IPART
Independent Pricing and Regulatory Tribunal
New South Wales

LIFTING PERFORMANCE IN THE WATER SECTOR

DISCUSSION PAPER

Special Review

May 2021

Tribunal Members

The Tribunal members for this review are:

Ms Deborah Cope, Acting Chair
Ms Sandra Gamble
Mr Mike Smart

Enquiries regarding this document should be directed to a staff member:

Anthony Rush	(02) 9113 7790
Xanthe Smith	(02) 9290 8470

Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by 1 June 2021.

We would prefer to receive them electronically via our online submission form.

You can also send comments by mail to:

Water regulatory review
Independent Pricing and Regulatory Tribunal
PO Box K35
Haymarket Post Shop, Sydney NSW 1240

Late submissions may not be accepted at the discretion of the Tribunal. Our normal practice is to make submissions publicly available on our website as soon as possible after the closing date for submissions. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed above.

We may choose not to publish a submission - for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. However, it could be disclosed under the *Government Information (Public Access) Act 2009* (NSW) or the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW), or where otherwise required by law.

If you would like further information on making a submission, IPART's submission policy is available on our website.

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The Independent Pricing and Regulatory Tribunal (IPART)

We make the people of NSW better off through independent decisions and advice. IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website.

Preliminary positions to lift performance in the water sector

Support longer determination periods to promote ongoing engagement and long-term planning, provided there is credible evidence that these proposals are in the best long term interests of customers

Develop a framework for **customer choice pricing** to allow for a personalised service where it would deliver a win-win for the customer and the business

Provide the option for businesses to **propose different forms of price controls** (including a revenue cap)

Introduce a **shadow price for leakage** to encourage efficient water conservation

Establish a Regulators Advisory Panel to promote information sharing and better regulatory decisions

We have not formed a preliminary view about

How best to **align pricing decisions and performance standard setting** to enable businesses to make trade-offs between the two

Whether to **set performance standards at minimum levels or optimal levels** to ensure ongoing performance by businesses

Have your say on
these potential reforms
Submissions close 1 June 2021

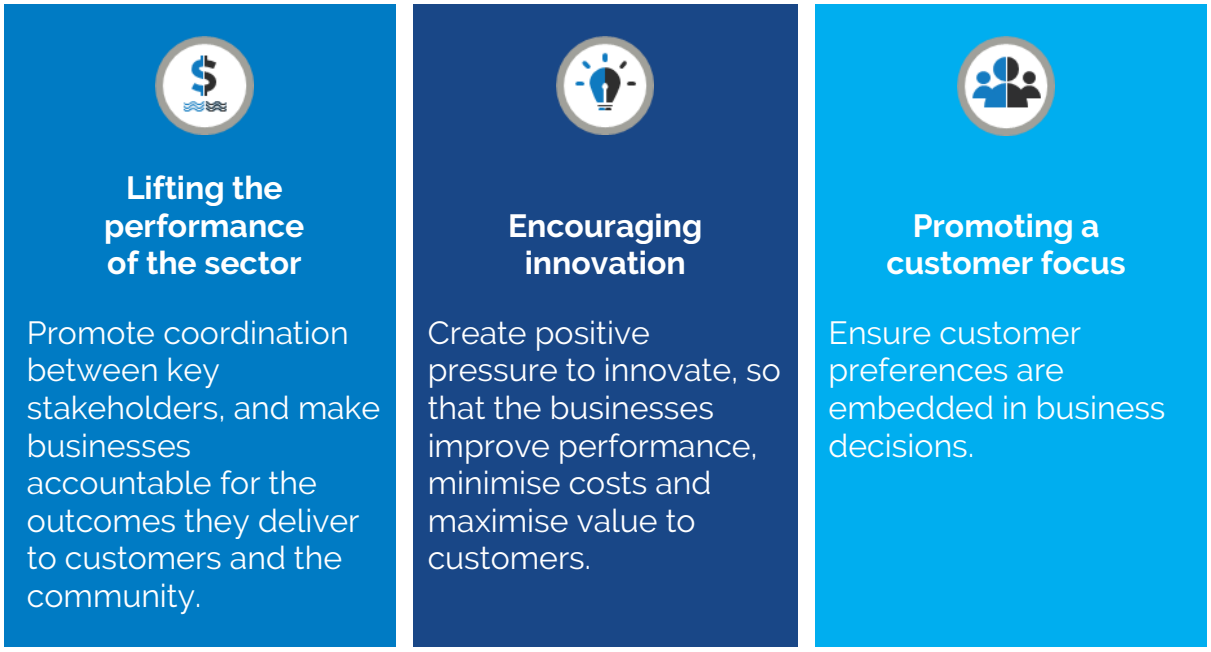
1 Lifting the performance of the water sector

IPART is reviewing how we regulate monopoly water businesses in NSW. In this review we will identify improvements to our regulatory framework that support the performance of the water businesses, which are responsible for delivering services in the long-term interests of their consumers and the community.

This review provides an important opportunity for stakeholders to help improve IPART's regulatory framework.

In late 2020, we released Position Papers which established three focus areas through which we will identify improvements to our framework **(Figure 1.1** How can the way we regulate water businesses help in**)**

Figure 1.1 How can the way we regulate water businesses help in



This Discussion Paper puts forward our preliminary views on how our framework could help to lift the performance of the water sector. It picks up on three key themes: accountability, incentives and co-ordination.

The businesses need to be accountable for delivering services and expenditure that meets the expectations of customers and the community, today and into the future. We expect that the businesses:

- Submit proposals with robust long-term plans and cost information. As the regulator, we need to be confident that expenditure is efficient, considers the impact of climate change, and is in the long-term interests of customers. In Chapter 2, we canvass how IPART's review process can support these outcomes.

- Improve their understanding of, and better balance, the trade-offs between service standards and costs, to meet changing customer needs. In Chapter 3, we ask how best to align how we set prices and performance standards, and how performance standards should be set.
- Take opportunities to deliver 'win-wins' for the customer and the water business, by allowing their customers to opt-in to receive a more personalised level of service. In Chapter 4, we present a 'customer choice pricing' model to assist the businesses in identifying and delivering on these opportunities for all customers.

We are reviewing whether the design of IPART's regulatory framework can be improved to create better incentives for regulated businesses to respond to customer preferences, innovate and improve performance. This is a key thread that will be developed further in subsequent discussion papers on 'encouraging innovation' and 'promoting a customer focus'. In this paper, we focus on two elements that relate to lifting performance. We expect that the businesses:

- Manage short- and long-term revenue risks and deliver cost efficiencies. The way prices are set is a key component in creating the incentives to deliver these outcomes. To take advantage of these opportunities, in Chapter 5, we propose that businesses should have the flexibility to propose different forms of price control.
- Efficiently conserve water. Investments should be made where the benefits of conserving water – either through a reduction in water demand, or reducing leakage – exceed the costs. In Chapter 6, we propose introducing a 'shadow price' for leakage that provides a financial incentive for efficient leakage reduction.

Policy makers, regulators and the water businesses need to effectively co-ordinate with one another to understand and balance their complementary roles. In Chapter 7, we propose a Regulators Advisory Panel as a platform for regulators and policy makers, in the water sector, to share information and contribute to better regulatory decisions.

We seek stakeholder views on these proposed reforms, and how they might work in practice, by **1 June 2021**. A more detailed discussion of how each idea would work 'in practice', taking into account what we learn from stakeholders through this process, will be presented in the Draft Report in September.

We are reviewing our regulatory framework for 'monopoly' businesses

We are reviewing how we set prices, and licence conditions, for the 'monopoly' businesses that we regulate - Sydney Water, Hunter Water, Central Coast Council, Essential Water, Water NSW, the Sydney Desalination Plant (SDP) and the Water Administration Ministerial Corporation (WAMC). A short summary of IPART's role in regulating these businesses is presented in **(Box 1.1 IPART's** role

Box 1.1 IPART's role

IPART has two main roles in regulating NSW's water businesses.

1. To determine the prices that customers pay for monopoly services.
2. To recommend the terms of the businesses' operating licences and to monitor their compliance with these licences (Sydney Water, Hunter Water, WaterNSW and SDP are subject to operating licences).

There are other regulators and government bodies that play important roles in the water sector. The most relevant to this review are:

- The Department of Planning, Industry and Environment (DPIE) – it engages with the water industry to establish an overarching water management and supply plan. DPIE also monitors the performance of local council water businesses in regional areas.
- DPIE and the Natural Resources Access Regulator (NRAR) – they regulate the extraction of water from the natural environment.
- The Environment Protection Authority (EPA) which sets standards for wastewater discharges to the environment.
- The Department of Health which establishes drinking water standards.

Our framework should promote effective co-ordination between Government, other regulators and the businesses to deliver a resilient and efficient water sector. The framework also needs to keep the businesses accountable for the outcomes they deliver to customers and the community.

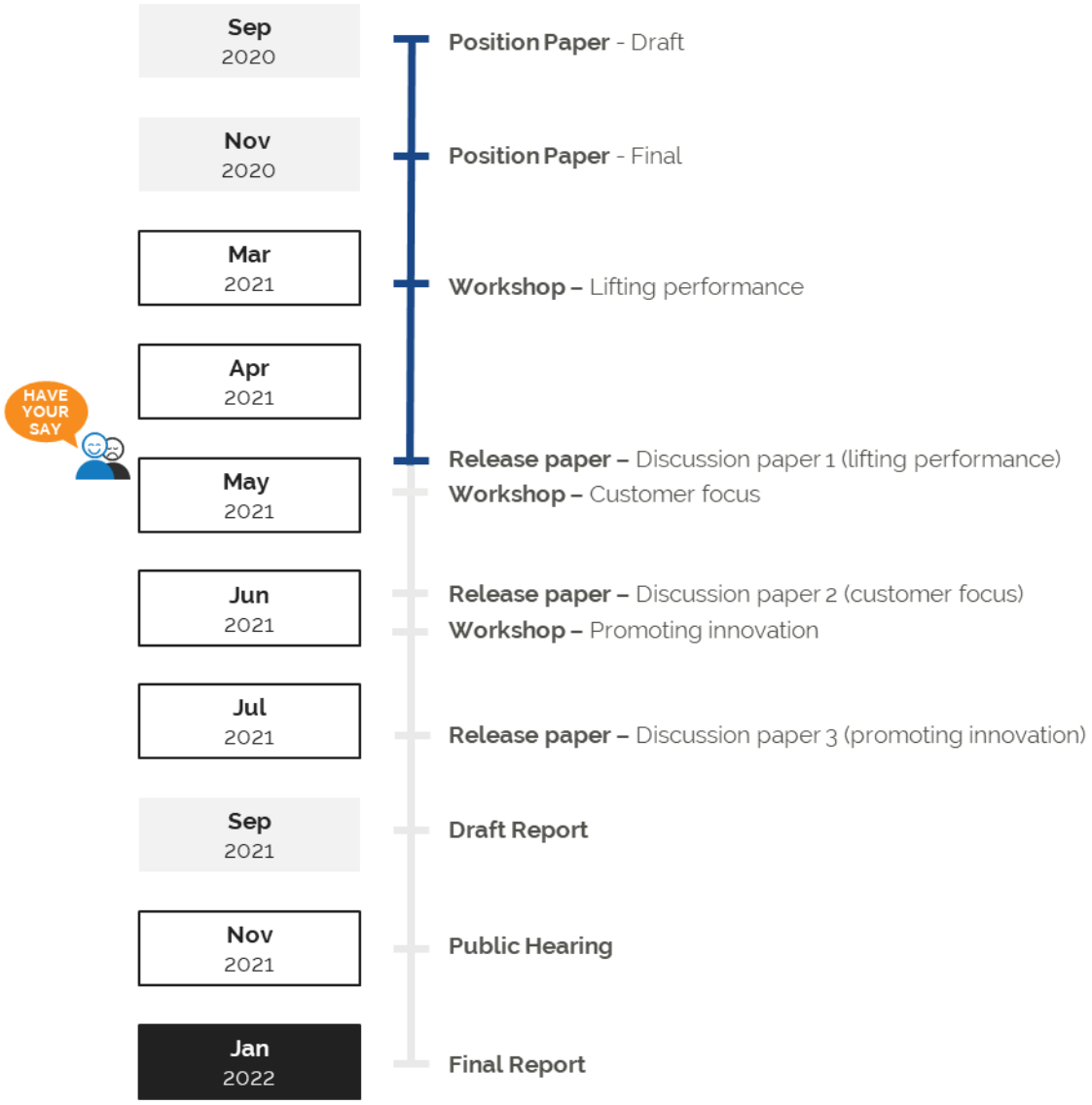
In March 2021 we held a full-day public workshop with stakeholders to discuss how we can build this framework. Over the course of a day we held sessions on:

- what we (as a sector) can be doing better
- governance in the sector
- pricing methods
- the review process and role of the licence.

This Discussion Paper summarises what we learned through the workshop and meetings with stakeholders, as well as submissions received in response to the earlier Position Papers.

We are seeking stakeholder views on these proposed reforms by **1 June 2021**.

Figure 1.2 Timeline for this review



2 A long term focus

A key theme we have heard through this review is the need to think longer term. Water businesses are responsible for delivering services efficiently, meeting customers' and the community's expectations, today and into the future. As the regulator, we rely on the businesses to submit proposals with robust long-term plans and cost forecasts, to be confident that expenditure proposals will deliver outcomes that are in the long-term interest of consumers.

Stakeholders have suggested that IPART's four-year review periods do not align with the businesses' long-term asset cycle. While the length of the determination should not prevent a long-term focus, we agree that there is room to improve our review process.

We have also received feedback that the current pricing review process is resource intensive, and onerous to complete. In making improvements to our approach, we are looking to:

- incorporate long-term planning into all decisions
- put customer outcomes at the centre of the review process
- support the business's accountability for proposals
- avoid 'peaks' of workload for the businesses (and IPART) in pricing and licencing reviews.

We seek feedback on the appropriate length of determination periods:

- How should each review period be sequenced to promote outcomes in the best long-term interest of consumers?
- Should the determination period be based on a set of principles (for example, our current principles in Box 2.1)? Or should we set a default determination period that we would only deviate from in exceptional circumstances?

2.1 Longer determination periods

One specific idea that has come up a lot in stakeholder consultation is longer determination periods (beyond the usual four years). We are generally supportive of this idea, noting there is nothing to prevent businesses proposing this under our current framework.

There are risks associated with moving to a longer determination period. For example, we aim to set prices that are cost-reflective, and longer determination periods create the risk that prices become less cost-reflective, due to changes in Government policy, population growth, and a range of other factors. Longer determination periods also require IPART to have sufficient confidence in the long-term forecasts produced by the business. We would need to be satisfied that the benefits of a longer determination outweigh these risks. The factors that IPART currently considers when deciding the length of a determination are presented in **(Box 2.1 Factors** IPART considers when deciding the length of a determination

The determination length also shapes the type and level of engagement that the business has with IPART in between reviews.

Box 2.1 Factors IPART considers when deciding the length of a determination

In general, the factors we consider when deciding the length of a determination period are:

- Confidence we have in the utility's forecasts
- Risk of structural changes in the industry
- Need for price flexibility and incentives to increase efficiency
- Need for regulatory certainty and financial stability
- Timing of other relevant reviews
- Views of stakeholders.

2.2 Strategic meeting early in the regulatory cycle

We propose adding a step around the halfway point between reviews to engage with the business on its strategy and high level planning for the upcoming review period. And in particular, how its strategy would be informed by and ultimately reflect customer preferences. In advance of a pricing review, the business would present its vision for the review to IPART, and potentially to a Regulators Advisory Panel (RAP, see Chapter 7).

The business could talk through its plans for the next determination period and test its assumptions, and IPART/the RAP could provide feedback on whether this vision is in line with regulators'/government's thinking. This would provide the business with more certainty (without being binding) when building its proposal, and allow it an opportunity to raise any concerns it has with meeting any of its regulatory obligations.

In proposing this step, our aim is to promote a long-term focus by encouraging the business to develop and present robust plans earlier in the process. We would also expect that this process strengthens the current incentives for the businesses to engage with, and present its plans, to customers in preparing its final proposals to IPART. Finally, it could provide a formal check and balance on how well the business is delivering on its proposed outcomes and investments for the current regulatory period.

The meeting would be a way for businesses to engage early with the regulator on key issues. We could publish a short (non-binding) note outlining the discussion at the meeting.

2.3 Framework reviews

We will continue to look for opportunities to publish information papers and complete 'framework' reviews of specific elements of pricing determinations outside of the main review periods. For instance, we already establish frameworks for the weighted average cost of capital (WACC) and other financial parameters. There may be scope to remove more elements of the pricing review, including:

- In principle-decisions on price structures – the precise list would depend on what decisions we make around revenue caps, but could include decisions around how prices are set for mixed multi-premises, joint service arrangements and dual occupancies.
- Long run marginal cost – we could review, with the businesses, what method and data would provide the most reliable estimates of long run marginal cost (LRMC) in advance of pricing reviews.

These separate reviews could provide more certainty for businesses in preparing their pricing proposals. Separate reviews could also facilitate more targeted consultation with special interest groups.

3 Understanding price-quality trade-offs

The services delivered by the water businesses need to balance a number of objectives. Customers' preferences for better levels of service need to be balanced against their willingness and ability to pay for these services. Investments need to be made in the context of a changing climate, and the need to contribute to positive environmental outcomes. The businesses need a deep understanding of the trade-offs between service standards and costs.

We seek feedback on:

- How should performance standards be set, for businesses with, and without, an Operating Licence?
- How best to align pricing decisions and performance standard setting to enable businesses to make trade-offs between the two. For businesses with an Operating Licence, should IPART's Operating Licence and Price review processes be run concurrently?

3.1 We recommend performance standards and set prices

IPART has two closely linked functions when regulating public water businesses: recommending operational standards for the businesses[1] (and ensuring compliance with them), and setting maximum prices the businesses can charge customers for services.

These two functions are closely linked. We recommend licence conditions that define the service levels that the businesses must deliver to customers, and set prices to recover the efficient costs of delivering these services.

As part of IPART's licensing role, we recommend to the Minister the operating licences for certain public water utilities. In particular, our recommended licences for Sydney Water and Hunter Water contain performance standards on water pressure, water continuity and the number of properties impacted by wastewater overflows. Customer engagement by businesses on these performance standards can help inform the trade-offs between service standards and costs, and any service standards with potentially competing outcomes (for instance, reducing leakage versus maintaining adequate water pressure).

3.2 Minimum or optimal standards

Performance standards in operating licences promote the safe and reliable delivery of essential services by water businesses.

1 IPART does not have a licensing role for all businesses it price regulates. For instance, IPART only sets maximum prices for Essential Water and the Central Coast Council.

A key question is how these standards should be set to ensure that customers are protected, while providing the right incentives for the utility to deliver higher levels of performance where it is efficient to do so.

When discussed at the workshop no consensus view emerged as to whether standards should be set at a minimum or optimum level of performance. Most of the water businesses indicated some support for a minimum standard in the operating licence to protect customers, with optimal standards being incentivised through separate mechanisms, and potentially implemented through the pricing review.

This approach has been widely adopted in the energy industry. For example, in addition to having to an operating licence, the Australian Energy Regulator (AER) has developed a 'Service Target Performance Incentive Scheme (STPIS)' that provides electricity distribution networks with an incentive to maintain and improve network performance, to the extent that consumers are willing to pay for such improvements.

Encouraging an optimal level of performance through pricing mechanisms, rather than only through operating licence requirements, could promote consistency between the businesses that we regulate who have an operating licence, and the businesses who do not have an operating licence.

We will revisit how to set performance standards and discuss these incentive mechanisms during workshop 3 on encouraging innovation.

3.3 Aligning pricing and licensing standard setting

Currently, operating licence and pricing reviews are staggered. We recommend the operating licence including performance standards to the Minister. The review of performance standards has usually been held as part of the operating licence review, at least a year before the pricing reviews. However, we consider there could be value in having the performance standards review and the pricing review occurring at the same time.

We consider there are three main advantages to recommending performance standards and prices simultaneously:

1. Price-quality trade-offs – the two (standards and prices) necessarily influence each other, and if the two are determined simultaneously it is easier for businesses to accurately think through the trade-offs.
2. Customer engagement – businesses should ideally be using a single customer engagement strategy to inform both standards and prices.
3. Economies of scope – the two rely on similar information, and using one set of customer engagement to inform both could cut down on effort for both the businesses and IPART.

But there are also challenges and risks to this approach:

1. The Government may not agree to IPART's recommended performance standards. This would delay the review process, while new prices are established. However, working with the businesses to establish the recommended standards early in the review process should help to reduce this risk.
2. There may be a resourcing concern in that more work needs to be done at once. This could be addressed by completing more elements of pricing ahead of time, or perhaps by targeting resources on the most important elements of the pricing or licencing reviews.
3. Businesses may feel they cannot effectively plan and cost projects without knowing what the standards are. The counterpoint is that this implies that there is an opportunity to push the businesses to think more deeply about price-quality trade-offs, rather than waiting to price options until quality is fixed. Quality levels should be determined through customer engagement, so the business should have a fairly good idea of where standards will land (provided they have engaged well with customers).

4 Customer choice pricing

Water is an essential service, and everyone has a right to a safe, affordable and reliable service. A key feature of our pricing framework is postage stamp pricing. That is, everyone pays the same rate for the same service, regardless of their location.

A consequence of the current framework is that businesses may be missing opportunities to provide a higher quality service to individual customers, or a distinct group of customers, who are willing to pay for it.

We propose to develop a new 'customer choice' framework. We consider customer choice pricing as the natural evolution of Unregulated Pricing Agreements (UPAs). Currently, large non-residential customers can enter into an agreement with their utility to receive different service/prices than the determination specifies, provided all costs and revenues are ring-fenced. We want to expand this approach to other customers, provided the same ring-fencing occurs.

To date, there has been limited uptake of these schemes. Awareness is likely low, and it may be difficult for consumers to identify the specific examples where they would negotiate on with the business. Further, there is a legal risk that IPART may override a commercial arrangement should regulation become necessary, which may discourage the water businesses from pursuing customer choice pricing. We are open to feedback on this issue.

We seek feedback on how IPART could develop a framework for customer choice pricing.

- What are the appropriate pricing principles for customer choice pricing?
- How can IPART assist the water businesses in utilising customer choice pricing?

4.1 Allowing customers to 'opt-in' to higher service

The 'customer choice' framework encourages water businesses to identify and pursue opportunities for their customers to choose the level of service they get from their water provider, and to pay for that service according to their personal choice. An example of a similar approach to our model, that many would be familiar with, are carbon offsets for flights. The customer (whether a business or an individual) can pay an additional charge to make their flight carbon neutral. According to Qantas (pre-COVID), offsets are an option exercised by around 10% of passengers.[2] Under our new framework, the water businesses could offer similar options to their own customers.

As customer choice pricing arrangements are developed and introduced, we consider it is appropriate to defer price regulation and instead to monitor prices. We consider it is unnecessary to immediately introduce price regulation because customers can always exercise the option to remain on the default regulated tariffs. Instead, we would monitor the prices, revenues and costs of the schemes, and pay close attention to ring-fencing arrangements. We hope a more light touch regulatory approach will encourage the businesses to pursue innovative pricing options.

At the workshop businesses indicated they were open to, but cautious about, customer choice pricing. Some indicated that they had not given much thought to possible applications, but began brainstorming during the workshop. IPART is keen to work further with the businesses to explore the benefits and opportunities associated with customer choice pricing.

The onus would need to be on businesses to identify opportunities where more flexible service-price offerings could work, but indicative examples could include customers electing to:

- Carbon offset their water and wastewater consumption
- Fund environmental projects that otherwise may not proceed. For example, to fully offset the impact that the wastewater (or even stormwater) that a typical customer has on waterways.
- Have their water delivered at a higher pressure, within a specific neighbourhood of businesses.
- Pay to have a smart meter installed.

2 Qantas. *Qantas group to slash carbon emissions.* accessed 5 February 2021.

4.2 We would establish pricing principles

Even though we would likely defer the regulation of customer choice pricing, we consider it should still be subject to pricing principles.

The initial principles we have drafted to guide stakeholder feedback are:

- **Defining services delivered** – the business needs to clearly demonstrate how the proposed scheme will improve service quality for customers. For example, a business could ask its customers to opt-in to fund a scheme that provides environmental benefits above regulatory requirements. In doing so, the business could have a prioritised list of projects they would complete to deliver environmental benefits. Evidence that the projects would actually deliver outcomes above and beyond minimum environmental standards would need to be provided to IPART at a sufficiently granular level to be credible. As customers choose to fund these outcomes the business can begin work on the number of projects that can be funded.
- **Unregulated** – the default will be to defer the price regulation of 'opt-in' services because customers are choosing to participate. However, as with other unregulated services, we will request information from the business to monitor performance to ensure customers get what they have paid for.
- **Ring-fencing** – costs and revenues associated with customer choice pricing should be ring-fenced from the broader regulatory base. This is to ensure only customers choosing to participate in the scheme pay for it. This should be relatively simple for services that are delivered with operating expenditure only, but may be more complex for services that involve capital expenditure on 'shared assets'.
- **Information provision** – the business would need to gather data about the effectiveness of the scheme (the outcomes that the scheme delivered), as well as information on the costs, revenues and customer numbers (including forecasts). This information should be provided to customers to ensure that those who opt-in to the service 'get what they pay for'. It would also be reviewed by the regulator, to allow us to monitor the performance of the scheme.

4.3 Addressing revenue sharing

At the workshop stakeholders expressed an openness to customer choice pricing, noting that operations teams could consider ways of using it should IPART set the framework up to allow it. Nonetheless, businesses did identify a practical challenge to developing new products – revenue sharing over shared infrastructure. There was a suggestion that IPART may need to exercise more discretion depending on circumstance, as opposed to the existing guidance of 50:50 sharing.

We note that we do not always share non-regulated revenue 50:50 between customers and the utility; for biodiversity offset credits we implemented a 90:10 split in our 2020 reviews of pricing for Sydney Water and Hunter Water.

5 Allow different forms of price control

The way prices are regulated is the form of price control. There are a number of different forms of price control **(Box 5.1** Different forms of price controls**)**, and they create different incentives for regulated businesses to balance short- and long-term revenue risks and deliver cost efficiencies.

Variants of price-cap regulation were adopted by regulators overseas and in Australia during the 1990s to regulate monopoly utilities – including by IPART – as they were all seen to provide stronger incentives for businesses to pursue cost efficiency, compared to monopolies subject to the traditional rate-of-return (ROR) or cost of service regulation.[3]

In choosing an appropriate method of setting prices for a regulated business, we are trying to replicate the outcomes of a competitive market. This involves balancing:

- the level of financial risk borne by the customer and the business in the short term and long term
- the strength of the incentive provided to the business to reveal its efficient costs, and to pursue and deliver cost efficiencies
- the strength of the incentive provided for the business to better understand its customers' preferences
- the level of pricing flexibility provided to the utility against the pricing protection afforded to consumers.

The form of price regulation is a key component of the overall package and power of the incentives that any regulator is looking to create. The overall package will include a range of other potential schemes, which seek to encourage the business to honestly reveal its efficient costs in its proposals to the regulator, and/or encourage the business to pursue and deliver cost efficiencies and performance improvements on an ongoing basis. These schemes will be considered in more detail by IPART in the workstream focused on encouraging innovation.

We asked stakeholders whether IPART should encourage the businesses to propose different forms of price-setting. While our current approach does not inhibit the businesses from proposing different ways of setting prices, we note that we have not deviated from setting maximum prices in recent years.[4]

Based on the consultation with stakeholders at the workshop, a number of stakeholders preferred a revenue cap over a price-cap approach. However, we note that stakeholders' views were not unanimous. For the most part, the feedback at the workshop and from submissions we have received to date has reflected the views of policy officers and the water business. We are also keen to hear from end use consumers.

3 For further information, see, for example, Joskow (2006), Regulation of Natural Monopolies, available at: https://economics.mit.edu/files/1180

4 In particular, in the 2016 Sydney Water review, we did not accept a proposal for Sydney Water to adopt a Weighted Average Price Cap approach.

We seek feedback on whether IPART should provide more flexibility for the business to propose different forms of price control.

- What would be the appropriate side constraints and pricing principles under a revenue cap approach, or a weighted average price cap, to ensure efficient and equitable outcomes?

Box 5.1 Different forms of price controls

The different forms of price control include the following:

- **Maximum prices** – Maximum prices are determined at the start of the determination period and 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 utility's cost structures.
- **Weighted average price cap (WAPC)** – A maximum average price is set for each group of the utility's prices for the first year of the determination. A formula can also be determined for adjusting this average price in each subsequent year of the regulatory period. Utilities then have the freedom to rebalance prices, so long as the weighted average of the prices is equal to the maximum average price. The accuracy of volume forecasts will significantly affect the overall revenue that the utility is able to earn while keeping within the weighted average price cap.
- **Revenue cap** – A regulated entity receives its total revenue allowance for a regulatory period, irrespective of the volume of regulated services provided. Customers bear any volume-related risk through price increases or decreases over the regulatory period.
- Hybrid of the revenue and price cap controls – a price control is in place but additional measures to mitigate the risk of the utility under or over-recovering its revenue requirement are also used.

5.1 Comparison of different forms of price control

Currently, IPART sets the maximum prices a business can charge for its water services. This is a relatively prescriptive approach, and while it has its benefits, the lack of flexibility could impact on water businesses' incentives to encourage their customers to conserve water. A lack of autonomy for the businesses to set prices potentially discourages them from taking ownership of their prices. **Table 5.1** summarises the different characteristics of the common forms of price control – maximum prices, a weighted-average price cap, and a revenue cap.

Table 5.1 Characteristics of different price controls

	Maximum prices	Weighted average prices	Revenue cap
Flexibility to respond to changes in demand in the short-term	Lower Revenue risk is borne by the business in the short-term. In the longer term, revenue risk is primarily borne by the customer through a demand volatility adjustment mechanism.	Higher The business is able to reset prices between customer groups, but it retains revenue risk to the extent that its overall demand forecasts are different to actual demand.	Higher Revenue risk is borne by the customer in the short and long term, and only limited by side-constraints.
Short-term price predictability	High	Dependent on side-constraints to limit price movements.	Dependent on demand risk and any side-constraints to limit price movements.
Efficiency of pricing over time	Prices are set to be cost-reflective based on information at a point in time, and updated at each regulatory period.	Efficiency depends on the business's understanding of its customers' price elasticities, how frequently prices are reset, and the side constraints imposed. It encourages the business to reveal more information about its customers, to the regulator, by providing an opportunity for it to earn additional profit from its customers in the short-term.	Prices update based on changes in revenue in the short-term. Pricing principles are needed to ensure that prices remain cost-reflective and equitable during the regulatory period.
Business's autonomy when setting prices	Lower	Higher	Higher
Financial incentive for the business to encourage customers to conserve water	Lower Encouraging water conservation results in lower revenue in the short-term. The Economic Level of Water Conservation (ELWC), and the demand volatility adjustment mechanism, address this risk.	Lower Customer groups who are more price-elastic on average would tend to face lower prices. But, it also encourages the business to maximise water demand from customers who are price inelastic (willing-to-pay).	Higher The business does not bear any revenue risk from lower water sales. The business would earn additional profit in the short-term to the extent that customers who conserve water reduce the business' short-term operational costs.

In determining the most appropriate option, or options, an important underlying principle is that risk should be assigned to the party best able to manage it, and benefit to the business from reduced risk should be shared with its customers. In practice, the form of price control is relevant when setting water prices, as the water usage price recovers a significant portion of the costs of providing this service. In contrast, fixed charges recover the majority of costs

for wastewater and stormwater services, and the businesses would not face significant revenue volatility under any form of price control.

At the workshop, we also discussed the merits of an approach we have termed a 'within-period revenue cap'. More detail on this option, as well as the three approaches discussed in this chapter, is provided in Appendix A.

Implementing any significant change to the regulatory framework comes with an administrative burden (for both IPART and businesses) which are ultimately borne by customers or taxpayers. Any reform must deliver benefits to customers and the market that outweigh the implementation (and ongoing compliance) costs.

5.2 Revenue cap

The revenue cap was generally well received at our first workshop. Under this approach, after IPART has set a revenue requirement for the business, IPART would then allow the business to set its own prices, which could differ between customer groups. Businesses are attracted to the flexibility a revenue cap could provide, particularly as demand/climate patterns change within a regulatory period. Nonetheless, many also cautioned us to keep any pricing framework simple, and cost reflective in line with National Water Initiative pricing principles.

A revenue cap would need to be consistent with the IPART Act. Under the Act, IPART may determine pricing by fixing the maximum price directly, or setting the methodology for fixing the maximum price. This means that IPART would need to approve a business's proposed methodology to convert its revenue cap into maximum prices.

In practice, a revenue cap consistent with the IPART Act would have constraints imposed on it to promote equity and efficiency. For example, IPART may anchor usage prices to the Long Run Marginal Cost (LRMC) of supplying water but allow the business to adjust its fixed prices to meet its revenue requirement.

A revenue cap provides a strong incentive for the business to reduce its costs in order to profit from fixed revenue, but there is the risk of price volatility for customers. In order to contain price volatility IPART could impose side constraints, for example, which limit price movements to a threshold set at a percentage of the previous year's bill (or charge).

With the appropriate side constraints, a revenue cap could allow for more personalised pricing for customers. Sydney Water[5] provided some examples of how flexible prices could be used in its 2016 pricing proposal.[6]

5 Sydney Water proposed these examples as part of a proposal to move to a weighted average price cap, but the examples could also be used under a revenue cap.

6 IPART, *Review of prices for Sydney Water Corporation*, July 2016, p 98.

5.3 Weighted Average Price Cap

A weighted average price cap also adds flexibility to the way prices are set. In theory, the business could use this approach to offer customers more choice in how they pay for water. If the business understands its customers, a Weighted Average Price Cap can give the businesses more revenue certainty. Over time, it also provides more information to the regulator about the preferences and demand for services from different customer types. But there is limited competition in the water sector, which can potentially reduce the incentive for businesses to use the flexibility to provide value for customers. A Weighted Average Price Cap comes with the risk that companies could use this flexibility to earn additional profits from certain customer groups, creating the risk of inequitable wealth transfers.

5.4 Pricing principles

Providing the businesses with more flexibility to set prices would likely need to be accompanied by a set of pricing principles. These principles would aim to protect customers, and to ensure cost reflective prices are provided to potential market entrants and to end-use customers.

For example, we could use pricing principles to:

- place limits on the level of bill variability, for a given level of consumption, during a determination period
- require that water usage prices are set with reference to the long run marginal cost of water supply
- restrict the level of price difference between customer groups.

6 Shadow price for leakage

Using water efficiently must be a key focus for water businesses and consumers in NSW. Increasingly uncertain climate and variable weather patterns, along with a growing population, mean that supply augmentations will be needed in future.

IPART's challenge is to build a framework that sends efficient signals for water conservation – both relating to the supply of and demand for water. In this Discussion Paper we focus on a new idea for the businesses to better manage leakage. This will fit within the broader water conservation program, run by a number of different agencies including DPIE and the businesses themselves.

IPART's framework sets a water usage price with reference to the long run marginal cost of producing water. This approach accounts for the impact that water consumption today has on the future long-term costs of providing water. We consider that this approach provides efficient signals for customers to conserve water, so that they can make an informed choice about how much water they are willing to pay for. However, the water businesses do not receive that same signal because the cost of leakage to the business, which is based on the short run cost of water supply, is well below the long run marginal cost of water.

We seek feedback about whether to introduce a shadow price for leakage.

- Should the value of water used in the shadow price be based on a short run marginal cost or a long run marginal cost of supplying water?
- How we can account for unbilled water under a shadow price for leakage?

6.1 Enhance incentives with a shadow price

Conceptually, the businesses should face the same financial incentive to reduce leakage that the customer faces to conserve water when paying the water usage price for water consumed.

This incentive could be established for the business by creating a 'shadow price' for water leakage. For every unit of water leaked above the business's target (whether static or dynamic), the business would have to pay the water usage charge for that water, as if it were the customer for that water. It would pay this through a revenue adjustment in the next determination.

If the business reduced its leakage below its target, then IPART could provide additional revenue at the next period equal to the value of water saved. The logic is that every unit of water saved delays the need for system augmentation, so the savings associated with that delay can be returned to the business at the next price review.

This essentially makes the business the 'customer' for leaked water, meaning it must pay the same usage price that the customer pays for this lost water. This could promote a (broadly) equivalent price signal for demand and supply activities that promote water conservation and should encourage the business to better manage leakage.

This topic did not feature heavily at the workshop, but initial discussions we have had with some of the businesses suggest there is support for this idea, subject to more detail on how it would work in practice.

6.1.1 Setting a price for leaked water

The first step in implementing the shadow price would be to establish the value of water leaked. We propose to use the usage charge that customers pay for water (set with reference to the long run marginal cost of water). This sends the clearest signal – in keeping with the aim of treating the business as a customer. It is also the simplest option, in that it only has two settings (drought and non-drought) as opposed to changing regularly like the short-run value of water as calculated by Sydney Water's current economic level of water conservation (ELWC) method.

6.1.2 Operationalising the price

We propose a two-step approach to implementing the shadow price:

1. At the start of the determination period, we provide an efficient cost allowance for water conservation which includes the costs of leakage management for the target level of leakage.
2. At the end of the period, we compare actual leakage performance with the target amount over the period. We then calculate:

$$Z = (actual\ leakage - target\ leakage) \times water\ usage\ price + \sum holding\ costs$$ [7]

We then adjust the notional revenue requirement in the following period by Z, meaning the business will either have to pay for underperformance, or receive additional funds for exceeding its target.[8]

Of course, we do not want to send the signal that more spending on leakage is always preferable. The shadow price needs to send efficient signals about expenditure decisions relating to leakage management. We need to manage incentives to address the current risk of underspending, without businesses overcorrecting and spending more than what is efficient.

7 The 'Holding costs' term adjusts the difference between actual and target leakage, by the time value of money. This is because there is a time delay before the adjustment for actual and target leakage is made to the NRR in the following period.

8 As with all adjustments of this kind (eg, the Demand Volatility Adjustment Mechanism), the Tribunal retains discretion not to make the adjustment at the time it determines prices for the next period. The Tribunal would indicate its intention, but not bind itself to a future outcome.

Our current method of undertaking an ex post expenditure review should ensure this does not happen. Under this approach, only capital expenditure deemed by IPART to be efficient will be rolled into the regulated asset base in the next determination period, which should prevent the business overinvesting to reduce leakage. The shadow price itself encourages the business to only make efficient operating expenditures because the business would retain the net benefit of spending more to reduce leakage above the value of water, in this case.

7 Regulators Advisory Panel

The water sector has many participants with complementary, but at times, overlapping roles. A key part to lifting the sector's performance is ensuring consistent communication between different policy makers, regulators and water businesses. Together, the participants in the sector should work together to understand and deliver the outcomes in the long-term interest of consumers.

IPART engages regularly with other regulators and policy-makers, but it is largely on an as-needs basis rather than through a structured, transparent, process. We are conscious that the current approach creates the risk that businesses could face 'regulatory silos' where regulators or policy makers only consult each other as changes to the framework are being introduced, rather than jointly developing these changes. Opportunities for efficiency may be lost.

Regulators in other jurisdictions have established regulators' groups to encourage better communication. For instance, ESCOSA established a Regulators Working Group in 2018, and has noted the group has been successful at better engaging other regulators in its process. Ofwat formed a similar group in 2011.

We propose introducing a Regulators Advisory Panel (RAP) to promote better co-ordination across the water sector. It should be noted that the RAP would not be a decision making body.

We seek feedback on whether IPART should introduce a Regulators Advisory Panel. And if so:

- What would be the goals of the Regulators Advisory Panel (RAP)?
- Who might participate in the RAP?
- How would the panel operate?

To promote stakeholder feedback, we have included a draft charter for the RAP (see **Box 7.1** A Draft Charter for a New South Wales Water Regulatory Advisory Panel below).

7.1 Goals of the Regulators Advisory Panel

The goal of the RAP would be to support efficient decision-making by the businesses through improved co-ordination. A RAP would be a platform for regulators and policy makers, in the water sector, to share information and contribute to better regulatory decisions.

A more formal approach to information sharing between policy makers and regulators could promote the long-term interests of customers, by encouraging better long-term planning in the sector and improving how the inherent trade-offs between costs, health and environmental outcomes are balanced.

At the same time, the businesses retain responsibility for engaging with, and meeting the requirements of, regulators and policy makers, including IPART, at an efficient cost.

There are a number of benefits the RAP could deliver, both in terms of information sharing and process improvements. The RAP could:

- Provide general informational benefits – each member of the panel gains a clearer picture of the regulatory process and system, as well as the decisions being taken by other regulators. It promotes consistent and unbiased information being provided by the utility to all regulators.
- Improve long-term planning – policy makers and regulators have a shared social licence to deliver water that is affordable, respond to the challenges of climate change and to promote positive environmental outcomes. However, there are trade-offs to be made to balance these objectives. With the right members, this panel could boost understanding of these tensions and promote the use of cost benefit analysis in making these trade-offs, where appropriate.
- Support innovation in the sector – the Panel could provide a forum to draw on the learnings of other members, as well as developments in other jurisdictions and regulated sectors.

More broadly, the group could also support IPART's decision-making processes by providing useful insights in the lead-up and during our pricing review process. Businesses could test new and better ways of meeting regulatory requirements, and the IPART Secretariat could test preliminary pricing decisions with the panel.

Our initial consultation showed this idea was strongly supported by water businesses, regulators and policy makers alike. DPIE, in particular, was very supportive of this idea.

Box 7.1 A Draft Charter for a New South Wales Water Regulatory Advisory Panel

Together, the members of the New South Wales Water Regulatory Advisory Panel (RAP) are responsible for the economic, environmental and public health regulation of the New South Wales water sector. The RAP comprises representatives of:

- The Independent Pricing and Regulatory Tribunal
- The NSW Environment Protection Agency
- NSW Health, and
- The Department of Planning, Industry and Environment.

New South Wales water businesses are legally responsible for meeting the requirements of the members of the RAP. The RAP acknowledge that the requirements we each impose may result in costs for these water businesses, which are ultimately paid by NSW water customers. It is important that the objectives of regulation are achieved at the lowest sustainable cost.

Purpose

The RAP provides a forum for key regulators to coordinate efforts to achieve positive outcomes for the New South Wales community. It allows the water businesses and members of the RAP to share information and feedback with one another, to support members in their decision-making roles.

The RAP is not a decision-making body. However, each of the parties make decisions on regulations and policies that impose responsibilities, and ultimately costs, on the water businesses.

The purpose of the RAP is to:

- Support efficient decision-making by the businesses through improved co-ordination
- Strengthen information sharing between policy makers and regulators to promote the long term interests of customers
- Encourage better long-term planning in the sector and improving how the inherent trade-offs between costs, health and environmental outcomes are balanced
- Support innovation in the sector by drawing on the learnings of members' and developments in other jurisdictions and regulated sectors.

The RAP will clarify the respective roles, functions and priorities of each regulator, to minimise the duplication of effort among regulators, identify any gaps, overlaps or conflicts/tensions in their respective forward work programs and where possible, identify joint solutions or efficiencies.

Commitment

The members of the RAP commit to meeting at least twice a year to formally discuss:

- New South Wales water businesses' performance across different regulatory streams
- Any policy or regulatory changes being considered by each regulator
- How the water sector is meeting the long-term interests of consumers and community, and in particular, addressing long term planning
- Any other matters relevant to the New South Wales water sector.

Members of the RAP will communicate openly to ensure a shared understanding of the overall regulatory system that applies to New South Wales water businesses, the impact of our regulation on each other's priorities and the combined effect of our regulation. To ensure transparency and accountability, the RAP will maintain high-level minutes of meetings to be published on IPART's website for public access.

7.2 Who might participate in the RAP

In determining panel members, we consider there are three key criteria. Agencies on the panel must:

- Have a regulatory impact on businesses (and therefore customers)
- Deal with services relevant to those provided by the water businesses
- Be regularly in contact with the water businesses.

Following these criteria, our preliminary view is that the panel should include IPART, the NSW EPA, NSW Health and DPIE. We are interested in hearing from stakeholders whether there is merit in also including a broader range of regulators as 'associate' members of the RAP, to support the exchange of new ideas. This could include other infrastructure regulators – such as the AER and the ACCC – and regulators in other sectors more broadly.

While the regulated businesses would not be members, the RAP could provide an opportunity for the businesses to present ideas, test assumptions, and bring conflicting directions to the attention of the group.

At this stage we are not inclined to include customer advocacy groups as permanent panel members. This is because we would expect the businesses to have thoroughly engaged with their customer bases before coming to the RAP with ideas. And because IPART would still examine how well each business understands its customers, and seek to engage with customer advocacy groups in order to do so.

7.3 How the panel would operate

Our preliminary view is that the panel could meet one or two times per year for a strategic discussion about:

- The businesses' performance across different regulatory streams
- Any policy or regulatory changes being considered by each regulator
- How the water sector is meeting the long-term interests of consumers, and in particular, addressing long-term planning.

At this stage, we envisage most meetings would have officer level representatives from the various government agencies to hear from water businesses, and deal with specific issues as they arise. However, we are also thinking through how best to get buy in from the leaders of these agencies, and could consider having some strategic meetings with CEO-level staff.

In the recent workshop held with stakeholders, some businesses suggested that there be two types of panel meetings:

- Meetings that deal with issues that impact the sector broadly have a representative from each water business present
- Meetings where an individual business can bring an issue to the panel of regulators and policy-makers (for instance, a conflict between a business's environmental licence and its pricing proposal).

Minutes of each discussion could be compiled and published on IPART's website after each meeting.[9] This ensures transparency, and can be used by members/businesses to brief their boards/senior executives.

9 Note that we would be cognisant of confidential or commercial-in-confidence information in publishing these summaries.

Appendix

A Forms of pricing

A.1 Maximum Prices

IPART's current method sets maximum water prices. We supplement the price setting with a demand volatility adjustment mechanism (DVAM), and cost-pass throughs for costs beyond the companies' control, and an annual adjustment for actual inflation.

Revenue = **Price** x **Demand**
The regulator sets the revenue the business can recover, and then uses demand forecasts to set price.

We set the maximum prices that a company can charge for its services. This includes water, wastewater, stormwater and minor services.

We firstly set a company's Notional Revenue Requirement (NRR). We then set demand forecasts, before setting prices for the full determination period that we forecast would recover the company's NRR.

A.2 Weighted average price cap

A weighted average price cap (WAPC) has been used widely in the electricity and gas markets, but less so in water.

Revenue = Price x **Demand**
The regulator sets the revenue the business can recover, and approves the demand forecasts. It then allows the business to change its prices between customer groups.

Under this approach, we would set a cap on the maximum average price (for each service: water, wastewater, stormwater) for the first year of the determination, and a formula for adjusting prices going forwards.

A WAPC could technically be set for all services combined, but this creates a legal challenge. Under the IPART Act, IPART may adopt a maximum price, or a methodology which fixes maximum prices. However, it may only set a methodology if it is of the opinion that it is impractical to directly fix the maximum price for each of those services separately.

A.3 Revenue cap

Under a pure revenue cap, the business sets its own prices using its demand forecasts. The only role the regulator plays is in establishing the revenue the business should recover.

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

The business is free to adjust its prices between fixed and variable charges, and for different customer types, in response to demand variation, but is unable to earn more than the revenue set by IPART (i.e. any over-recovery must be returned to customers in the next billing period).

In practice, prices would be adjusted to meet the allowed maximum income with a one period lag. As such, a revenue cap is not all that different to setting maximum prices with an annual DVAM (though a DVAM is a slightly less flexible solution).

As with a WAPC, a pure revenue cap would need to be paired with a set of pricing principles that the business must adhere to. However, unlike a WAPC, the business cannot recover more than its NRR by adjusting prices, because the regulator has capped the total revenue the business can keep after the end of the period.

Revenue caps with pricing principles are currently used in electricity distribution networks.

A.4 Within-period revenue cap

We also considered a new method for setting prices for water service, which we call a within-period price cap (WPRC). This method can be used to set prices, or applied as a modified revenue cap.

The main purpose of a WPRC is to avoid end-of-period adjustments due to demand volatility. Currently, when setting maximum prices, demand volatility is managed with a revenue adjustment in the following regulatory period (DVAM).

Borrowing an approach from rail access pricing in the Hunter Valley coal system, it is possible to design price structures that will only recover the efficient revenue requirement without requiring perfect forecasts of actual demand.

The following steps outline how prices are calculated under a WPRC:

Step 1. Set the efficient notional revenue requirement (NRR)

The NRR represents total efficient costs. Under both our current approach and a WPRC:

(1) NRR (i.e. total costs) = fixed costs + variable cost ($/kL) x kL supplied

The variable cost ($/kL) represents the short-run operating cost.

Step 2. Set fixed and usage charges that recover the NRR

Under both our current approach and a WPRC, we need to set fixed and usage charges that recover the NRR.

(2) NRR = revenue required from fixed charges + revenue required from usage charges

Because the price of water, based on the LRMC for water, is higher than short-run operating costs, a portion of the usage charge recovers fixed costs. The remaining portion is recovered by the fixed price as follows:

(3) Revenue required from fixed charges = fixed costs – extra* revenue from usage charges

*The revenue is 'extra' because water usage price set at LRMC is greater than the variable costs of supplying the water.

Step 3. Change how we set the prices so that we manage demand risk within-period

Under a WPRC, we set prices in such a way the business recovers only its efficient operating costs.

To set the **fixed charges**, we minimise the 'extra' revenue from usage charges by assuming low demand – for example, we use forecast demand for drought conditions.

With these fixed charges in place we know that, once the business has sold the amount of water we used to set the charges (ie, the forecast demand for drought conditions), it will:

- recover all of its fixed costs by the end of the year (because it has already recovered all the 'extra' revenue we assumed it would when we set the charges)
- already have recovered the variable costs included in the NRR (because we included in total costs the variable amounts the business required to deliver the forecast volumes)
- for the rest of the year, only need to charge the variable operating cost ($/kL) for usage to recover the additional costs associated with higher demand.

It follows that the **usage charge** is the LRMC until the business has sold the amount of water we used to set the fixed charges. Then it becomes the variable operating cost per kL (i.e. just enough to cover the additional supply costs).

Note that, for the approach to work, actual demand would need be greater than forecast demand. If actual demand was below forecast demand in any year, the usage charge (at LRMC) would not generate enough 'extra' revenue to cover total fixed costs. Unrecovered costs could be carried over the next year (i.e. added to the NRR for the next year), but this would add a complication and undermine one of the main benefits the approach (ie, avoiding ex-post adjustments).