	47.52 x CPI_3	59.61 x CPI_4
Namoi	$45.56	55.40 x CPI_1	67.38 x CPI_2	81.96 x CPI_3	99.73 x CPI_4
Peel	$44.79	60.25 x CPI_1	81.07 x CPI_2	109.11 x CPI_3	146.88 x CPI_4
Lachlan	$15.73	21.17 x CPI_1	29.76 x CPI_2	41.86 x CPI_3	58.91 x CPI_4
Macquarie	$36.60	44.64 x CPI_1	54.51 x CPI_2	66.64 x CPI_3	81.56 x CPI_4
Murray	$4.12	4.89 x CPI_1	5.79 x CPI_2	6.86 x CPI_3	8.13 x CPI_4
Murrumbidgee	$6.97	8.29 x CPI_1	9.87 x CPI_2	11.75 x CPI_3	13.99 x CPI_4
Hunter	$27.27	32.35 x CPI_1	38.38 x CPI_2	45.54 x CPI_3	54.03 x CPI_4

The following CPI definitions apply to the tables above:

$$CPI_1 = \frac{CPI_{March2026}}{CPI_{March2025}}$$

$$CPI_2 = \frac{CPI_{March2027}}{CPI_{March2025}}$$

$$CPI_3 = \frac{CPI_{March2028}}{CPI_{March2025}}$$

$$CPI_4 = \frac{CPI_{March2029}}{CPI_{March2025}}$$

Where:

- $CPI_{March2025}$ means CPI for the March quarter of 2025
- $CPI_{March2026}$ means CPI for the March quarter of 2026
- $CPI_{March2027}$ means CPI for the March quarter of 2027
- $CPI_{March2028}$ means CPI for the March quarter of 2028
- $CPI_{March2029}$ means CPI for the March quarter of 2029

Table 7– High Security Premium

Valley	High Security Premium
Border	2.61
Gwydir	3.83
Namoi	2.66
Peel	11.07
Lachlan	5.88
Macquarie	5.27
Murray	2.20
Murrumbidgee	2.87
Hunter	1.29

Appendix B2 – Proposed revenue cap formulas Greater Sydney Large Customers

Section 1 and Section 2 describe the Revenue Cap balance calculation together with the method of calculating the actual and forecast revenue used as an input to the Revenue Cap balance calculation for Rural Valleys.

Section 3 then describes the annual price adjustment mechanism used to calculate the 'Cost Reflective' regulated charges for each valley and in each regulatory year. If the 'Cost Reflective' Regulated charge is greater than or equal to the capped Regulated Charge, then the capped Regulated Charge will apply to implement the side constraint mechanism of +/-2% plus CPI.

Section 4 then describes the calculation of the 2030-35 determination period Revenue Cap carry forward balance which will be added onto the 2030-35 revenue requirement for entry into the Regulatory Asset Base.

Definitions:

T is the relevant regulatory year in the determination period, in this case 2025-26, 2026-27, 2027-28, 2028-29, 2029-30

$\boldsymbol{ARR_{LC,t}^{ER}}$ the Annual Revenue Requirement to be recovered from tariffs for Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation) in year *t*, in accordance with the expected revenue from tariffs calculated under the building blocks model per Table 1.

$\boldsymbol{ARR_{LC,t}^{RevCap}}$ is the Additional Annual Revenue Requirement to be recovered from tariffs for Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation), in year t, as per the Revenue Cap Mechanism explained below in Section 1.

$\boldsymbol{CPI_t}$ the March-to-March CPI as published by the Australia Bureau of Statistics (weighted average of 8 capital cities) in April prior to year t or if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index determined by IPART for year t.

$\boldsymbol{WACC_t}$ is the Weighted Average Cost of Capital as set by IPART (pre real WACC as relevant) in year *t* (if an annual cost of debt true up applies).

Section 1 - Explanation of WaterNSW's proposed Revenue Cap Balance Calculation

The Additional Annual Revenue Requirement under the Revenue Cap Mechanism is calculated by the Revenue Cap Balance, inflated by the nominal WACC (Real $\boldsymbol{WACC_t}$ plus $\boldsymbol{CPI_t}$) as determined by IPART to ensure the annual revenue requirement is converted to NPV neutral terms.

$$\boldsymbol{ARR_{LC,t}^{RevCap}} = \boldsymbol{Balance_{LC,t}^{RevCap}} \; X \; (\mathbf{1} + \boldsymbol{WACC_{t-1}})$$

The Revenue Cap Balance ($\boldsymbol{Balance_{LC,t}^{RevCap}}$) is described as follows:

$\boldsymbol{Balance_{LC,t}^{RevCap}}$ is the Revenue Cap balance, calculated as the difference between forecast revenue and actual revenue in the regulatory year t, for valley v. This calculation will occur from the second regulatory year. Prices will be determined in May prior to the start of the next regulatory year, t. As actual revenue for the current regulatory year is not known by May prior to the start of the next regulatory year, WaterNSW will provide a forecast of the likely actual revenue for the current year prior to the next regulatory year. The forecast revenue will be updated with actual revenue once known at the subsequent price adjustment process and the balance is calculated sequentially under the following formula:

$$Balance_{LC,t}^{RevCap} = ARR_{LC,t-1}^{ER+Rev\ Cap} - ARR_{LC,t-1}^{Forecast\ Rev(May)} + ((ARR_{LC,t-2\ (if\ applicable)}^{Forecast\ Rev(May)} - ARR_{LC,t-2\ (if\ applicable)}^{Actual\ Rev}) X\ (1 + WACC_{t-2}))$$

Where the Balance (RevCap) is zero at the start of the 2025-30 Determination Period.

[explanatory note: for example, in determining the balance to set 2026-27 regulated charges subject to the revenue cap mechanism $Balance_{LC,2026-27}^{RevCap}$, we assume $Balance_{LC,2025-26}^{RevCap}$ and $ARR_{LC,2025-26}^{Rev\ Cap}$ is zero. We assume $ARR_{LC,2025-26}^{ER}$ is $1.0 million from the building blocks model expected revenue calculation, and as WaterNSW is required to set 2026-27 charges in May of 2026, WaterNSW provides a forecast of 2025-26 end of year revenue ($ARR_{LC,2025-26}^{Forecast\ Rev(May)}$) of $0.8 million. T-2 does not apply, as the T-2 year is prior to the start of the 2026-30 determination period (i.e. 2025-26). Therefore, $1.0 million – $0.8 million = $0.2 million Rev Cap Balance. This process is repeated in each regulatory year, t for Large Customers (i.e. Sydney Water Corporation).

Section 2 - Calculation of Actual and Forecast Revenue for the ARR

The calculation of Forecast Revenue (May) and Actual Revenue for Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation) is calculated by the applicable fixed charge plus the applicable variable charge multiplied by actual or forecast water sales in the relevant year as shown below:

$ARR_{LC,t}^{Actual\ Rev}$ is $Fixed_{LC,t} + Var_{LC,t}$ X $Water\ Sales_{LC,t}^{Actual}$

$ARR_{LC,t}^{Forecast\ Rev(May)}$ is $Fixed_{LC,t} + Var_{LC,t}$ X $Water\ Sales_{LC,t}^{Forecast\ Rev(May)}$

In this Section 2, the following definitions apply:

$Fixed_{LC,t}$ is the Fixed Charge levied on Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation), in year t

$Var_{LC,t}$ is the Variable Charge levied on Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation), in year *t*

$Water\ Sales_{LC,t}^{Actual}$ are the actual billable water sales for Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation), in year *t*.

$Water\ Sales_{LC,t}^{Forecast\ Rev(May)}$ are the forecast billable water sales for Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation), in year t, forecast in May prior to year *t*.

Section 3 - Price Adjustment Mechanism - setting the fixed and variable charges

This section only applies to the process of determining regulated charges to be levied on Large Customers in the Greater Sydney Region (i.e. Sydney Water Corporation) from the second regulatory year (2026-27) of the determination period. For the avoidance of doubt, the 2025-26 regulated charges are fixed in Table 2.

Once the $ARR_{v,t}^{RevCap}$ is determined per above in Section 1, the ARR is used to calculate the 'Cost Reflective' regulated charges for Large Customers, in regulatory year t. If the 'Cost Reflective' charge is greater than or equal to the capped Regulated Charge, then the capped Regulated Charge will apply to implement the +/-2% side constraint. For the avoidance of doubt, CPI increases are passed on under the

side constraint as well as the annual smoothing profile as defined in the starting charges in table 2. The process is defined as follows:

$\boldsymbol{Fixed_{LC,t}^{Rev\ Cap\ Adjusted}}$ is the Fixed Charge for Large Customers in the Greater Sydney Region determined under this price adjustment mechanism, in year t, as follows:

The $\boldsymbol{Fixed_{LC,t}^{Cost\ Reflective}}$ will apply if the charge is within the $\boldsymbol{Range_{LC,t}^{Fixed}}$

The $\boldsymbol{Range_{LC,t}^{Fixed}}$ is defined as the Maximum Range which is 2% higher than the Fixed Charge in year t for Large Customers in table 2 (which includes CPI) to the Minimum Range which is 2% lower than the Fixed Charge in year t for Large Customers in table 2 (which includes CPI).

If the $\boldsymbol{Fixed_{v,t}^{Cost\ Reflective}}$ is over the Maximum Range, then the Fixed Charge will be capped at 2% of the Fixed Charge in year t for Large Customers in table 2 (which includes CPI).

Otherwise, the Fixed Charge will be capped at 2% lower than the Fixed Charge in year t for Large Customers in table 2 (which includes CPI).

$\boldsymbol{Var_{LC,t}^{Rev\ Cap\ Adjusted}}$ is the Variable Charge for Large Customers in the Greater Sydney Region determined under this price adjustment mechanism, in year t, as follows:

The $\boldsymbol{Var_{LC,t}^{Cost\ Reflective}}$ will apply if the charge is within the $\boldsymbol{Range_{LC,t}^{Variable}}$

The $\boldsymbol{Range_{LC,t}^{Variable}}$ is defined as the Maximum Range which is 2% higher than the Variable Charge in year t for Large Customers in table 2 (which includes CPI) to the Minimum Range which is 2% lower than the Variable Charge in year t for Large Customers in table 2 (which includes CPI).

If the $\boldsymbol{Var_{v,t}^{Cost\ Reflective}}$ is over the Maximum Range, then the Variable Charge will be capped at 2% of the Variable Charge in year t for Large Customers in table 2 (which includes CPI).

Otherwise, the Variable Charge will be capped at 2% lower than the Variable Charge in year t for Large Customers in table (which includes CPI).

In this section 3, the following definitions apply:

CPI is the March-to-March CPI as measured by the Australia Bureau of Statistics (weighted average of 8 capital cities) for the March Quarter released in April prior to year t

$\boldsymbol{FVR_{LC,t}}$ is the Fixed to Variable Ratio for Large Customers in the Greater Sydney Region, which is 80% in each year t.

$\boldsymbol{Fixed_{LC,t}^{Cost\ Reflective}}$ is the Cost Reflective Revenue Cap Adjusted Fixed Charge for Large Customers in the Greater Sydney Region, in year t calculated as:

$$FVR_{LC,t}\ \mathrm{X}\ (ARR_{LC,t}^{ER} + ARR_{LC,t}^{RevCap})$$

Which is then converted to a monthly fee for Large Customers per the IPART methodology

$\boldsymbol{Var_{LC,t}^{Cost\ Reflective}}$ is the Cost Reflective Revenue Cap Adjusted Variable Charge for Large Customers in the Greater Sydney Region, in year t calculated as:

$$\frac{(1 - FVR_{LC,t}) \text{ X } (ARR_{LC,t}^{ER} + ARR_{LC,t}^{RevCap})}{Water\ Sales_{LC,t}^{Forecast}}$$

Which can be converted to a monthly fee for Large Customers per the IPART methodology

Where :

$\boldsymbol{Water\ Sales_{LC,t}^{forecast}}$ is WaterNSW's forecast of future water sales for Large Customers in the Greater Sydney Region as advised by Large Customers to WaterNSW (i.e. Sydney Water Corporation).

Note: any further adjustment to the variable charge as a result of the voluntary or mandatory operation of the Sydney Desalination Plant will be considered separately to the Revenue Cap and Side Constraint Mechanism above. This includes the proposed Sydney Desalination Plant volume true-up discussed in Attachment 27.

Section 4 - The 2030-35 determination period carry forward balance

A carry forward balance will be determined as the current period cumulative revenue shortfall or excess revenue to be recovered in the subsequent 2030-35 determination period for entry into the Regulatory Asset Base for the Greater Sydney Region. If the cumulative balance is either over 2% or under 2% of the current period revenue requirement (expected revenue), then the 2025-30 revenue cap balance will then be cleared. The balance for entry into the RAB will be presented in 2029-30 real dollar terms for the 2030 pricing submission.

$$\sum \boldsymbol{Cumulative\ Balance} = \sum [\boldsymbol{t = 2025 - 26\ to\ 2029 - 30}]\ \boldsymbol{ARR_{LC,t}^{ER} - ARR_{LC,t}^{Actual\ Rev}}$$

Table 8– Annual Revenue Requirement for Large Customers to be recovered from tariffs 2025-26$

Valley	2025-26	2026-27	2027-28	2028-29	2029-30
Large Customers (i.e. Sydney Water Corporation)	$262,266,666	$301,094,427 x CPI_1	$346,164,384x CPI_2	$394,365,146x CPI_3	$453,110,078x CPI_4

Table 9 – Starting regulated charges for Large Customers 2025-26$

Large Customers (i.e. Sydney Water Corporation)	2025-26	2026-27	2027-28	2028-29	2029-30
Water availability charges ($/Year)	$209,629,568	$240,441,918 x CPI_1	$275,715,419x CPI_2	$316,659,389x CPI_3	$363,154,267x CPI_4
Water usage charges with unrestricted demand($/ML)	$105.20	$120.68 x CPI_1	$138.44x CPI_2	$158.81x CPI_3	$182.18x CPI_4

The following CPI definitions apply to the tables above:

$$CPI_1 = \frac{CPI_{March2026}}{CPI_{March2025}}$$

$$CPI_2 = \frac{CPI_{March2027}}{CPI_{March2025}}$$

$$CPI_3 = \frac{CPI_{March2028}}{CPI_{March2025}}$$

$$CPI_4 = \frac{CPI_{March2029}}{CPI_{March2025}}$$

Where:

- $CPI_{March2025}$ means CPI for the March quarter of 2025
- $CPI_{March2026}$ means CPI for the March quarter of 2026
- $CPI_{March2027}$ means CPI for the March quarter of 2027
- $CPI_{March2028}$ means CPI for the March quarter of 2028
- $CPI_{March2029}$ means CPI for the March quarter of 2029

Appendix C – Example Under / Overs Statement

The unders and overs account carries forward under and over-recoveries from previous years, applies the time value of money, and calculates the balancing adjustment to be applied to the revenue cap to balance the account each year. Below is an example of the statement assuming cost reflective revenue cap adjusted charges.

Table 10 – Example unders and overs statement ($'000, nominal)

		Year 1	Year 2	Year 3
Revenue from adjusted charges cost reflective $ARR_{v,t}^{RevCap}$ plus $ARR_{v,t}^{ER}$		$1.00m	$1.21m	$1.00m
T-1 Calculation **(for example, at year 2, this would be the difference of forecast vs expected revenue at year 1. At year 3, this would be the difference of forecast vs expected revenues at year 2)**				
ARR ER+ ARR Rev Cap	**A**	N/A	$1.00m	$1.21m
ARR Forecast Rev (MAY)	**B**	N/A	$0.80m	$1.00m
Difference	**A-B**	N/A	$0.20m	$0.21m
T-2 Adjustment of May forecast vs actual revenues **(for example, at year 3, this would be the difference of forecast vs actual revenue at year 2)**				

$$Balance_{v,t}^{RevCap} = ARR_{v,t-1}^{ER+Rev\ Cap} - ARR_{v,t-1}^{Forecast\ Rev(May)} + ((ARR_{v,t-2\ (if\ applicable)}^{Forecast\ Rev(May)} - ARR_{v,t-2\ (if\ applicable)}^{Actual\ Rev}) X\ (1 + WACC_{t-2}))$$

Estimated Tariff Revenue	**C**	N/A	N/A	$0.80m
Actual Tariff Revenue	**D**	N/A	N/A	$1.00m
Difference	**C-D**	N/A	N/A	$-0.20m
WACC				
CPI	**E**	2.5%	2.5%	2.5%
Real WACC	**F0**	2.5%	2.5%	2.5%
Nominal WACC t-1	**F1 = E X F0**	5.1%	5.1%	5.1%
Nominal WACC t-2 **(for the true up of May forecast vs actual revenue at t-2)**	**F2 = E X F (T-2 WACC see red text)**	N/A	5.1%	5.1%
T-1	**G = A-B**	N/A	0.20	0.21
T-2	**H = (C-D) X (1+F2)**	N/A	0.00	-0.21
ARR Rev Cap (t)	**(G + H) X (1 + F1)**	Starts at 0.00	0.21	0.00

$$Balance_{v,t}^{RevCap} = ARR_{v,t-1}^{ER+Rev\ Cap} - ARR_{v,t-1}^{Forecast\ Rev(May)} \left((ARR_{v,t-2\ (if\ applicable)}^{Forecast\ Rev(May)} - ARR_{v,t-2\ (if\ applicable)}^{Actual\ Rev}\right) X\ (1 + WACC_{t-2}))$$

$$ARR_{v,t}^{RevCap} = Balance_{v,t}^{RevCap}\ X\ (1 + WACC_{t-1})$$

Appendix D – Sydney Water

The majority of Sydney Water's customers prefer a revenue cap over a price cap when asked to choose between the two options.

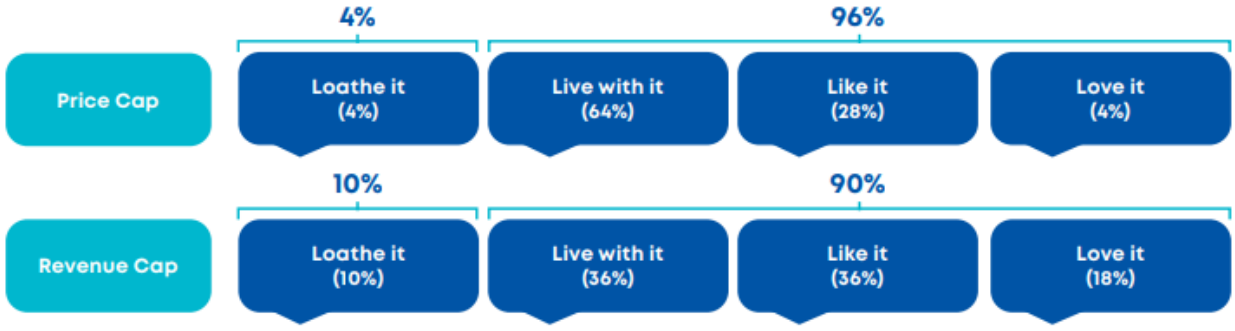
Sydney Water, during phase 6 of its 'Our Water, Our Voice engagement program, sought to understand customers' perceptions and preferences on price cap and revenue cap options.[41] Customers were provided with explanations of how the two mechanisms work such as information on how any under or over recovery would be treated, including under a 2% side constraint.

Customers were asked to indicate their preference for a price and revenue cap using two methods: a scale (the L-Scale) ranging from 'Loathe it' to 'Love it', and a binary choice between the options (that is, the two options were presented side by side).

As shown in Figure 7 below, when the two options were **presented on a scale**, the majority of customers had a neutral view (64%) towards the price cap, with the majority of customers (96%) indicating they loved, like or could live with a price cap. In relation to the revenue cap, results demonstrated that 90% of customers indicated they loved, like or could live with a revenue cap. The majority of customers (36%) indicated the neutral 'live with it' and 'like it' options.

As shown in Figure 8, when customers were given the choice between a price cap or a revenue cap (that is, a **binary choice)**, results demonstrated a clear preference for a revenue cap, with the majority (64%) of customers selecting a revenue cap over a price cap (36%).

Figure 7 – Customer preferences to a price cap and a revenue cap using the L-Scale



Reference: Sydney Water, Findings Report, Phase 6.

Figure 8 – Customer preferences to either a price cap and a revenue cap

Reference: Sydney Water, Findings Report, Phase 6.

[41] Sydney Water, Phase 6 Findings Report, Our Water, Our Voice Customer Engagement Program, available at < https://www.sydneywater.com.au/content/dam/sydneywater/documents/Our-water-our-voice-phase-6-findings.pdf>

These results suggest that the framing of questions around options for revenue cap versus a price cap can significantly influence customer preferences. Sydney Water's binary choice where customers significantly preferred a revenue cap (64%) contrast with WaterNSW's more nuanced feedback. While a price cap might be inherently easier for customers to understand, it is necessary to acknowledge that a revenue cap may offer advantages that require more detailed explanation and analysis.