

Draft statement

Statement of regulatory pricing principles for the water sector

November 2020

We wish to acknowledge the contribution of the following staff to this report:

Kwabena Osei

© Queensland Competition Authority 2020

The Queensland Competition Authority supports and encourages the dissemination and exchange of information. However, copyright protects this document.

The Queensland Competition Authority has no objection to this material being reproduced, made available online or electronically but only if it is recognised as the owner of the copyright and this material remains unaltered.

SUBMISSIONS

Closing date for submissions: 23 December 2020

Public involvement is an important element of the decision-making processes of the Queensland Competition Authority (QCA). Therefore, submissions are invited from interested parties concerning this draft report. The QCA will take account of all submissions received within the stated timeframes.

Submissions, comments or inquiries regarding this paper should be directed to:

Queensland Competition Authority
GPO Box 2257
Brisbane Q 4001

Tel (07) 3222 0555
Fax (07) 3222 0599

www.qca.org.au/submissions

Confidentiality

In the interests of transparency and to promote informed discussion and consultation, the QCA intends to make all submissions publicly available. However, if a person making a submission believes that information in the submission is confidential, that person should claim confidentiality in respect of the document (or the relevant part of the document) at the time the submission is given to the QCA and state the basis for the confidentiality claim.

The assessment of confidentiality claims will be made by the QCA in accordance with the *Queensland Competition Authority Act 1997*, including an assessment of whether disclosure of the information would damage the person's commercial activities and considerations of the public interest.

Claims for confidentiality should be clearly noted on the front page of the submission. The relevant sections of the submission should also be marked as confidential, so that the remainder of the document can be made publicly available. It would also be appreciated if two versions of the submission (i.e. a complete version and another excising confidential information) could be provided.

A confidentiality claim template is available on request. We encourage stakeholders to use this template when making confidentiality claims. The confidentiality claim template provides guidance on the type of information that would assist our assessment of claims for confidentiality.

Public access to submissions

Subject to any confidentiality constraints, submissions will be available for public inspection at our Brisbane office, or on our website at www.qca.org.au. If you experience any difficulty gaining access to documents, please contact us on (07) 3222 0555.

Contents

SUBMISSIONS	I
Closing date for submissions: 23 December 2020	i
Confidentiality	i
Public access to submissions	i
1 OVERVIEW	1
1.1 Background	1
1.2 The need for pricing principles	1
1.3 Regulatory framework	2
1.4 Pricing principles	3
1.5 Next steps	4
2 REGULATORY FRAMEWORK	5
2.1 The water sector	5
2.2 Our role in the water sector	6
3 PRICING PRINCIPLES	12
3.1 Overview	12
3.2 Economic efficiency	13
3.3 The role of customer engagement	22
3.4 General principles	23
3.5 Other urban water pricing issues	24
REFERENCES	26

1 OVERVIEW

1.1 Background

In September 1998, the Queensland Government (the government) directed us, under section 10(e) of the *Queensland Competition Authority Act 1997* (QCA Act), to advise on:

- pricing principles that we could adopt to underpin monopoly prices oversight for the water sector
- principles relevant to an assessment of appropriate maximum rates of return, asset valuation methodologies for pricing purposes and the extent to which a value could be attached to water.

In accordance with the terms of that direction, we prepared a confidential report for the government. Subsequently, the government directed us to update that report to consider the input of stakeholders through an appropriate consultation program.

We published the updated report in December 2000. It detailed the pricing principles we envisaged we would apply in exercising our regulatory responsibilities relating to, among other functions, prices oversight of monopoly water supply business activities. These principles include that prices should be cost reflective, forward looking, ensure revenue adequacy, promote sustainable investment, ensure regulatory efficiency, and take into account relevant public interest matters.

Since we published those principles, we have continued to refine our overall approach over several pricing investigations, consistent with our regulatory obligations.

This report is an update of the 2000 report. It outlines and explains a set of high-level pricing principles, distilled from our regulatory objectives, to give stakeholders a contemporary view of our regulatory approach. This update focuses on the general nature of these pricing principles; the details on how we apply these principles, such as the technical aspects of the valuation of assets and appropriate return on capital, are set out in recent water pricing reports and guidance material available on our website.

1.2 The need for pricing principles

Good regulatory practice requires the underlying regulatory principles and their application (the regulatory regime) to be transparent and understandable so that stakeholders have confidence in the regulatory regime. While the application of regulatory principles may evolve over time in light of experience and changing circumstances, a stable regulatory regime is one where changes that occur are communicated in advance and can be easily planned for and managed by stakeholders.¹

It is therefore important that the principles guiding us in the exercise of our regulatory responsibilities are transparent and predictable.

At the same time, the principles can only be a general guide to our approach. In applying them, we would give attention to the circumstances of a given pricing investigation. We are also obliged

¹ See, for example, R Baldwin, *Regulatory Stability and the Challenges of Re-regulating*, Centre on Regulation in Europe, 2013, p. 8.

to consider a range of public interest issues that may influence our recommendations or findings in any given pricing investigation.

1.3 Regulatory framework

Chapter 2 sets out a high-level summary of the regulatory framework within which we operate, including our regulatory responsibilities and our approach to balancing the competing factors we must have regard to when undertaking water pricing investigations.

We are an independent statutory body with, among other functions, prices oversight of monopoly business activities, under the provisions of the *Queensland Competition Authority Act 1997* (QCA Act).²

Under Part 3 of the QCA Act, we undertake investigations of pricing practices relating to declared monopoly business activities, when directed to do so by the Minister responsible for administering the QCA Act.

We also have a role in regulating the:

- prices of private water suppliers where their activities have been declared as monopoly water supply activities (under Part 5A of the QCA Act)
- terms and conditions of access to declared services (under Part 5 of the QCA Act).

However, there are currently no declared monopoly water supply activities (under Part 5A) or declared services (under Part 5) that are provided by means of water facilities.

We are required to consider certain matters, outlined in section 26, when conducting pricing investigations under Part 3 of the QCA Act, including economic efficiency factors and social equity factors. We may also have regard to any other matters that we consider relevant in undertaking a pricing investigation. In addition, we are required to consider any matters that the Minister directs us to consider when referring a monopoly business activity for a pricing investigation.

We note that regulatory tools are limited in their ability to achieve multiple and potentially conflicting objectives. Further, the QCA Act does not indicate the weightings to be applied to different factors and so we must apply our discretion in weighing up different factors in the context of a given investigation.

In general, we consider that social equity factors are best addressed through government policy because elected representatives are best placed to make decisions involving broader social policy and to resolve trade-offs between conflicting public interest matters.

Moreover, affordability concerns can typically be more effectively addressed by using the tax and transfer system. For example, income support payments can better address general cost of living pressures. Such policies limit potential distortions to efficient prices – thereby leaving customers to make efficient decisions in the use of water and other resources.

In considering social equity factors, in addition to relevant section 26 factors, we will take government policy into account including policy matters we may be directed to consider in a given pricing investigation, the legislative and regulatory obligations that apply to monopoly business activities and targeted subsidies to customers to address affordability concerns.

² Unless otherwise stated, any reference to a section, part or schedule of a statute is to the relevant section, part or schedule of the QCA Act.

Furthermore, as we are a public entity for the purposes of the *Human Rights Act 2019* (Qld), we must act or make a decision in a way that is compatible with human rights, and properly consider human rights when making a decision.³ These obligations will apply as relevant to our regulatory responsibilities in the water sector.

1.4 Pricing principles

Chapter 3 outlines and explains the broad principles underlying our approach to the investigation of pricing practices in the water sector.

In summary, we consider that water prices associated with regulated monopoly business activities should generally:

- *recover the efficient costs of providing the relevant services* – prices should generally recover the efficient costs of service levels that are necessary to meet required service standards and other regulatory obligations
- *signal the efficient use of the relevant services* – prices should generally be structured to signal to customers the costs associated with their water use decisions
- *signal the efficient scale and timing of augmentations in supply infrastructure* – prices should generally signal to customers the costs of supply augmentation to encourage the efficient scale and timing of investments in new capacity
- *reflect the appropriate sharing of risk* – the level and structure of prices should enable regulated businesses to recover their prudent and efficient costs, subject to appropriate risk sharing between regulated businesses and their customers.

More broadly, water prices associated with regulated monopoly business activities should generally be:

- *informed by the service standard and the tariff structure preferences of customers* – in setting prices, businesses should consider customer input regarding the level and quality of service, and the structure of tariffs
- *in the public interest* – where appropriate, prices should take account of broader public interest concerns
- *transparent, predictable and simple* – prices should be simple to implement and administer, and easy to understand by customers.

The Minister may direct us to consider stated matters during an investigation and make recommendations about a stated matter (discussed in chapter 2). The above principles are therefore a general guide to our approach; we will consider other matters that we may be directed to consider in our assessment and recommendation of prices.

In some instances, it will also be necessary to use our judgement in balancing these principles against one another when assessing and recommending prices.

³ Section 58 of the *Human Rights Act 2019*.

1.5 Next steps

We will finalise the statement of regulatory pricing principles following consideration of any stakeholder feedback on this draft statement.

We invite interested parties and stakeholders to comment on this draft statement. Submissions are due by 23 December 2020.

2 REGULATORY FRAMEWORK

The various legislative provisions that make up the regulatory framework outlined here are a high-level summary only. The summary is not intended to be exhaustive of all issues that may arise in a particular situation.

2.1 The water sector

In Queensland, the safety and reliability of water supply is regulated under the *Water Supply (Safety and Reliability) Act 2008* (Water Supply Act). Under the Water Supply Act, water services include:

- water harvesting or collection
- the transmission of water
- the reticulation of water
- drainage infrastructure (other than for stormwater drainage)
- water treatment and recycling.

Water service providers include:

- drinking water service providers (mainly local governments)
- recycled water providers
- bulk water service providers and water authorities.

The *Water Act 2000* (Water Act), provides the framework for the sustainable management of water resources, including the planning, allocation and use of water. Water service providers have various obligations under the Water Act.

2.1.1 Urban water services

In south east Queensland, Seqwater is responsible for supplying treated bulk water to five distribution-retail entities, servicing business and residential customers in different local council areas.⁴ The distribution-retail entities are:

- Queensland Urban Utilities (QUU), supplying the Brisbane, Ipswich, Lockyer Valley, Scenic Rim, and Somerset council areas
- Unitywater, supplying the Moreton Bay, Sunshine Coast and Noosa council areas
- Logan City Council, Redland City Council and Gold Coast City Council, each supplying their respective council areas.

Outside of south east Queensland, local councils and water authorities generally provide water supply services.⁵

⁴ Seqwater also provides bulk water supply services to Stanwell Corporation, Toowoomba Regional Council and irrigators and other water entitlement holders.

⁵ Sunwater provides bulk water supply services to some regional councils. There are also smaller water authorities that supply water for a range of activities.

There are two major bulk water authorities that provide bulk water supply services to industrial customers and the regional councils in their respective council areas. They are Gladstone Area Water Board and Mt Isa Water Board.

2.1.2 Rural water services

Sunwater is the dominant provider of bulk water supply and distribution services in rural Queensland. These services support irrigated agriculture, regional industry, and local governments, among others.

2.2 Our role in the water sector

We are an independent statutory body with, among other functions, prices oversight of monopoly business activities, under the provisions of the QCA Act.⁶

Under Part 3 of the QCA Act, we undertake investigations of pricing practices⁷ relating to declared monopoly business activities, when directed to do so by the Minister of the Queensland Government responsible for administering the QCA Act.⁸

We also have a role in regulating the:

- prices of private water suppliers where their activities have been declared as monopoly water supply activities under Part 5A of the QCA Act
- terms and conditions of access to declared services under Part 5 of the QCA Act.

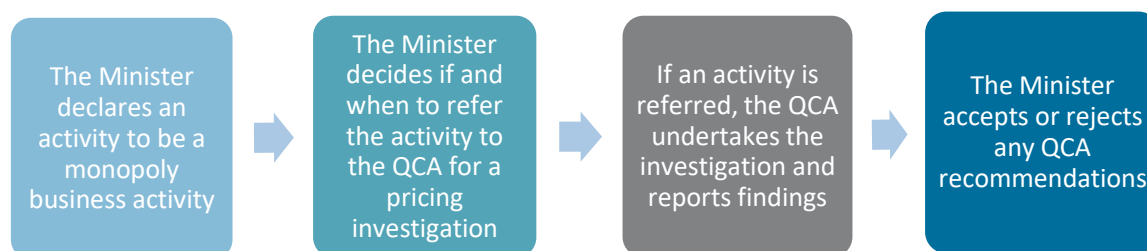
Among the key considerations for us in the oversight of pricing practices in the water sector are the need for efficient resource allocation and the promotion of competition, as well as the protection of consumers from the abuses of monopoly power.

2.2.1 Monopoly prices oversight

The prices oversight regime (Figure 1), under Part 3 of the QCA Act, involves:

- declaration by the Minister of an activity as a monopoly business activity
- ministerial referral of a declared activity to the QCA for a pricing investigation.

Figure 1 The monopoly prices oversight framework



⁶ Initially, the policy objective extended to prices oversight of monopoly or near-monopoly government business activities (see Explanatory Notes, Queensland Competition Authority Bill 1997, p. 1). This was subsequently extended to non-government monopoly business activities (see, Explanatory Notes, Queensland Competition Authority Amendment Bill 2008, p. 1).

⁷ Under the QCA Act, pricing practices are defined as the level and structure of prices, or anything that affects the level and structure of prices, including, for example, service quality, costs of production and levels of performance relating to the business activity.

⁸ The Minister currently responsible for administering the QCA Act is the Treasurer and Minister for Infrastructure and Planning.

Declaration of monopoly business activities

We have developed criteria for declaring monopoly business activities, consistent with our obligations under the QCA Act.⁹ These include:

- an absence of vigorous rivalry in the relevant market and the existence of significant barriers to entry; or
- evidence of the exercise of market power.

The Minister may declare a government business activity to be a monopoly business activity, by gazette notice, having regard to the current criteria and any information or advice about the current criteria that we give to the Minister.¹⁰ The Minister has declared the following government business activities in the water sector to be monopoly business activities:

- the activity of bulk water supply by Seqwater¹¹
- the activities of bulk water storage and distribution by Sunwater, undertaken for irrigation services, in specified water supply schemes and distribution systems¹²
- the activities of bulk water storage, bulk water delivery, bulk water treatment and bulk water supply by Gladstone Area Water Board.¹³

A government business activity may also be declared as a monopoly business activity by regulation.¹⁴ Consistent with this, the following business activities have been declared to be monopoly business activities¹⁵:

- the water and sewerage services of particular local governments across Queensland¹⁶
- the water and sewerage services of Queensland Urban Utilities and Unitywater.

Like government business activities, non-government business activities may be declared by the Minister either by way of gazette notice or by regulation.¹⁷ There are presently no such business activities in the Queensland water sector that are declared.

Pricing investigations relating to monopoly business activities

Our price investigation functions include:

- investigating and reporting to the Minister about pricing practices relating to monopoly business activities¹⁸

⁹ Declaration can be in relation to a government business activity (s. 19) or a non-government activity (s. 21A). We have developed criteria in relation to the declaration of both — QCA, *Criteria for the Identification of Government Monopoly Business Activities*, March 2009; QCA, *Criteria for the Identification of Non-Government Monopoly Business Activities*, November 2008.

¹⁰ Section 19.

¹¹ Gazetted on 5 May 2014.

¹² Gazetted on 6 April 2001.

¹³ Gazetted on 13 September 2000.

¹⁴ Section 20.

¹⁵ Section 2 of the *Queensland Competition Authority Regulation 2018*.

¹⁶ These are Bundaberg Regional Council; Cairns Regional Council; Gold Coast City Council; Logan City Council; Mackay Regional Council; Redland City Council; Rockhampton Regional Council; Toowoomba Regional Council; and Townsville City Council.

¹⁷ Sections 21A, 21B.

¹⁸ Sections 10(b), 23.

- conducting price monitoring investigations in relation to monopoly business activities and reporting the results to the Minister.¹⁹

We may only undertake a pricing investigation upon direction from the Minister. When referring a monopoly business activity for an investigation, the Minister may direct us to consider stated matters in conducting the investigation and to make a recommendation about a stated matter.²⁰

Prices oversight for private water suppliers

We also have prices oversight responsibilities for private sector water supply activities, where such activities are declared to be monopoly water supply activities under Part 5A of the QCA Act.

A person may ask us to recommend (to the Minister) that, or the Minister may ask us to consider whether, a candidate water supply activity²¹ should be declared to be a monopoly water supply activity.²² We must recommend a candidate water supply activity²³ be declared if we are satisfied about all of the water supply criteria.²⁴

Where an activity has been declared by the Minister to be a monopoly water supply activity, we can make binding pricing determinations for the monopoly water supply activities of a water supplier.²⁵

There are currently no declared monopoly water supply activities under Part 5A of the QCA Act.

2.2.2 Third party access

Declaration of a service under Part 5 of the QCA Act, enables third parties to use facilities by means of which the service is provided, on commercial terms, so they can compete with the owners of these facilities and others in related markets.

Interested parties may apply for the declaration of a service by making a submission to us, explaining why the service meets the following criteria (the access criteria):

- Gaining access (or increased access) to the service on reasonable terms and conditions, as a result of declaration, would materially increase competition in related markets.
- The facility for the service could meet the total foreseeable demand in the market for the service (at least cost over the period for which the service would be declared)
- The facility is significant, having regard to its size or its importance to the Queensland economy.

¹⁹ Sections 10(ba), 23A.

²⁰ Section 24.

²¹ Under schedule 2 of the QCA Act, a *candidate water supply activity* is a water supply activity carried on by a water supplier and declared under a regulation to be a candidate water supply activity. A *water supply activity* is in turn defined to include the provision of water services (i.e. water storage, transmission, reticulation, treatment or recycling) and/or wastewater services (i.e. wastewater treatment, the collection and transmission of wastewater through infrastructure or the disposal of wastewater). There are currently no candidate water supply activities.

²² Section 170G.

²³ Or part of the activity, that is itself a water supply activity.

²⁴ Section 170J. We have developed water supply criteria, as required under section 170C. See, QCA, [Criteria for the Identification of Monopoly Water Supply Activities](#), January 2003. These criteria are substantively the same as the criteria for declaring monopoly business activities.

²⁵ Section 170ZB.

- Gaining access (or increased access) to the service on reasonable terms and conditions, through declaration, would promote the public interest.²⁶

We may assess an application and make a recommendation to the relevant minister (currently the Treasurer), who will make a decision having regard to the access criteria.

Where the owner of a facility providing a declared service and a person seeking access are unable to agree on the terms and conditions for access, either party may refer the dispute to us for resolution.²⁷ We then resolve the dispute by stipulating the terms and conditions that bind the parties. We may also approve an access undertaking, setting out the general terms on which the owner or operator of the facility undertakes to provide access to the service.²⁸

At the time of writing, no water facilities have been declared for third party access.

Separate to the third party access provisions of the QCA Act, we have a role under the Bulk Water Supply Code, made by the responsible Minister under the Water Act.²⁹ The responsible Minister may seek our advice in making decisions about pricing or access matters under the provisions of this code.

2.2.3 Regulatory obligations

We are required to consider certain matters when conducting pricing investigations under Part 3 of the QCA Act.³⁰ These may be broadly grouped under economic efficiency factors or social equity factors.

Economic efficiency factors include:

- efficient resource allocation
- promotion of competition
- protection of consumers from abuses of monopoly power
- efficient costs
- standard of goods or services including quality, reliability and safety
- appropriate rate of return on assets
- impact (of prices charged) on the environment
- demand management.

Social equity factors include:

- social welfare and equity considerations
- socially desirable investment or innovation
- economic and regional development issues.

²⁶ Section 76(2).

²⁷ Part 5, Division 2.

²⁸ Part 5, Division 7.

²⁹ The Bulk Water Supply Code regulates the supply of bulk water services between Seqwater, the distribution-retail businesses in south east Queensland and any other parties prescribed under regulation to be 'bulk water customers'.

³⁰ These are listed in section 26.

In addition, we may have regard to any other matters that we consider relevant in undertaking a pricing investigation.³¹ We are also required to consider any stated matters that the Minister directs us to consider when referring a monopoly business activity for a pricing investigation.³²

It is important to note that regulatory tools are limited in their ability to achieve multiple and potentially conflicting objectives – for example, prices that reflect efficient costs could raise affordability concerns for a vulnerable subset of customers. Addressing such concerns would typically require separate tools, such as government provision of explicit and transparent community service obligation (CSO) subsidies.

As the QCA Act does not indicate the weightings to be applied to different factors, we must apply our discretion in weighing up different factors in the context of a given investigation. It is a well-accepted proposition that in the absence of a statutory indication of the weight to be given to various considerations, it is generally for the decision-maker and not the court to determine the appropriate weight to be given to the matters which are required to be taken into account in exercising that statutory power.³³

In general, we consider that social equity factors are best addressed through government policy because elected representatives are best placed to make decisions involving broader social policy and to resolve trade-offs between conflicting public interest matters.

Moreover, affordability concerns can typically be more effectively addressed by using the tax and transfer system. For example, income support payments can better address general cost of living pressures experienced by some residential customers and targeted industry assistance can be more effective at addressing temporary shocks such as droughts. By providing direct assistance, these policies limit potential distortions to efficient prices thereby leaving customers to make efficient decisions in the use of water and other resources.

In considering social equity factors, in addition to relevant section 26 factors, we will take government policy into account including policy matters we may be directed to consider in a given pricing investigation, the legislative and regulatory obligations that apply to monopoly business activities and targeted subsidies to customers to address affordability concerns.

2.2.4 Commitments under the National Water Initiative

The National Water Initiative (NWI), to which the Council of Australian Governments (COAG) agreed in 2004, is a national blueprint for water reform. It is a shared commitment by governments to increase the efficiency of Australia's water use, leading to greater certainty for investment and productivity, for rural and urban communities and for the environment.³⁴

The NWI lists a set of best practice water pricing objectives including³⁵:

³¹ Section 26(3).

³² Section 24(1)(b).

³³ *Minister for Aboriginal Affairs v Peko-Wallsend Ltd* (1986) 162 CLR 24, 41. Also see *Telstra Corporation Ltd v ACCC* [2008] FCA 1758.

³⁴ The Productivity Commission conducts triennial assessments of the National Water Initiative (NWI), as required by the *Commonwealth Water Act 2007*. At the time of writing, the Productivity Commission is conducting the second of these triennial assessments and will assess the progress of all Australian governments in achieving the objectives, outcomes and timelines anticipated under the NWI. The Productivity Commission will also recommend actions that governments might take to better achieve these objectives, outcomes and timelines, as well as future reform priorities.

³⁵ COAG, *Intergovernmental Agreement on a National Water Initiative*, 1994.

- promoting economically efficient and sustainable use of water resources, water infrastructure assets and government resources devoted to the management of water
- ensuring sufficient revenue streams to allow efficient delivery of required services
- avoiding perverse or unintended pricing outcomes.

These principles are broadly consistent with our obligations.

2.2.5 Role of the pricing principles

Good regulatory practice requires underlying regulatory principles and their application (the regulatory regime) to be transparent and understandable so that stakeholders have confidence in the regime. The application of regulatory principles may evolve over time in light of experience and changing circumstances, but a stable regulatory regime is one where changes that occur are communicated in advance and can be easily planned for and managed by stakeholders.³⁶

In this vein, we consider it important that the principles guiding us in the exercise of our regulatory responsibilities are transparent and predictable so that stakeholders have confidence in the regulatory regime and benefit from reduced regulatory costs.

We have distilled these pricing principles from our regulatory objectives. The principles focus primarily on economic efficiency criteria but are to be balanced against other public interest considerations.

They may be refined in future if changes in technology and institutional structure alter regulatory objectives over time.

³⁶ See, for example, R Baldwin, *Regulatory Stability and the Challenges of Re-regulating*, Centre on Regulation in Europe, 2013, p. 8.

3 PRICING PRINCIPLES

The broad principles outlined here underpin our approach to the pricing of water services delivered to customers.

Details on how we apply these principles — such as the technical aspects of the valuation of assets and appropriate return on capital — are set out in recent water pricing reports and guidance material available on our website.

3.1 Overview

As discussed in chapter 2, we consider economic efficiency to be a primary objective given the existence of broad government policies targeting social equity goals. However, the Minister may direct us to consider stated matters in the course of an investigation and make recommendations about a stated matter.³⁷ These principles are therefore a general guide to our approach and we will consider other matters that we may be directed to consider in our assessment and recommendation of prices.

Under the criteria for economic efficiency, we consider that water prices associated with regulated monopoly business activities should generally:

- *recover the efficient costs of providing the relevant services* – prices should generally recover the efficient costs of service levels that are necessary to meet required service standards and other regulatory obligations
- *signal the efficient use of the relevant services* – prices should generally be structured to signal to customers the costs associated with their water use decisions
- *signal the efficient scale and timing of augmentations in supply infrastructure* – prices should generally signal to customers the costs of supply augmentation to encourage the efficient scale and timing of investments in new capacity
- *reflect the appropriate sharing of risk* – the level and structure of prices should enable regulated businesses to recover their prudent and efficient costs, subject to appropriate risk sharing between regulated businesses and their customers.

More broadly, water prices associated with regulated monopoly business activities should generally be:

- *informed by the service standard and the tariff structure preferences of customers* – in setting prices, businesses should consider customer input regarding the level and quality of service, and the structure of tariffs
- *in the public interest* – where appropriate, prices should take account of broader public interest concerns
- *transparent, predictable and simple* – prices should be administratively simple to implement and easy to understand by customers.

In some instances, it will be necessary to use our judgement in balancing these principles against one another when assessing and recommending prices.

³⁷ Section 24(1)(b) of the QCA Act.

3.2 Economic efficiency

Economic efficiency is maximised when no feasible changes in prices, production or consumption can benefit the community. It is usually considered in the contexts of productive, allocative, and dynamic efficiency.

3.2.1 Productive efficiency

Productive efficiency is achieved where a product or service is produced at least cost. In a competitive market, competitive pressure helps to ensure that producers employ the least cost mix of operating and capital inputs to produce the goods and services that their customers want. This maintains downward pressure on market prices to the benefit of the community.

When investigating pricing practices relating to monopoly business activities, we will consider productive efficiency by assessing, among other things, whether the costs to be recovered through prices are prudent and efficient.

Principle 1: Prices should recover the efficient costs of providing the relevant services

Prices should generally recover the efficient costs of service levels that are necessary to meet required service standards and other regulatory obligations.

In applying this principle, we will consider, among other things:

- the proper scope of the cost base
- the prudence and efficiency of the cost base.

Delineating the cost base

Costs incurred to meet required service levels would typically include:

- operating expenditure – this is usually recurring expenditure that is fully expensed annually, such as labour, materials, electricity, administration, and insurance
- capital expenditure – this is expenditure on long lived assets such as investment in water storage and delivery infrastructure and water treatment infrastructure. It is typically recovered over the life of the relevant asset, through an annual return on and of capital, ensuring that investors are adequately compensated for commercial and regulatory risk.

Businesses may also incur expenditure, whether operating expenditure or capital expenditure, to meet legislative and other compliance obligations such as environmental and safety requirements. We would typically include in the cost base, these and other costs that regulated businesses incur in the normal course of supplying water services.

However, the cost base would typically exclude costs incurred in the provision of non-regulated services or services that provide a benefit to other customers and have a dedicated funding stream.³⁸

³⁸ For example, formal flood mitigation services provided by storage assets may be funded out of government revenue, or there may be dedicated fees associated with the use of recreational facilities.

Return on capital

To fund significant investments in long-lived assets, commercial businesses typically raise funds from capital markets and must compensate investors for the opportunity cost of the funds – that is, the expected rate of return from foregone investment opportunities of similar risk.³⁹ This is the rate of return demanded by investors and represents the cost of capital to the business.

Consistent with accepted regulatory practice, we generally estimate the required rate of return as the weighted average cost of capital (WACC).⁴⁰

The WACC assumes that businesses can raise capital from two sources – debt and equity – and is calculated as the rate of return to each of these sources, weighted to account for the relative proportions of debt and equity to total capital.

Return of capital

Return of capital, or depreciation, represents the repayment of capital to an investor.

In regulatory practice, straight-line depreciation is usually adopted as a default position because it is simple, transparent, and typically the standard approach in business. This approach assumes an equal annual amount of reduction in service potential each year over the useful life of the asset.

While we would typically adopt straight-line depreciation as the default option, we may consider alternative depreciation profiles – for example, in some circumstances, it may be appropriate to recover relatively less of the return of capital in the early years to encourage capacity utilisation and then recover relatively more in future years when demand growth is expected to take up excess capacity.

Prudence and efficiency of the cost base

We generally consider expenditure to be *prudent* if it can be justified by reference to an identified need or cost driver and *efficient* if it minimises the long-term costs of providing the relevant service. In assessing the prudence and efficiency of proposed costs we may:

- review the entity's costs and operating policies and procedures with the assistance of an expert consultant to assess whether they are suitable to deliver on service requirements⁴¹
- implement incentive mechanisms so that the firm has an incentive to reveal its true costs and make the effort to reduce these costs over time⁴²
- complement the above with benchmarking analysis (where practicable) to confirm whether costs are consistent with industry best practice.

³⁹ An alternative to this approach, which is typically applied in the rural irrigation sector, is the renewals annuity approach. Under this approach, forecast renewals expenditure required to maintain assets is smoothed over a set period typically requiring customers to make a stream of upfront payments for expenditure that is forecast to be incurred in future years.

⁴⁰ We are currently undertaking a review of our WACC methodology.

⁴¹ We have typically adopted this approach, often referred to as 'cost of service regulation', in our pricing investigations to date.

⁴² This is typically referred to as incentive regulation and involves de-linking revenue from costs to reward outperformance or penalise underperformance. For example, the business may be allowed to retain a share of any efficiency gains for a given period thereby providing it with the incentive to continue to seek and reveal these efficiencies over time. We note that it may not always be practical for us to implement multi-period incentive mechanisms as we generally do not have a standing remit to undertake pricing investigations but typically do so periodically on direction from the government.

3.2.2 Allocative efficiency

Allocative efficiency is achieved when resources are allocated to their most highly valued uses.

In a competitive market, market prices signal to consumers the cost of providing different goods and services, thereby ensuring that resources are allocated to the production of goods and services most valued by the community. This is because competitive market prices typically reflect the marginal cost of supply — that is, the cost of making an additional unit of the service available (e.g. an extra kilolitre of water).

Where prices are set below marginal cost, resources could be used in economically wasteful ways. For example, if the retail price of water is set below marginal cost, the community might increase its water use in ways that bring little benefit (relative to the additional cost of supply) even though the resources committed to supplying the extra water could be employed in more beneficial ways.

Similarly, where prices are set above marginal cost, the community may be deprived of high value uses of available resources. For example, if the retail price of water to business customers is set above marginal cost, small business users may cut back on water they need to grow their business even though the benefit derived could be higher than the marginal cost.

In the case of natural monopolies, it may not always be practical to set prices at marginal cost. For example, it is often quite costly to make an investment in water infrastructure such as a significant upgrade to a water treatment plant. Once the new plant is in place, however, the ongoing cost of supplying a kilolitre of water is relatively low. In these circumstances, setting the retail price of water at marginal cost would mean that the business would be unable to fully recover the initial investment in the treatment plant, contrary to the principle of full cost recovery.

In such circumstances, an efficient alternative to marginal cost pricing is a two-part tariff.⁴³ Under this tariff structure, the variable component signals the efficient use of the resource while the fixed component recovers any shortfall in revenue. Ideally, the fixed component would be set to avoid disconnections from the service — that is, the fixed component should not exceed any customer's valuation of the service.^{44,45}

In the context of a given investigation, we will consider allocative efficiency by assessing, among other things, the extent to which proposed prices provide signals about efficient water use, while also achieving revenue adequacy.

Principle 2: Prices should signal the efficient use of the relevant services

Prices should generally be structured to signal to customers the costs associated with their water use decisions.

In signalling efficient water use, prices may need to reflect the scarcity value of water, identifiable and material differences in the cost of supply (for example on the basis of location) or the environmental impacts of water consumption.

⁴³ RH Coase, 'The Marginal Cost Controversy', *Economica*, vol. XIII, no. 51, 1946, pp. 169–82.

⁴⁴ This risk is muted where the customer base from which fixed costs are to be recovered is sufficiently large.

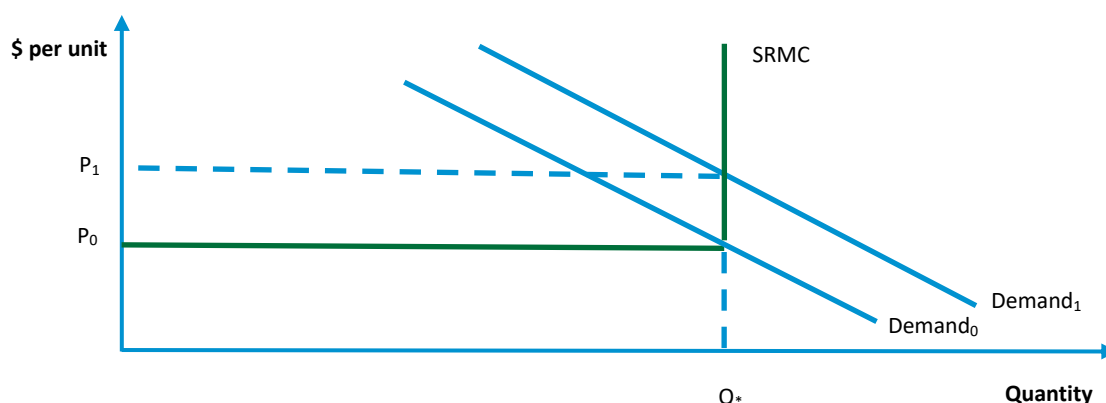
⁴⁵ One advantage of this kind of tariff structure is that where government policy is to provide relief to address affordability concerns, the relief can be provided on the fixed charge while maintaining signals about efficient water use.

Scarcity pricing

In a competitive market, the market price typically adjusts to balance demand with available supply. That is, prices are typically flexible, reflecting short-run marginal cost (SRMC).

SRMC refers to the cost of supplying an extra unit of a product or service, such as reticulated water, over a period when capacity is constant. When there is spare capacity, SRMC mainly reflects variable costs – that is, the costs that vary with demand, such as chemical and electricity costs incurred in operating water treatment plants. When the system is operating at full capacity, SRMC may increase substantially to reflect the scarcity value of water—that is, the price may rise significantly to ensure that available supply is allocated to users with the highest valuation (Figure 2).

Figure 2 Balancing demand with supply in the short run



In this stylised example, installed capacity is Q^* and firms employ a technology whereby the cost of each unit supplied is P_0 . Market demand is based on customers' willingness to pay and increases as price decreases.

Therefore, up to a market demand of Q^* , the market price is P_0 (for example, with a demand schedule such as $Demand_0$). If market demand were to exceed Q^* at a price of P_0 (for example with a demand schedule such as $Demand_1$), the market price would increase sufficiently to balance demand with available supply (for example a price of P_1).

SRMC pricing can increase allocative efficiency in times of scarcity⁴⁶; however, this would typically require a functioning market for the resource.

In the absence of a market for water, an administered scarcity price could be considered in addition to short-term non-price measures such as demand restrictions.

As noted by Frontier Economics, an administered scarcity price applied at the retail level can provide signals to end use customers about the opportunity cost of water, as water availability changes. For example, as storages decline, higher prices could provide end use customers with an incentive to conserve water by reducing potable water consumption and investing in water savings and thereby reduce the need for water restrictions.⁴⁷

An administered scarcity price could be determined in a few ways, including:

⁴⁶ In the case of water supply, scarcity could arise from, among other things, the variability of inflows into storages (due to the natural variability of rainfall), the size of storages relative to demand and the extent of rainfall independent sources available to draw on such as desalination plants.

⁴⁷ Frontier Economics, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, Waterline report series no. 44, prepared for the National Water Commission, 2011, p. 23.

- using economic modelling to calculate a dynamically efficient price
- setting prices to reflect the marginal cost of alternative supply and demand options, triggered by changes in dam levels, based on current operating rules
- introducing a surcharge during drought to raise awareness about water scarcity.⁴⁸

In theory, economic modelling approaches can be a robust way to estimate scarcity prices, as they consider the interaction between pricing, future climate uncertainty, storage levels, and planned investments.⁴⁹

For example, the Productivity Commission developed a real-options based model to assess potential gains in economic efficiency from proposed reforms in Australia's urban water sector.⁵⁰ This model attempted to account for demand by different types of consumers, supply from various storages and the capacity of these storages, the variability and uncertainty of dam inflows, and the lead times, cost structures and supply reliability of different investment options. The model was then solved for the optimal type and time of investment decisions and water price and quantity outcomes.

However, these types of models can be quite complex and may require simplifying assumptions that may impact on their practical application.

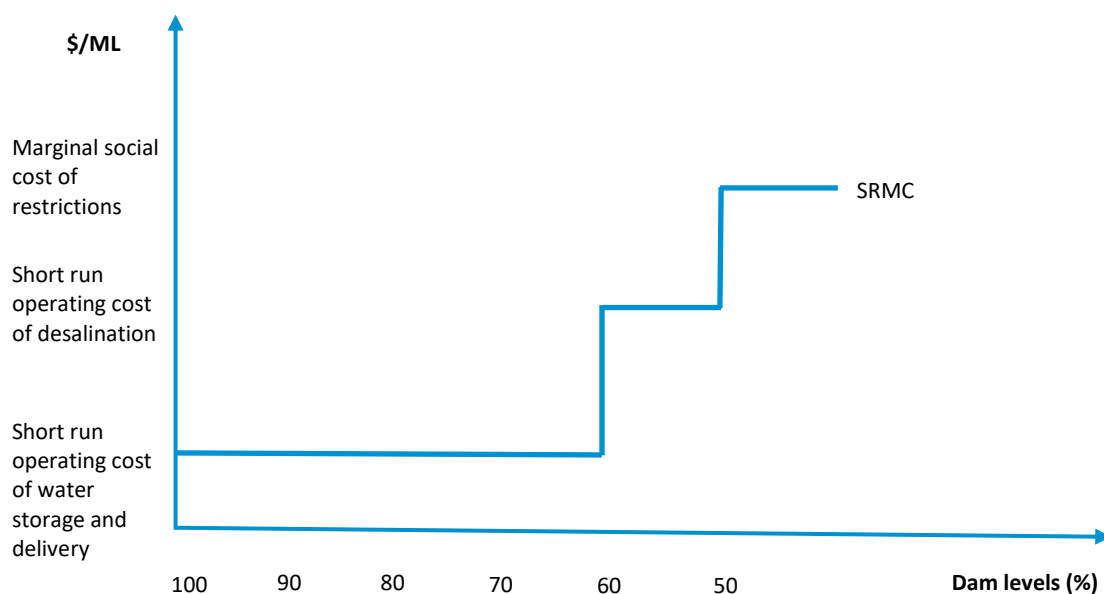
A more practical approach may be to set the volumetric price with reference to the cost of supply and demand options triggered by dam levels, under system operating rules (Figure 3). This is a simpler approach that could provide price signals to customers that are broadly indicative of the opportunity cost of water use.⁵¹

⁴⁸ Frontier Economics, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, 2011, p. 14.

⁴⁹ Frontier Economics, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, 2011, p. 24.

⁵⁰ Productivity Commission, *Australia's Urban Water Sector*, inquiry report no. 55, vol 2, 2011.

⁵¹ Frontier Economics, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, 2011, p. 24.

Figure 3 Scarcity pricing based on the opportunity cost of water in storage

Source: Adapted from Frontier Economics, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, Waterline report series no. 44, prepared for the National Water Commission, 2011, p. 17.

As an example of this approach, and to a significant extent reflecting the current operating rules for the Sydney Desalination Plant, the Independent Pricing and Regulatory Tribunal recently determined usage prices for Sydney Water, that depend on dam levels. Specifically, when dam levels are above 60%, the usage price is set with reference to the long-term cost of providing water under 'average weather' conditions. When dam levels fall below 60%, the usage price rises to reflect that water becomes more costly to supply and increasingly scarce. The higher price remains in place until dam levels reach 70%.⁵²

In south east Queensland, Seqwater has responsibility for long-term water security planning and is required, under the Water Act, to develop a Water Security Program (WSP). The WSP, among other things, specifies drought response measures, including conditions under which high-cost sources of supply, such as the Gold Coast Desalination Plant (GCDP) and the Western Corridor Recycled Water Scheme (WCRWS) can be called into operation.

Locational differences in costs

Where there are significant differences in costs in serving different regions within a given geographical area, there could be a loss in allocative efficiency from charging a uniform price (postage stamp price) across the geographical area.

For example, in relatively lower-cost regions, the postage stamp price could be higher than the marginal cost of supply, potentially curtailing high-value uses of water in these regions.

In addition, the postage stamp price may be seen to be unfair in the sense that customers in relatively low-cost regions may be seen to be cross-subsidising customers in relatively higher-cost regions.

⁵² Independent Pricing and Regulatory Tribunal, *Review of prices for Sydney Water from 1 July 2020*, final report, 2020, p. 3.

However, any such efficiency and equity concerns must be balanced against the administrative costs of structuring and implementing a location-based or nodal pricing regime. As noted by NERA, transaction and information costs mean that some level of customer aggregation (e.g. by size of connection or geographical averaging) is necessary for tariff setting purposes.⁵³ There may also be broader public interest matters to consider, such as the need to consider prior locational decisions and investments made by customers on the understanding that postage stamp pricing would obtain.

In assessing any proposal for nodal pricing in the context of a pricing investigation (e.g. if requested in a government direction), we would consider, among other things:

- the costs of supply across key supply points
- any capacity constraints across key supply points that may warrant a pricing response
- implementation costs
- broader public interest matters.

Environmental externalities

Where there are environmental costs to water use that are borne by third parties rather than the water user, a potentially effective solution is to reflect these costs in water prices so that water users take them into account in their water use decisions – that is, prices should reflect the marginal cost to the community at large.

In Queensland, externalities associated with the water cycle (including the impact of water extraction on river volumes and flow heights and variability) are managed by non-price means (including regulation, planning and property rights). Frontier Economics noted that this is generally the approach adopted throughout Australian jurisdictions.⁵⁴ The reasons are that externality pricing is only feasible where:

- there are material externalities in the water cycle
- there are significant differences in the costs of addressing the externality across different parties and existing mechanisms cannot be tailored accordingly
- changes in price are likely to change behaviour or encourage innovation
- the activity can be measured and monitored accurately and cost-effectively.

Similarly, the Productivity Commission noted the potential for the improved pricing and recovery of the efficient costs of water planning and management activities to form an alternative to externality pricing.⁵⁵

We will be guided by the current legislative arrangements in Queensland and will consider relevant government policies, in any given pricing investigation. Where businesses incur costs in meeting their environmental obligations while providing water and wastewater services, we will typically consider these to be costs that should be recovered through prices, consistent with the principle of cost-reflective pricing.

⁵³ NERA Economic Consulting, *An Economic Framework for Estimating Long Run Marginal Costs in the Victorian Water Industry*, final report, prepared for the Smart Water Fund, 2012, p. 4.

⁵⁴ Frontier Economics, *Externality pricing in the Australian water sector*, Waterline report series no. 43, prepared for the National Water Commission, 2011.

⁵⁵ Productivity Commission, *Australia's Urban Water Sector*, inquiry report no. 55, vol. 1, 2011, p. 137.

3.2.3 Dynamic efficiency

A third important aspect of efficiency, often termed dynamic efficiency, relates to improvements in productive and allocative efficiency over time through the timely and profitable introduction of new processes, systems and services.

Prices can play an important role in aiding dynamic efficiency by encouraging efficient investment decisions. In a competitive market, an increase in price resulting from supply constraints might reduce demand and thereby defer the need for new investment or, if sustained, might provide a signal for new entry into the market or an expansion in capacity by existing firms.

Principle 3: Prices should signal the efficient scale and timing of augmentations in supply infrastructure

Prices should generally signal to customers the costs of supply augmentation to encourage the efficient scale and timing of investments in new capacity.

In a regulatory context, SRMC pricing, which incorporates an administered scarcity price at the retail level, could defer the need for supply augmentation by eliciting a demand response to the scarcity price.

An administered scarcity price at the wholesale level might also provide price signals for retail water businesses to undertake efficient sourcing and investment decisions in the short and long term by, for example, optimising the choice of alternative sources of bulk supply within a diverse portfolio.⁵⁶

An alternative to SRMC pricing is long-run marginal cost (LRMC) pricing. LRMC refers to the cost of supplying an extra unit of water over a period when all factors of production (including capital) can be varied – that is, a period of time over which the service provider has the option of calling on new capacity to accommodate an increase in demand. In the case of natural monopoly infrastructure, it is often more economic to add capacity in lumps rather than in an incremental fashion; or, in some instances, it may simply not be feasible to add capacity incrementally. Thus, the likely effect of a step change in demand is to bring forward (or defer) the time at which a planned increase in capacity must be added. In that sense, LRMC is the cost (both operating and capital) associated with undertaking the expansion sooner (or later) than would otherwise be the case in response to the step change in demand. LRMC is relatively low when capacity utilisation is low, and the next capacity expansion is some way in the future, but LRMC rises as capacity utilisation increases and the timing of the next expansion draws closer.

However, as noted by the Productivity Commission, LRMC is a static concept, as it does not typically vary to take account of changes in water availability.⁵⁷ An implicit assumption is that the availability of the service is determined solely by supply capacity, which will need to be augmented when demand grows to take up all the existing capacity.⁵⁸ In effect, the approach focuses on pricing supply infrastructure rather than placing a value on the resource.

Thus, at times when water is scarce (e.g. when inflows are relatively low) LRMC is likely to under-price water by failing to account for the opportunity cost of current consumption, potentially

⁵⁶ Frontier Economics, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, Waterline report series no. 44, prepared for the National Water Commission, 2011, p. 38.

⁵⁷ Productivity Commission, *Australia's Urban Water Sector*, inquiry report no. 55, vol. 1, 2011, p. 136.

⁵⁸ Frontier Economics, *Efficient water resource pricing in Australia: an assessment of administered scarcity pricing in urban areas*, Waterline report series no. 44, prepared for the National Water Commission, 2011, p. 6.

leading to overconsumption and supply augmentation being inefficiently brought forward. Conversely, when inflows are high, LRMCM may overprice water and curtail beneficial uses of water.

Nevertheless, where customers prefer a stable long-term price, LRMCM may be appropriate, as customers may prefer to pay a premium on SRMCM to have short-run price risk managed on their behalf.

We will consider the likely implications for dynamic efficiency when assessing and making recommendations relating to proposed pricing structures.

3.2.4 Efficient risk allocation

In proposing prices to recover their efficient costs, businesses must, of necessity, estimate the costs of providing the relevant service over the relevant regulatory period, as well as the level of demand expected for the service over this period (which would generally determine the level of revenue raised over the period).

Each of these estimates, come with a degree of uncertainty, given the nature of forecasting.

Actual costs depend on a range of factors, including the level of effort the business exerts at achieving efficiencies, the level of demand for the service (e.g. the volume of water delivered to customers over the relevant period), significant changes in the price of critical inputs and other unforeseen events with a substantial impact on costs.

Actual demand depends on, among other things, customers' behavioural response to water prices, technological developments (e.g. improvements in the water efficiency of household appliances or industrial processes), changing weather patterns and changes in income.

For these reasons, actual costs may differ from forecasts (cost risk), or actual revenue may differ from the forecast (revenue risk), or a combination of these risks might materialise.

Principle 4: Prices should reflect the appropriate sharing of risk between businesses and their customers

The level and structure of prices should enable regulated businesses to recover their prudent and efficient costs, subject to appropriate risk sharing between regulated businesses and their customers.

We generally consider that businesses should bear cost risk, as this provides them with the incentive to pursue efficiencies over time.

However, there may be limited circumstances in which businesses may be unable to manage changes in cost arising from circumstances beyond their control. We will consider mechanisms for dealing with uncontrollable costs within the context of a given pricing investigation.

In general, we consider that the structure of prices can mitigate revenue risk. As discussed with respect to signalling efficient use, marginal cost pricing can lead to revenue shortfalls for firms with relatively high fixed costs, such as in natural monopoly industries.

However, the pricing structure could also take customers' risk preferences into account.⁵⁹ For example, if some customer classes (e.g. low use residential households) prefer a relatively high

⁵⁹ See, for example, D Biggar, and R Reeves, 'Network Pricing for the Prosumer Future: Demand-Based Tariffs or Locational Marginal Pricing?', in FP Sioshansi (ed), *Future of Utilities, Utilities of the Future: How technological*

variable component and are willing to pay for this preference, the business might be able to hedge the risk to its revenue base and pass on the cost of hedging to this customer class. Alternatively, customers that prefer greater certainty over their bills and are therefore willing to accept a relatively high fixed component might receive a discount to reflect reduced revenue risk to the business. However, these kinds of departures from the standard two-part tariff would require a high level of engagement with customers to better understand their preferences. Any such proposals must also be balanced against the principle of simplicity and transparency and the need to ensure the business' revenue is sufficient to at least meet its efficient costs.

In addition to tariff structure, there are other risk-sharing mechanisms that could be adopted. In particular, the approach to controlling a regulated business' prices within a regulatory period can mitigate revenue risk. For example, under a revenue cap form of price control, the business is given discretion to adjust prices within the regulatory period, subject to the constraint that the resulting change in revenue does not exceed a predetermined cap. Thus, under a revenue cap, revenue risk rests with customers, as the business can raise prices to recover lost revenue where actual demand is less than forecast. By contrast, under a price cap, if actual demand differs from forecast, the business' revenue could be adversely impacted, as it is limited in its ability to change prices in response to lower than expected demand.

3.3 The role of customer engagement

As noted by Ofwat, successful companies in well-functioning markets, where customers are empowered and have choice over their supplier, tend to understand and respond to their customers' needs and requirements, as they would otherwise go out of business.⁶⁰

In regulated markets where customers do not have choice over their supplier, and especially where consumption is essential (as is the case with many water services), it is particularly important that businesses take the time to understand and respond to the needs and requirements of their customers.

In the context of pricing, customer engagement is important to inform the efficient level of operating and capital expenditure necessary to deliver on required service levels. Engagement can also inform the structuring of tariffs. Although we will seek customer input in our regulatory reviews, the primary responsibility for customer engagement lies with water service providers.

Principle 5: Prices should be informed by the service standard and the tariff structure preferences of customers

In setting prices, businesses should consider customer input regarding the level and quality of service and the structure of tariffs.

In assessing businesses' pricing proposals, we will consider the effectiveness of customer engagement supporting proposed service level outcomes and tariff structures.

While we will not prescribe the nature of customer engagement, we will seek tangible evidence of effective engagement and the extent to which the outcome of such engagement informs pricing proposals.

innovations in distributed energy resources will reshape the electric power sector, Academic Press, 2016, pp. 247–65.

⁶⁰ Ofwat, *Customer engagement policy statement and expectations for PR19*, 2016.

3.4 General principles

3.4.1 Reflecting the public interest

Broader public interest matters (including fairness and equity) are relevant in setting prices. In some instances, prices that satisfy the efficiency criterion can also be seen to be fair and equitable. For example, prices that reflect the cost of producing a good or service may be said to be fair, in the sense that lower prices would imply that customers are not paying a fair share and prices above cost would imply that the producer is receiving a benefit at the expense of customers.

In some circumstances, however, there is no clear efficiency criterion to guide the choice of pricing approach. For example, there may be different ways to allocate fixed costs between different customer classes (for example, between residential and non-residential customers) with no clear implication for efficiency (beyond the requirement that allocated costs should lie between the incremental cost and the standalone cost of supply).

In those cases, broader public interest concerns, such as the perceived fairness of different outcomes, could be considered. For example, water use might be seen to be a reasonable driver for allocating the cost of water transportation assets, on the basis that customers that use the most water should contribute the most to the recovery of these costs.

Principle 6: Prices should reflect the broader public interest

Where appropriate, prices should be set to take account of broader public interest concerns.

3.4.2 Transparency, predictability, and simplicity

The pricing principles outlined in this report have been developed to apply in a wide range of circumstances. They do not imply identical price structures across all suppliers. When assessing and recommending prices in the context of a given pricing investigation, we will balance these principles against transaction and implementation costs. In particular, the level and structure of prices should be easy to present and understand.

For example, in practice, the precise determination of marginal cost may be difficult, necessitating a 'best endeavours' approximation. Further, there may be instances in which it might not be practical to charge based on marginal cost or to elicit a behavioural response through price.⁶¹

⁶¹ For example, it may simply be impractical to measure the volume of the service in the absence of adequate metering or even where it is possible to measure volume, customers may be unresponsive to price in the short-term. For example, the possibility of peak or seasonal pricing has occasionally been canvassed for reticulated water services. However, this would typically require smart metering, to increase allocative efficiency in any appreciable way.

Principle 7: Prices should be transparent, predictable, and simple

Prices should be administratively simple to implement and easy to understand for customers.

3.5 Other urban water pricing issues

Recycled water refers to water from wastewater or a stormwater system that has been treated to an appropriate quality standard for a further intended beneficial use.⁶²

In Queensland, recycled water can be produced and supplied for several uses including irrigation of parks, sporting fields and crops and supplying dual reticulation systems⁶³, with recycled water from the following sources regulated under the Water Supply Act:

- sewage or effluent from a service provider's infrastructure
- wastewater from industrial, commercial, or manufacturing activities, or animal husbandry activities, where it is transferred to another unrelated entity.

Recycled water providers are required to register their schemes with the government department responsible for administering the Water Supply Act.

Queensland Urban Utilities as well as several local councils are registered providers.⁶⁴ However, recycled water supply is not currently a declared monopoly business activity.⁶⁵

Pricing principles are typically developed for recycled water schemes where the cost-reflective price exceeds the price of potable water substitutes (such that potential customers would be unwilling to pay more than the potable water price) but it is thought that there are benefits to the broader community that justify a subsidy to the cost reflective price.⁶⁶

The Natural Resource Management Ministerial Council (NRMMC) has developed pricing principles for recycled water, under the auspices of the National Water Initiative, which include:

- Prices are to contain a water usage (i.e. volumetric) charge (Principle 3).
- Regard to the price of substitutes (potable water and raw water) may be necessary when setting the upper bound of a price band (Principle 4).
- Prices should recover efficient, full direct costs — with system-wide incremental costs (adjusted for avoided costs and externalities) as the lower limit, and the lesser of standalone costs and willingness to pay as the upper limit. Any full cost recovery gap should be recovered with reference to all beneficiaries of the avoided costs and externalities. Subsidies

⁶² National Water Commission, *Recycled Water for Drinking: An Introduction*, Waterlines occasional paper no. 2, 2007.

⁶³ Direct augmentation of a drinking supply with recycled water (i.e. supply from a treatment plant into the drinking water system) is prohibited in Queensland.

⁶⁴ A list of registered providers is available at The Queensland Government, Registered recycled water schemes [dataset], Open Data Portal website, 2019, accessed 27 August 2020.

⁶⁵ Seqwater operates the Western Corridor Recycled Water Scheme; however, this scheme is for indirect potable reuse — that is, when operational, recycled water from the scheme is delivered into bulk water storages and further treated prior to entering the potable water network.

⁶⁶ Such benefits are typically in the form of avoided costs in wastewater treatment and alternative water supplies.

and Community Service Obligation payments should be reviewed periodically and, where appropriate, reduced over time (Principle 7).⁶⁷

⁶⁷ NRMCC 2010, *National Water Initiative pricing principles*. These principles are intended to assist states and territories in meeting their commitments under the NWI but are not expected to take precedent over any existing principles jurisdictions may have developed for recycled water and stormwater use.

REFERENCES

Baldwin, R, *Regulatory Stability and the Challenges of Re-regulating*, Centre on Regulation in Europe, Cave, M (ed.).

Biggar, D & Reeves, R, 'Network Pricing for the Prosumer Future: Demand-Based Tariffs or Locational Marginal Pricing?', in FP Sioshansi (ed), *Future of Utilities, Utilities of the Future: How Technological Innovations in Distributed Energy Resources Will Reshape the Electric Power Sector*, Academic Press, 2016.

Coase, RH, 'The Marginal Cost Controversy', *Economica*, vol. XIII, no. 51, 1946.

COAG (Council of Australian Governments), *Intergovernmental Agreement on a National Water Initiative*, 1994.

Frontier Economics, *Externality pricing in the Australian water sector*, Waterline report series no. 43, prepared for the National Water Commission, 2011.

Frontier Economics, *Efficient Water Resource Pricing in Australia: An assessment of Administered Scarcity Pricing in Urban Areas*, Waterline report series no. 44, prepared for the National Water Commission, 2011.

Independent Pricing and Regulatory Tribunal, *Review of prices for Sydney Water from 1 July 2020*, final report, 2020.

National Water Commission, *Recycled Water for Drinking: An Introduction*, Waterlines occasional paper no. 2, 2007.

NERA Economic Consulting, *An Economic Framework for Estimating Long Run Marginal Costs in the Victorian Water Industry*, final report, prepared for the Smart Water Fund, 2012.

NRMMC (Natural Resource Management Ministerial Council), *National Water Initiative pricing principles*, 2010.

Ofwat, *Customer engagement policy statement and expectations for PR19*, 2016.

Productivity Commission, *Australia's Urban Water Sector*, inquiry report no. 55, 2011.

QCA, *Criteria for the Identification of Monopoly Water Supply Activities*, 2003.

QCA, *Criteria for the Identification of Non-Government Monopoly Business Activities*, 2008.

QCA, *Criteria for the Identification of Government Monopoly Business Activities*, 2009.