Queensland Competition Authority

Staff Working Paper—Draft Paper

SEQ Retail Water Annual Performance Monitoring - Guidance Paper

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SUBMISSIONS

Closing date for submissions: 13 April 2015

This report is a draft working paper prepared by the QCA staff and has not been considered by the QCA board. The report is subject to revision following QCA board consideration. 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 the guidance paper. The QCA will take account of all submissions received.

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

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1 INTRODUCTION

1.1 Background

The QCA was directed to investigate and report on a regulatory framework for the five SEQ distributor-retailer entities (the retailers). The retailers are Unitywater, Queensland Urban Utilities (QUU), and the Logan, Redland and Gold Coast City Councils.

The QCA recommended a move to light-handed ex post annual performance monitoring to reduce regulatory costs while still providing incentives for retailers to minimise price increases. This monitoring would commence with the 2014–15 year.

Under the framework, the QCA would monitor prices and revenues, policies and practices relating to customer engagement, investment strategies, service quality and pricing principles.

Water retailers' price and revenue performance would be monitored against CPI-X. Costs would only be reported and reviewed by the QCA if price or revenue changes exceed CPI-X or where service quality issues arise. A cost of service review may be initiated by the QCA where it considers there is sufficient evidence that market power is being exercised.

Should evidence of an exercise of market power be confirmed, and the retailer does not address the issue, as a last resort the QCA may seek to set prices, subject to Ministerial direction. This would require amendments to the Queensland Competition Authority Act 1997 (the QCA Act).

1.2 Purpose

The purpose of this paper is to provide guidance on the implementation of the annual performance monitoring framework—in particular the rules of the light-handed annual performance monitoring framework, the QCA's monitoring procedures as well as specific guidance on certain issues.

This guidance paper should be read in conjunction with the Final Report *SEQ Retail Water Long-Term Regulatory Framework - Annual Performance Monitoring* (QCA 2014a).

The QCA is yet to receive a direction from the government to implement the annual performance monitoring framework.

1.3 Rules of the framework and appeals mechanism

Part 6 of the QCA Act, section 173(1)(d), requires all QCA investigations to comply with natural justice. In addition, the judicial review process also applies to all QCA administrative decisions.

The QCA will provide a report to the Minister each year. The retailers can provide comments on all draft reports published on the QCA's website including on any issues that they may have with the process.

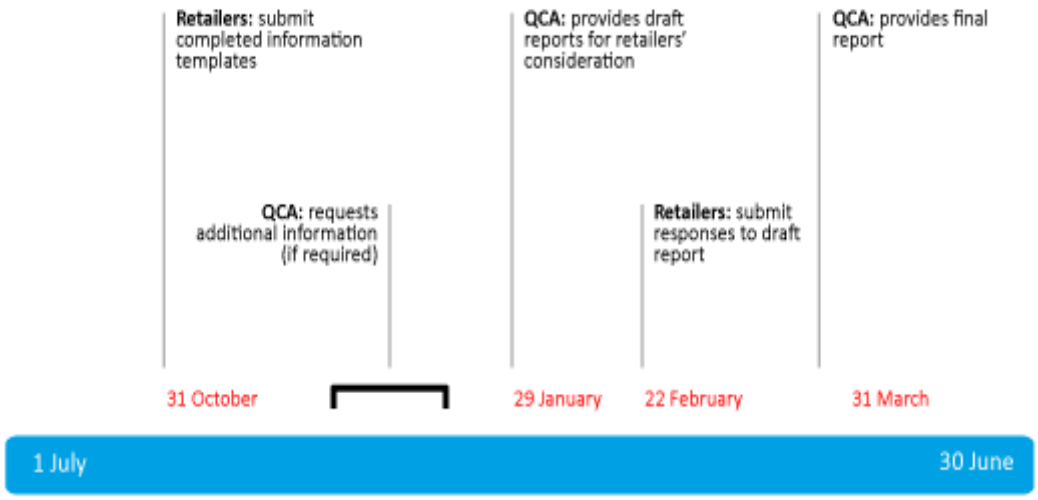
2 ANNUAL PERFORMANCE MONITORING REVIEW PROCESS

Starting 1 July 2015, retailers would be required to report annually on their performance for the previous financial year.

Timing

Information returns would be due to the QCA by 31 October each year. A final report by the QCA will be due by 31 March the following year. Reporting timelines are outlined below.

Figure 1 Timelines associated with reporting



Water retailers would be required to self-assess the appropriate level of information that is to be submitted to support their pricing decisions. Should the appropriate level of information not be provided by the due date for submissions, the QCA will issue a request for further information.

3 CPI-X FRAMEWORK

Prices, revenues and costs would be monitored against a broad escalation rate (CPI) minus an efficiency factor (X).

Retailers would be required to self-assess whether the appropriate level of price, revenue and cost information is provided to the QCA in support of their pricing decisions.

CPI

The CPI measure to be used by the QCA in monitoring prices, revenues and costs is the Reserve Bank of Australia (RBA) forecast available at the time of retailers' pricing decisions (typically in February each year). This may be the mid-point of a forecast range.

X factor

An X-factor of 0.25% of prices would be applied to SEQ retailers.

Information requirements

Where prices and components of prices increase by an amount less than or equal to CPI-X, retailers would be required to submit prices and tariff schedules, as well as details of customer engagement, investment strategies, and service quality indicators.

Where increases in any prices or components of prices exceed CPI-X, retailers would be required to submit supporting information, including any relevant cost information.

The information requirements for prices, revenues and related costs are summarised below. Details are provided in the following sections.

Table 1 Information requirements and monitoring process for CPI-X

Level	*Retailer's self-assessment*	*Information submitted by retailer*	*QCA action*
1	Changes in prices and components of prices are ≤ CPI-X.	Prices and tariff schedules, details relevant to customer engagement and strategic investment, service quality indicators.	Compares price and price component changes to CPI-X. Analyses non-price criteria.
2	Changes in some components of prices > CPI-X but average prices remain ≤ CPI-X.	In addition to above, revenue data for water and sewerage, residential and non-residential.	Derives average prices and compares to CPI-X.
3	Changes in prices exceed CPI-X due to increases in a limited number of cost items.	In addition to above, details of reasons (including relevant costs) for the increase and the MAR equivalent.	Analyses additional cost information and assesses whether price increases are consistent with cost increases. Compares submitted MAR details to a Reference MAR.
4	Changes in prices exceed CPI-X due to increases in a wide range of costs.	In addition to Level 2, details of reasons (including relevant costs) for the increase in prices and the MAR equivalent.	

4 LEVEL 1—PRICES

As part of level 1 information to be submitted, the retailers would be required to provide information annually on baseline prices.

What to submit

Retailers would be required to submit water and sewerage price information (as per the table below) for the current year and the previous year. Retailers can provide this information by submitting a tariff schedule.

Retailers would be required to submit policy documentation relating to any tariff changes.

Table 2 Water prices

Indicator	*Information requirements*
Bulk water charges	Bulk water charges per kL
Tariff schedules	Full tariff schedules for the relevant and previous years, including charges differentiated by regions, residential and non-residential, water and sewerage
Residential bill for 200 kL and any other volume considered relevant by the water retailer (by area)	Charges by tariff group/area/ council etc.

Table 3 Sewerage prices

Indicator	*Information requirements*
Tariff schedules	Full tariff schedules for the relevant and previous years, including trade waste charges and discharge factors
Residential bill (by area)	Charges by tariff group/area/ council etc.

How will the QCA monitor prices?

The QCA will:

- focus on residential and non-residential water and sewerage prices
- compare the increases in fixed and variable water and sewerage prices to CPI-X. If increases have not exceeded CPI-X, no further analysis would be required and this would be reflected in QCA's reporting
- compare the change in residential water bills for indicative water usage levels. These include 200 kL (a nationally adopted comparison) and the average water usage for the retailer's customers.

  If changes to any component of prices exceed CPI-X, retailers should submit Level 2 information to allow overall average prices to be compared (see below)

Will QCA monitor the subsequent year's prices?

No.

The QCA will not monitor those prices but it will note the price increases that occur in the year following the monitored year, to provide timely information for customers.

Noting these price increases will provide an early indication that will assist retailers to determine the minimum level of information that will be required in the next year's information return.

The QCA will include comparisons for 200 kL of residential use and for the average residential use. However, there will be no analysis of average revenues, costs or service quality, as actual data will not be available.

5 LEVEL 1—CUSTOMER ENGAGEMENT

As part of level 1 information to be submitted, the retailers would be required to provide information on customer engagement practices.

What to submit

Retailers would be required to submit a customer engagement statement, briefly summarising the methods adopted during the monitored year, and provide relevant documentation (see below).

Table 4 Information return—customer engagement indicators

Indicators	*Information requirements*
Customer engagement strategy	Initial statement of customer engagement strategy or policy to be submitted by water retailer in September 2015
Direct consultation—information provision	Newsletters and media releases relevant to customers
	Details of customer forums and other activities (if any)
Customer consultation committee or similar	Committee description - membership, meeting frequency
	Issues nominated by customers (examples of meeting minutes and submissions), responses to issues raised
Customer surveys and studies if any	Purpose and objectives
	Process and methodology, eg sampling approach
	Relevant findings and policy implications
Customer Charter	Customer Charter
	Customer feedback on the charter, if any
Customer service standards	CSS Document
	Customer feedback, if any

How will QCA monitor customer engagement?

The QCA will report on the retailer's statement of customer engagement practices and comment on whether customer engagement:

(a) promoted understanding of customers' needs and was representative and responsive of customer views

(b) was relevant, evidence-based, open and transparent, timely, collaborative and cost-effective.

The QCA will apply a rating or score of 'good' performance (meets or exceeds compliance with the above principles) or 'poor' performance (not consistent with principles or not a sufficient level of customer engagement).

A 'good' rating would apply where retailers can demonstrate that they have engaged with customers before making changes to pricing and service standards, and where they can show

they have responded to customer concerns. A customer consultation committee (or alternative) would be an appropriate mechanism.

6 LEVEL 1—STRATEGIC APPROACH TO LONG-TERM INVESTMENT

As part of level 1 information to be submitted, the retailers would be required to provide information on investment planning and asset management practices.

What to submit

Retailers would be required to submit relevant documentation on planning, coordination, asset management practices and project evaluation.

Table 5 Information return—planning

Indicator	*Information requirement*
Adopted Water Netserv Plan—strategic approach to long-term planning	Submit Water Netserv Plan as at 1 October 2014 and any subsequent updates. The QCA may request Part B Netserv Plans or relevant extracts if it considers more information is necessary.
Coordination with other plans	Submit annual capital works programs (QUU and Unitywater) or annual performance plans (councils).
Asset management standards	Statement of asset management standard(s) being implemented. Steps to address areas of improvement.
Project evaluation and options analysis	Statement of processes applied for project evaluation and options analysis. Examples of options analyses for significant capex projects.

How will QCA monitor a retailer's approach to long-term investment?

The QCA will examine evidence of planning activities and compliance.

Provision of Netserv Plans Part A and evidence of approval by the board/council and endorsement by the Planning Minister demonstrates to the QCA that a strategic approach to long-term planning has been undertaken. The QCA may request information from Part B of the Netserv Plan if required.

The annual capital works plan (or annual performance plan) developed by each retailer will serve as the initial reference for annual monitoring of capital investments.

The QCA will not further monitor coordination with other planning instruments (other than the Water Netserv Plan) unless prices exceed CPI-X.

In relation to asset management standards, the QCA will review:

(a) the statement of practices and evidence of compliance

(b) progress in improvements towards good industry practice.

The water retailer's approach to project evaluation will be monitored to ensure that for material capital expenditure, a process has been undertaken that incorporates:

(a) cost–benefit analysis or cost-effectiveness analysis of various options, including non-infrastructure alternatives and reviewing non-quantifiable costs and benefits

(b) risk assessments including costs of risk mitigation measures.

The QCA's report will identify any material shortcoming in the retailer's planning instruments.

7 LEVEL 1—SERVICE QUALITY

As part of level 1 information to be submitted, the retailers would be required to provide information on their service quality performance.

What to submit

Retailers are to submit annual performance against the indicators listed below. The indicators comprise baseline indicators as well as service quality performance indicators. For the latter indicators, retailers are requested to provide their internal targets where available.

Additional explanatory information may also be provided at the retailer's discretion where there are extraneous or one-off impacts on performance.

The definitions of the indicators are consistent with those of DEWS (The Department of Energy and Water Supply)/NPR) (National performance reporting).

Table 6 Indicators of service quality performance reporting framework

Recommended indicator	*DEWS KPI*	*NPR ref*	*Definition*	*Retailer's target*
Baseline (contextual information) (7 indicators)				
Connected residential properties—water supply (000s)	QG1.13	C2	A connected residential property is any property which, at the end of the reporting period, is connected to the water system and is separately billed for the water services—fixed and/or consumption based. It includes connected rateable, non-rateable and non-metered residential property. Units—thousands (000s) to three decimal places.	Not applicable
Connected non-residential properties—water supply (000s)	QG1.14	C3	A connected non-residential property is any property which end of the reporting period, is connected to the water system and is separately billed for the water services—fixed and/or consumption based. It includes connected non-rateable and non-metered non-residential property. It also includes standpipes and public facilities. Units—thousands (000s) to three decimal places.	Not applicable
Connected residential properties—sewerage (000s)	QG1.15	C6	A connected residential sewerage property is any property which, at the end of the reporting period, is connected to the sewerage system and is separately billed for the sewerage services—fixed and/or usage based. It includes connected rateable, non-rateable and non-metered residential property. Units—thousands (000s) to three decimal places.	Not applicable
Connected non-residential properties—sewerage (000s)	QG1.16	C7	A connected non-residential property is any property which, at the end of the reporting period, is connected to the sewerage system and is separately billed for the sewerage services—fixed and/or usage based. It includes connected non-rateable and non-metered	Not applicable

Recommended indicator	*DEWS KPI*	*NPR ref*	*Definition*	*Retailer's target*
			non-residential property. It also includes public facilities. Units—thousands (000s) to three decimal places.	
Length of water mains (km)	QG1.1	A2	The total length of water mains delivering potable and non-potable water for urban areas. It includes transfer, distribution and reticulation mains and recycled water distribution and reticulation mains. Units—kilometres (km): one decimal place.	Not applicable.
Length of sewerage mains (km)	QG1.2	A5	The total length of mains, including all trunk, pressure and reticulation mains. It includes combined sewerage and stormwater mains. Units—kilometres (km): one decimal place.	Not applicable
Number of sewage treatment plants	QG1.3	A4	The total number of sewage treatment plants providing sewerage services to customers. It includes all primary, secondary and tertiary level treatment plants. Units—reported as a whole number.	Not applicable
Water and sewerage reliability and service (6 indicators)				
Incidence of unplanned interruptions—water (number per 1000 properties)	QG4.7	C17	When the customer has not received at least 24 hours notification (or as otherwise prescribed by regulatory requirements) of the interruption. 'Customers affected' is the count of individual customers who experience loss of water supply due to an unplanned water supply interruption. It includes situations where the duration of a planned interruption exceeds that which was originally notified and all unnotified interruptions caused by third parties (including text response on proportion of third-party breaks if desired). Units—unplanned interruptions per 1000 properties: as a whole number.	To be advised
Average duration of unplanned interruptions—water (min)		C15	A water supply interruption is any event causing a total loss of water supply due to any cause. Interruptions do not include those caused by bursts or leaks in the property service (mains to meter connection), unless the property connections are owned or maintained by the water utility, or the burst or leak requires the mains to be shut down for repair. Unit—minutes	To be advised
Total water main breaks Breaks per 100km of main—water	QG4.5	A8	The total number of main breaks, bursts and leaks in all diameter water distribution and reticulation mains for the reporting period. It includes breaks caused by third parties. It excludes leaks, weeps or seepages that can be fixed without shutting down the system. Units—water mains breaks per 100 km of water main: one decimal place.	To be advised

Recommended indicator	*DEWS KPI*	*NPR ref*	*Definition*	*Retailer's target*
Average response time to water service bursts and leaks (minutes to commence repair on site)	QG4.8		The average response time for water service incidents, regardless of whether the incident causes an interruption to customers. It is determined as the time it takes to get a person / team on-site to commence fixing the problem. Units:—minutes: as a whole number.	To be advised
Sewerage main breaks and chokes (per 100 km of main)	QG4.6	A14	The total number of sewerage mains breaks and chokes for the reporting period. It includes all gravity sewer mains, pressure mains, vacuum system mains of any diameter and breaks cause by third parties. Units—sewerage main breaks per 100 km of sewerage main: one decimal place.	To be advised
Average response time to sewerage incidents (minutes to commence repair)	QG4.9		This is the average response time for sewerage incidents. It is determined as the time from the notification of the incidence to the time it takes to get a person / team on-site to commence fixing the problem. Units—minutes: as a whole number.	To be advised
Water quality (1 indicator)				
Water quality complaints (number per 1000 properties) (discolouration, odour, taste, illness, cloudy water)	QG4.10	C9	The total number of complaints received by the service provider that relate to water quality from any type of water provided. A complaint can be a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water utility, its employees or contractors. Includes complaints received either in person, by mail, fax, phone, email or text messaging. It includes complaints regarding discolouration, taste, odour, stained washing, illness and cloudy water. Units—water quality complaints (per 1000 properties): as a whole number.	To be advised
Water consumption, recycling and reuse (4 indicators)				
Volume of water supplied, residential (ML)	QG1.17	W8	Total metered and estimated non-metered, potable and non-potable water supplied to residential properties from the water supply scheme for the reporting period. It includes water supplied to a residential property connected to a scheme before or after any water treatment process. Units—megalitres (ML): as a whole number.	Not applicable
Volume of water supplied, non-residential (commercial, municipal and industrial) (ML)	QG1.18	W9	Total metered and estimated non-metered, potable and non-potable water supplied to commercial, municipal and industrial properties for the reporting period. It includes water supplied to a commercial, municipal and industrial property connected to a scheme before or after any water treatment process. Units—megalitres (ML): as a whole number.	Not applicable

Recommended indicator	*DEWS KPI*	*NPR ref*	*Definition*	*Retailer's target*
Volume of non-revenue water (ML)	QG1.19	W10	The volume of potable water produced, less the volume of potable water supplied to residential and the volume of potable water supplied to commercial, municipal and industrial. It includes unbilled authorised potable water supplied, unauthorised potable water consumption, customer metering errors and leakage and overflow of portable water from mains, service reservoirs and service connections prior to customer meters. Units—megalitres (ML): as a whole number.	To be advised
Volume of water sourced from recycling (ML)	QG1.11	W4	The sum of all treated effluent that is used by either the service provider itself, a business supplied by the service provider, or supplied through a third-pipe system for urban reuse. It includes recycled water for direct or indirect reuse, water for agribusiness (where potable water, or untreated water in storage, would normally be used) and volumes taken by sewer mining. Units—megalitres (ML): as a whole number.	Not applicable
Customer responsiveness and service (2 indicators)				
Total water and sewerage complaints (includes water quality, water service and sewerage service) (number per 1000 properties)	QG4.11	C13	The total number of complaints received by the water business that relate to water or sewerage services. A complaint can be a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water utility, its employees or contractors. Includes complaints received by the water utility in person, by mail, fax, phone, email or text messaging. It includes bursts, leaks, service interruptions, adequacy of service, water pressure, water quality or reliability, sewerage service complaints, sewage odours, affordability, billings and accounts and behaviour of staff or agents. Units—complaints (per 1,000 properties): as a whole number.	To be advised
Percentage of calls answered by an operator within 30 seconds (%)		C14	The total number of calls received by a retailer that were handled by an operator or customer service operator, and in the case of an interactive voice response (IVR) system covers the number of calls where the customer has selected the relevant operator option (i.e. indicated they wish to be connected to an operator or customer service officer). Unit—per cent	To be advised

Source: QCA 2014. DEWS 2014b, NWC 2013.

How will QCA monitor service quality?

To monitor service quality performance, QCA is proposing to use a 'traffic light method' through a combination of comparative analysis and scoring techniques (similar to one used by Ofwat (2013)).

This assessment will apply to the water and sewerage network reliability (six indicators), water quality (one indicator) and customer responsiveness and service (two indicators).

For each service quality indicator the retailer will be assigned a traffic light rating:

(a) green— where the retailer's performance is meeting or exceeding its target (stable or improving)

(b) orange—where the retailer's performance is marginally below its target (marginal)

(c) red—where performance is significantly below the target.

An orange or red light indicates where performance could improve or where there have been specific issues for the retailer in the reporting year.

The QCA would total the number of red, total the number of orange and total the number of green 'lights' which would provide an indication of how the retailer was performing, and how it compares to other retailers.

The status of an indicator is not an automatic trigger for regulatory action. But it may be used as a signal for the QCA to seek further information from the retailer to understand how it is addressing the issue.

Performance in one or more indicators may vary from year to year due to external factors. Water retailers are to provide any relevant explanations where such effects occur. A singularly poor performance may be scored orange rather than red if there is credible evidence that it is due to one-off events that are already being addressed.

The overall assessment would identify whether or not there is evidence of the exercise of market power through service quality reductions. We would consider this to be a risk if:

(a) a majority of the traffic light scores are red, after allowing for one-off uncontrollable impacts such as flood effects and/or

(b) performance is notably poorer than that of comparators.

We propose to analyse service quality performance in four steps.

Step 1—Comparison to targets

The first step is a comparison against customer service targets where relevant

Where a retailer has met or surpassed its target it would receive a green light. However, if a retailer's performance is below its target by more than 10% it would get a red light. Where a retailer's performance is below but within 10% of its target it would get an orange light.

The QCA considers that a retailer should meet its own targets and be held accountable where it fails to do so. An example of how this method would apply is presented in Appendix A.

Step 2—Performance over time

The second step is to evaluate trends in performance for the retailer over time.

We will only use this from the second year of price monitoring, when we will compare performance to the previous year.

Once we have a time series of data, we will use simple trend analysis by plotting the retailer's performance over time.

We will also use this information to assign traffic light scores. Once we have sufficient data, scores will be assigned as follows:

- green—if a retailer's performance is above the 3-year moving average
- orange—if a retailer's performance is marginally below the 3-year moving average
- red—where a retailer's performance is trending downwards compared to its moving average.

An example of how this method would apply is provided in Appendix A.

Step 3—Performance against other providers

In addition to the above analysis, we would compare the five SEQ retailers against each other and also against retailers in other jurisdictions and elsewhere in Queensland. These assessments would complement the above analysis and highlight the outliers (both non-performing and high performing) for each service quality indicator. In comparing the five SEQ retailers against other providers, QCA will work with DEWS to ensure that the overlap between the DEWS KPI framework and the QCA service quality assessments is minimised and that they are complementary.

We do not propose (at least initially) to assign traffic light scores for this step, as this may be misleading where there are fundamental differences between the retailers—such as due to size, customer base, business structure (some comparators have bulk supply roles), asset type and age, and geographical dispersion. Hence, we will be mindful of the different operating environments for the retailers and comment accordingly.

We will produce bar-chart comparisons which will rank SEQ retailers' performance against other service providers for key indicators in water service and reliability, sewerage service and reliability and customer complaints. This approach is adopted in the NPR process.

Step 4—Overall assessment

The overall assessment combines all the information provided in the first three steps. For the SEQ retailers this will include a simple comparison of the number of green, orange and red scores from Steps 1 and 2.

The overall assessment would identify areas retailers should address in the future. It would also identify whether or not there is evidence of market power being exercised through reducing service quality. We would consider this to be a risk if:

- a majority of the traffic light scores are red, after allowing for one-off uncontrollable impacts such as flood effects
- performance is notably poorer than comparators.

8 LEVEL 1—PRICING PRINCIPLES

As part of level 1 information to be submitted, the retailers would be required to provide information on their pricing practices.

What to submit

Retailers would be required to provide a statement of their pricing practices. This statement should address the general pricing objectives and principles in the table below.

Table 7 General pricing objectives and principles

	Number	***Recommendation***
Pricing objectives	1.1	The pricing of urban water, sewerage, trade waste, recycled water and stormwater re-use services provided by retailers should: (a) promote economic efficiency (b) ensure revenue adequacy (c) take account of the public interest (including fairness and equity) (d) be transparent, predictable, simple and cost-effective to apply.
Pricing principles	1.2	Retailers seek to apply the pricing principles over time as noted in Appendix B. Where retailers depart from the QCA proposed principles, they should provide the reasons for the departure.
	1.3	Prices reflect marginal cost, together with a two-part tariff where necessary to achieve revenue adequacy.
	1.4	Prices be set between incremental (marginal) cost and stand-alone cost.
	1.5	Prices reflect the LRMC of providing a particular service unless otherwise justified (these may relate to equity and fairness). Appendix C provides further detail.
	1.6	Prices reflect SRMC when SRMC for a particular period significantly exceeds the LRMC for a particular service. This is sometimes referred to as scarcity charging.
	1.7	LRMC be estimated on the basis of the perturbation or AIC method.

The retailer will also be required to provide additional information where relevant to supplement the tariff schedule information already provided above. In particular:

(a) details are to be provided of any tariff differentiation or structural change that has been introduced over the previous year. For example:

  (i) inclining block tariffs - basis for blocks and charges

  (ii) nodal/regional tariff differentials or moves to uniform tariffs (indicate area)

  (iii) any other tariff differentiation (service quality, seasonal, peak period, etc)

(b) where a retailer introduces new pricing approaches, it is to provide:

(i) the analysis and studies used as a basis for the changes, including assessments of demand responses, cost attribution, material administration costs and implications for cross-subsidies

(ii) details of customer consultation processes and outcomes (see also customer engagement section of the information requirements)

(iii) anticipated implications, if any, for long-term investment.

How will QCA monitor general pricing objectives and pricing principles?

The QCA will review and report on the retailers' statement of pricing practices including the application of the pricing principles (Appendix B).

In Part A of the final report (QCA 2014b), we indicated that the application of the QCA's pricing principles needs to take account of the retailers' circumstances. Whether the principles should be applied depends on administrative feasibility, customer preferences, cost effectiveness and fairness and equity.

For ease of reporting, and consistent with the QCA's recommended framework, retailers should focus only on those principles that:

(a) are relevant to their current practices. Many principles may not be relevant, for example recycled water and stormwater pricing, scarcity charging, seasonal charging, service quality differentials. Pricing practices for non-mainstream services, concessions, and metering and billing practices need only be reported by submitting tariff schedules.

(b) have a marked departure from the general pricing objectives and pricing principles (for example, LRMC pricing, inclining block tariffs). Such departures may be justified on the grounds noted above. It is anticipated that there would be departures from the QCA general pricing objectives and pricing principles. These departures would not automatically result in a cost of service review.

The QCA will also review the water retailers' calculation of LRMC, and comment on retailers' cases for departures from LRMC, for example, to take account of equity and fairness issues. However, as noted in the pricing principles framework (QCA 2014c), unless otherwise directed by the government, the QCA treats economic efficiency as the primary objective of economic regulation. However equity and fairness issues may influence pricing decisions in certain cases.

Perspectives on equity can take many (possibly conflicting) forms. Examples of how fairness considerations may influence pricing decisions are:

(a) prices should be consistent with customers' reasonable understanding of how prices are set before investments are made. Transition mechanisms may be considered when significant price changes are necessary.

(b) where there are subsidies the rationale and mechanisms for implementing them should be transparent

(c) the revenue burden should take account of horizontal and vertical equity

Where a volumetric charge set to LRMC would be very low as a proportion of the total charge, requiring a two-part tariff with most revenues raised from the fixed charge, equity and fairness issues may arise for single occupant and small households. Volumetric tariffs may therefore be set to exceed LRMC to allow customers more control of total bills.

For clarity, where volumetric tariffs are not set to LRMC, and appropriate reasons are provided, this will be taken as being consistent with the pricing principles.

9 LEVEL 2

Level 2 information, supplementary to level 1 information, would only be required if increases in prices, or components of water or sewerage prices, exceed CPI-X.

Level 2 information allows the retailer's average prices for water and sewerage services to be compared to CPI-X.

What to submit

In addition to level 1 information, retailers would be required to provide total revenues for water and sewerage services, both residential and non-residential, for the year being monitored, as well as the prior year.

Table 8 Water revenues

Indicator	*Information requirements*
Bulk water revenue	Total volume delivered by bulk water entity. Bulk water charges passed through for previous year.
Revenue per kL (average price) — residential	Total distribution/retail water revenue—residential
Revenue per kL (average price)—non-residential	Total distribution/retail water revenue, non-residential

Table 9 Sewerage revenues

Indicator	*Information requirements*
Revenue per connection—residential	Total sewerage revenue—residential
Revenue per connection—non-residential	Total sewerage revenue—non-residential

How will QCA assess average prices?

If there are changes in tariff structures, the QCA will use level 2 water and sewerage revenue information in combination with baseline service quality data (volumes and number of connections) to derive average water and sewerage prices.

However, if we compare actual average prices in for example 2015–16 to the previous year, the fluctuations in demand can distort the comparisons from year to year. Therefore the QCA will minimise the impacts of volume changes on average prices by using previous year volumes to calculate average prices for both years.

Where actual price increases or average price increases are within CPI-X further analysis of costs is not necessary, and the QCA will provide a report of its findings.

If a price change exceeds CPI-X, further analysis will be undertaken, and a next level of information is required from the retailer (see levels 3 and 4).

10 LEVEL 3

At level 3, cost information on the increases in prices above CPI-X would be required to be submitted, in addition to level 1 and level 2 information.

What to submit

Level 3 allows retailers to submit explanatory details where the price change exceeds CPI-X, and the change can be explained by changes in one cost item or a small number of cost items.

The information should relate to the particular costs driving the change in price and could, for example, relate to specified adjustments (cost pass-throughs, carry-forward of past under- or over-recovery, other adjustments), or could reflect legitimate cost variations that result in a change in MAR.

Retailers do not need to submit level 3 information if price (or average price) increases have not exceeded CPI-X. However, retailers may choose to submit such information to update the QCA's Reference MAR using the template below.

Table 10 Level 3 cost information

Item description	*Cost details*	*Impact on MAR*	*Price impact*

How will QCA assess level 3 information?

Level 3 information will require the QCA to compare changes in the MAR. To assist with this, the QCA will maintain a Reference MAR for each retailer, updated annually.

What is the Reference MAR?

The Reference MAR is the QCA's estimated MAR for each retailer. The QCA will maintain a Reference MAR even if a retailer's price increases do not exceed CPI-X.

This Reference MAR will be used, when necessary, to compare total revenues to total efficient costs, and to estimate unders and overs balances.

The Reference MAR will initially draw on the 2013-15 SEQ price monitoring review. The 2014–15 Reference MAR will be based on the QCA's MAR values, unless other information is submitted by the retailer.

The key principles for setting the Reference MAR are:

(a) The MAR will be reset each year by the QCA using the building blocks approach.

(b) Different escalation rates will apply for operating cost components, using publicly available indexes relevant to the retailers. For example:

(i) employee costs will be escalated by the Brisbane Wages Price Index as well as growth in connections

(ii) electricity will be escalated by the QCA's benchmark retail price determinations and growth in usage

(iii) other operating costs will be escalated at CPI plus growth in demand.

(c) The RAB will roll forward at CPI, and with net additions (capex-disposals-contributions) assumed to be equivalent to depreciation, plus an allowance for connection growth. This estimated RAB may be adjusted for any actual capex data submitted by the retailer.

(d) The benchmark WACC will be applied to the RAB.

(e) As noted above, a growth factor will apply to opex and capex reflecting growth in usage and/or connections.

(f) An X-factor of 0.25% would apply to the total MAR.

Where the retailer submits data up to level 3 or 4, the QCA may update its Reference MAR for actual information. The principles for updating the Reference MAR for actuals are:

(a) Changes due to capex will be incorporated into the RAB and therefore the Reference MAR in recognition that capex is lumpy from year to year. The QCA would need to be satisfied with the retailer's performance in customer engagement, strategic investment planning and service quality.

(b) Changes in opex will also be incorporated into the Reference MAR, for example, to take account of lumpy changes due to growth and different escalation rates, if the QCA is satisfied with performance in customer engagement, strategic investment planning and service quality.

(c) If the variation is due to a different WACC, the QCA will maintain its Reference MAR consistent with its benchmark WACC.

Based on the above, the QCA will adjust its Reference MAR for the new submitted information and apply the X-factor to the revised MAR.

Where the retailer does not provide information to update the Reference MAR, the QCA would maintain its own estimate.

Scenarios are provided in Appendix D.

11 LEVEL 4

Level 4 information would be required to be provided in addition to level 1 and 2 where prices or revenues have increased by more than CPI-X and reflect broad-based changes in costs.

Level 4 is the highest level of information required.

What to submit

Where prices or revenues have increased by more than CPI-X and reflect broad-based changes in costs, a wide range of cost data on all key parameters relevant to estimating the MAR would be required. This level of information differs from that required for a cost of service review as it does not require an assessment of the prudency and efficiency of costs.

For this potential purpose, it is recommended retailers maintain a summary of the MAR carried forward from the 2013-15 review, and submit that as part of level 4 returns according to each of the categories of costs relevant to the water and sewerage activities.

Level 4 requires broad details of the elements of the MAR, including the RAB, capital expenditure and depreciation, operating costs and WACC.

Regulatory Asset Base—roll-forward

Retailers are to provide details of the RAB roll-forward as set out below.

For the 2014–15 report, the opening value is at 1 July 2014 and the closing value is as at 30 June 2015.

Table 11 RAB roll-forward

	Water	***Sewerage***	***Other***	***Total***	
	Actual	***Actual***	***Actual***	***Forecast***	***Actual***
Opening value, 1 July					
New assets total					
Disposals					
Depreciation					
Escalation adjustments					
Capital contributions					
Closing value, 30 June					

Where escalation for assets is based on an index other than CPI, the retailer should provide relevant details and supporting documentation.

Capital contributions include actual contributed, donated and gifted assets for the monitored year. These are to be noted in the table above.

Capital expenditure

Water retailers are to provide details of their total water and sewerage capital expenditure as commissioned for the monitored year.

Other capital expenditure (for example, recycled water, or stormwater) may be included in the 'other' category.

For the first year, where the opening RAB as at 1 July 2014 is significantly different from that estimated in the QCA's 2014–15 review, retailers are to provide details of the variations in the first year of annual performance monitoring.

Capital expenditure should be included in the RAB when it is commissioned and contributes productive capacity to the system.

Significant capital expenditure projects

Water retailers may provide details of up to six of the largest capital expenditure projects for water and sewerage services commissioned in the monitored year, as per the table below. It is recommended that details relate to items only that are material to the MAR.

Where details of these projects differ in a particular year (2014–15 for the first return) from those indicated in the annual capital works plans, or relate to projects not previously identified supporting information must be provided. Such information could include details of cost drivers, evidence of consistency with higher level planning, and reasons for variations.

The QCA may seek evidence that an appropriate approach has been applied to project evaluation, including options and risk analyses.

Table 12 Capital expenditure

Project description	*Driver*	*Capital cost*	*Commissioning date*	*Impact on MAR*

Depreciation

To allow comparison with the QCA 2014–15 forecast MAR, depreciation in the first year of monitoring (2014–15) is to be determined on a straight-line basis.

Under the light-handed framework, water retailers may change to an alternative depreciation profile. Where alternative depreciation profiles are proposed for long-life assets, the relevant details should be provided. A reconciliation with the straight-line method is required in the initial year where the alternative approach is adopted, to allow the QCA to adjust its Reference MAR.

Details regarding an alternative approach need to include:

(a) the assets to which the alternative method is applied, including value of assets

(b) the profile adopted, and the basis for adopting the alternative profile

(c) estimated depreciation for the asset(s).

The QCA will apply the straight-line depreciation approach in the Reference MAR unless advised by a retailer that an alternative approach has been adopted.

The QCA in common with most regulators has applied straight-line depreciation as an 'average' profile—recognising that different assets depreciate at different rates. If an alternative asset depreciation profile is adopted, retailers may need to apply a variety of profiles for different asset types.

Return on capital

The QCA has recommended a method for determining the benchmark WACC, which will be used to establish the Reference MAR. However, under the light-handed framework, retailers may choose to adopt an alternative WACC method, for example, to address retailer concerns about year-to-year variations in prices.

Water retailers are to provide details of the target return on capital for each year, including the values attached to the key underlying parameters and the method of calculating the WACC.

Table 13 WACC

Parameter	*Method*	*Estimate*
Risk-free rate		
Market risk premium (MRP)		
Debt-to-value ratio (capital structure)		
Asset beta		
Equity beta		
Cost of debt		
WACC		

The QCA's benchmark WACC is based on its recommended methodology. This means for example applying a risk-free rate aligned to the length of the regulatory period.

While subject to a final position, the QCA's draft position is that the cost of debt be set using an 'on-the-day' rate. If, within the light-handed framework, retailers choose to apply a trailing average cost of debt, the relevant method for estimating the cost of debt has to be provided. Any other variations from the QCA method should also be explained.

Operating costs

Operating costs are to be provided for the regulated water and sewerage services.

The data should allow analysis of changes in operating expenditure from the preceding year. For example, in the first year of annual performance monitoring, operating costs for 2013–14 and 2014–15 are to be submitted.

The operating cost categories by activity and by type are outlined below.

Table 14 Operating costs

Costs by type	*Costs by activity*			
	Operations	*Maintenance*	*Corporate costs*	*Totals*
Bulk water				
Employee expenses				
Electricity				
Other materials and services				
Tax				
Total				

How will QCA assess level 4 information?

The QCA's assessment procedure for level 4 information is the same as the one that applies for level 3—the QCA will compare and update its Reference MAR.

Variations in prices due to a different WACC approach used by retailers will be reported by the QCA.

12 TRIGGERS FOR COST OF SERVICE REVIEWS

A cost of service review involves a comprehensive review of the prudency and efficiency of a retailer's operating and capital expenditure.

Under the annual performance monitoring framework, the QCA may initiate a cost of service review where it considers that there is sufficient evidence that a retailer is exercising market power. This is at the QCA's discretion.

The cost of service review may relate to specific cost components identified in annual performance monitoring, or may encompass all costs incorporated in the MAR.

Should evidence of an exercise of market power be confirmed, and the retailer fails to address the issue, as a last resort the QCA may seek to set prices, subject to Ministerial direction. For the QCA to be able to set prices, amendments to the QCA Act would be required.

What circumstances could trigger a review?

Circumstances that may warrant a cost of service review include:

(a) a material increase in prices above CPI-X or an accumulated material increase in prices above CPI-X where supporting information is not submitted

(b) a material increase in prices above CPI-X or an accumulated material increase in prices above CPI-X that is not justified by the increase in submitted costs

(c) a systematic underperformance in service quality levels that is not reflected in lower costs or prices or not otherwise supported.

The QCA may consider that a cost of service review is not required, but that a price determination is recommended. This could occur where:

(a) cost increases are within or close to CPI-X

(b) price increases are materially above CPI-X.

A price determination would apply to the next pricing period for which prices are yet to be set. For example, if after the 2015–16 annual performance monitoring review QCA considers that it should set prices, it would do so for the 2017–18 financial year.

Scenario examples are given in Appendix D.

How will QCA define materiality?

The definitive level of materiality of changes in prices above CPI-X that would trigger a review remains an implicit trigger subject to QCA discretion.

In determining whether a price and/or cost increase is material, the QCA will consider the level of justification provided to support those increases, the pattern of behaviour of the retailer in previous years and performance in other areas such as investment planning, service quality and customer engagement.

The QCA will take account of mitigating circumstances, where a material cost increase and/or a price increase may be considered unavoidable, before triggering a review. These could include, but are not limited to:

(a) impacts of investments to replace assets

(b) uncontrollable changes in WACC

(c) uncontrollable cost impacts for inputs including cost pass-throughs

(d) uncontrollable external impacts such as floods

(e) effect of binding rulings (see below).

The QCA will take into account the costs of undertaking a cost of service review. If the expected benefits of an investigation are not considered to justify the costs, the QCA will not undertake a review.

Retailers would be given an opportunity to respond to a notice of an investigation and the reasons provided by the QCA, before the investigation commences.

The cost of service review may, at the QCA's discretion, apply to (a) the monitored year—an ex post cost of service review focusing on particular unjustified cost changes, (b) the year after the one being monitored, or (c) the year after the one in (b) (ex ante review).

Binding ruling

A binding ruling is an ex ante review of the prudency and efficiency of a cost item specifically identified by the retailer. Once the QCA has made a recommendation, it is binding on the regulator.

A request for a binding ruling is at the discretion of the retailer. It should only apply for material cost items. The retailer may seek the QCA's advice on materiality before submitting a binding ruling request.

The retailer should allow sufficient time for a QCA review (two to three months). An application for a binding ruling may be made at any time.

The QCA will recover the cost of the binding ruling from the retailer.

13 UNDERS AND OVERS

The QCA will maintain an unders and overs balance for each retailer to manage any shortfalls or surpluses in an entity's revenue.

Approach to unders and overs

The initial unders and overs balance would be derived based on the QCA's estimated under- or over-recovery for 2013–14, as indicated in the 2013–15 SEQ retail price monitoring. This balance can be adjusted to accommodate the impact of flood events prior to 1 July 2013.

The under- or over-recovery balance for 2014–15 identified in the QCA's 2013–15 review may be revised to account for actual prices and changes in demand or other factors. This could differ from the forecast unders and overs amount identified in the QCA's 2013–15 price monitoring.

Any under-recovery balance from 2013–14 (and prior) may be recouped on an NPV-neutral basis within 10 years, that is, by 30 June 2024.

Under-recovery incurred in the years after 2013–14 can be carried forward and recovered on an NPV-neutral basis for up to 10 years from the time they are incurred.

Over-recovery amounts similarly are carried forward (earning a WACC return) and must be returned to customers within 10 years. The QCA will publish estimated annual under- and over-recovery balances as part of its report.

Unders and overs balances will take into account:

(a) under-recovery arising from price paths to full cost recovery

(b) impact on revenues of changes in actual demand as compared to forecasts

(c) impact of uncontrollable cost changes—for example cost pass-throughs

(d) effect of actual CPI being different to forecast CPI used for pricing purposes.

How will QCA maintain an unders and overs balance?

The QCA will derive an estimate of the unders and overs balance using available information in its Reference MAR model. This balance would not be released publicly.

The accuracy of the QCA's estimated unders and overs balance will depend on the level of information submitted by retailers:

(a) At level 1, retailers will not provide details of actual revenues for comparison to the Reference MAR. Instead, the QCA will impute revenue information from available sources such as annual reports.

(b) At level 2, revenue information can be compared to the QCA's Reference MAR to provide a more accurate unders and overs balance.

(c) At levels 3 and 4, the unders and overs balance can take account of actual revenues as well as actual cost changes which can be reflected in the Reference MAR.

Where retailers wish to claim a past under-recovery in future years, they must provide level 3 or 4 data for the monitored years (starting from 2013–14). The QCA would verify the costs

underpinning the claim and where appropriate update the unders and overs balance accordingly. Once QCA has incorporated these cost items it would not revisit them unless there is a material change.

Should retailers choose to recover an under-recovery balance in future years by increasing prices above CPI-X, QCA would need to verify the level of under-recovery by comparing its Reference MAR to submitted cost and revenue data.

Outperformance

Where retailers demonstrate that price increases are in line with CPI-X but costs increased by less than CPI-X due to efficiency initiatives, these gains may be retained by the retailers for up to three years before being passed through to customers through reduced prices in the future.

This benefit is a saving to the retailer over the three-year period through the higher return achieved.

However, after three years, the benefit should be returned to customers either through a one-off price adjustment, or by a series of suitable price adjustments through time. The retention of such gains would not be truncated in the event of a triggered or scheduled cost of service review.

How will QCA monitor outperformance?

Outperformance will be in evidence where the operating costs component of the retailer's MAR has increased by less than CPI-X.

Given the light-handed nature of the framework, the QCA may not be able to identify outperformance unless the retailer submits the data. Submission of details is entirely at the discretion of the retailers. However, undeclared efficiency gains may be apparent should a review be triggered in the future. The efficiency gain would then be passed immediately through to customers.

If the retailer submits details of outperformance, the QCA's Reference MAR would allow for the carry-over or deferral of the efficiency saving for three years. That is, for a period of three years, revenues would be compared to a Reference MAR that does not include the efficiency gain.

However, after the three-year period, the X factor would apply to the Reference MAR adjusted for the efficiency gain, that is, it would apply to the lower MAR.

APPENDIX A—SERVICE QUALITY

Comparison against target

		Performance against target				
Water	**Target**	**Outcome**	**Status**	**Red**	**Amber**	**Green**
Incidence of unplanned interruptions	<2 (per 1000 connections)	10				
Avg duration of unplanned interruptions	restore 95% of interruptions within 5 hours	restored 97% of interruptions				
Main breaks	<8 breaks per 100 kms	5 breaks per 100				
Avg response time to bursts and leaks	respond within 5 hours	responded within 3 hours				
Total				1	0	3
Sewerage						
Sewerage main breaks and chokes	<50 per 1000	54 per 1000				
Average response time to sewerage incidents	<7 hours	15 hours				
Total				1	1	0
Customer response						
Water quality complaints	<5 complaints per 1000 connections	4 complaints per 1000 connections				
Total water and sewerage complaints	<8 complaints per 1000 connections	9 complaints per 1000 connections				
Percentage of calls answered by an operator within 30 seconds	> 80% of calls answered within 30	85% of calls answered within 30				
Total				0	1	2
Total score				2	2	5

Performance over time

Retailer				Trend				
	Water	**Target**	**Moving average**	**Outcome**	**Status**	**Red**	**Amber**	**Green**
	Incidence of unplanned interruptions	<2 (per 1000 connections)	3	4				
	Avg duration of unplanned interruptions	restore 95% of interruptions within 5 hours	94%	90%				
	Main breaks	<8 breaks per 100 kms	6	5				
	Avg response time to bursts and leaks	respond within 5 hours						
	Total					1	1	2
	Sewerage							
	Sewerage main breaks and chokes	<50 per 1000	49	48				
	Average response time to sewerage incidents	<7 hours	6	4				
	Total					0	0	2
	Customer response							
	Water quality complaints	<5 complaints per 1000 connections	5	9				
	Total water and sewerage complaints	<8 complaints per 1000 connections	7	8				
	Percentage of calls answered by an operator within 30 seconds	> 80% of calls answered within 30	82%	85%				
	Total					1	1	2
	Total score					**2**	**1**	**6**

APPENDIX B—PRICING PRINCIPLES

Table 15 Application of pricing principles

Chapter	*Topic*	*No*	*Principle*
Urban Water	Demand forecasting	2.1	Long term forecasts used for capital planning are based on projected regional average urban demand as published in the SEQ water security program.
		2.2	Short term demand forecasts are based on estimated water use per customer/connection and population forecasts (number of connections) and take account of any bounce-back effect as well as local circumstances.
		2.3	Demand forecasting practices and alternative models (including demand elasticities) are reviewed by a working group including the retailers, QCA and other relevant parties.
	Volumetric charges	2.4	The volumetric charge for urban water services reflect LRMC.
		2.5	Where prices exceed average costs, short-term over-recovery of revenues is addressed by ex-post rebates with adjustments made to the fixed charge.
	Fixed charges	2.6	Fixed charges for urban water services recover the MAR not covered by the volumetric charge.
		2.7	Charges do not encourage customers to by-pass or disconnect from the network.
	Inclining and declining block tariffs	2.8	Inclining and declining block tariffs are not introduced, and where already in place be phased out over time to a single volumetric charge.
	Location-based or nodal pricing	2.9	Location-based or nodal charges for urban water services applied where there are significant differences in costs between locations or between nodes.
	Peak period and seasonal charges	2.10	Time of day or seasonal charges considered for urban water services where there are identified benefits in terms of cost effectiveness.
	Self-selecting tariffs	2.11	Self-selecting tariff options considered where there is sufficient information for customers to make choices, provided they do not result in cross-subsidies or introduce unmanageable revenue risks for the retailer.
	Service quality differentials and interruptible tariffs	2.12	Price/service quality tariff options adopted, where material cost differentials are associated with different levels of service.
	Metering and billing arrangements	2.13	Individual metering of flats and units is adopted where economic and practical.
		2.14	Where water is separately metered, subject to legislative constraints, tenants are billed the fixed and variable charges for water and sewerage.
		2.15	Customers with unmetered connections are charged a deemed amount for usage, reflecting average use for similar property types.

Chapter	*Topic*	*No*	*Principle*
		2.16	Customers with unmetered connections are given the option of paying for meter installation.
		2.17	For vacant and non-connected properties where water and sewerage services are available for connection, apply the water and sewerage access charges for connected properties (the relevant domestic or commercial charge).
		2.18	Concessions and rebates are to: (a) reflect a consistent approach between the retailers (b) set to apply to either the fixed charge or as a total direct adjustment to the gross invoice amount (c) capped so as not to subsidise discretionary use (d) transparent with acknowledgement of the source of, and purpose for, particular concessions/rebates.
		2.19	Concessions associated with excess water use caused by leaks are determined by the retailers in consultation with customers.
		2.20	Hardship arrangements are to be consistent with legislative and operating requirements but should avoid cross-subsidies where practical.
		2.21	Meter-reading and billing is undertaken at least quarterly.
	Tradeable water entitlements	2.22	Tradeable urban water entitlements considered where the efficiency gains are sufficient to justify the administration and transactions costs.
Sewerage	Demand forecasting	3.1	Demand for sewerage services is based on forecast growth in connections, linked to population growth.
	Efficient pricing	3.2	For residential customers: (a) sewerage charges based on a single part tariff with a fixed charge per customer or connection or (b) volumetric charges applied where these can be effectively measured (including by discharge or return factors).
		3.3	For non-residential customers: (c) fixed sewerage charges are based on the impact of the customer on the system. In the absence of direct metering, water connection size accepted (d) volumetric charges applied where these can be effectively measured (including by discharge or return factors).
		3.4	Nodal pricing for sewerage services applied where there are significant differences in costs between nodes.
Trade Waste	Demand forecasting	4.1	Where the customer base changes in line with growth, trend information is used to provide reasonable forecasts of demand for trade waste services.
		4.2	Retailers are to consult with large customers to monitor any step changes in demand for trade waste services.
	Efficient pricing	4.3	Trade waste prices are based on the impactor pays principle.
		4.4	Charges are based on the LRMC of transport, treatment and disposal of trade waste, with variable charges based on volume and contaminant load.

Chapter	*Topic*	*No*	*Principle*
		4.5	Specific charges for the management of trade waste services (inspection and monitoring) are applied on a cost reflective basis.
		4.6	Charges are differentiated according to customer type and risk factors, and by location (as part of risk assessments) if considered cost effective.
	Compliance	4.7	Consistent with regulations, retailers to apply penalty charges for non-compliance and recover the efficient costs associated with breaches.
Recycled Water	Efficient pricing	5.1	The revenue requirement for recycled water services is based on the total additional cost of recycling less avoided costs and less developer contributions.
		5.2	Where there are costs associated with recycling that cannot be recovered from recycled water customers, direct and avoidable costs are allocated between relevant parties on a beneficiary pays basis.
		5.3	Recycled water volumetric prices are based on LRMC for the established recycled water scheme where possible, less marginal avoided costs. If necessary, recycled water volumetric charges set lower than LRMC to ensure demand clears supply (where the recycled water volumetric charge is higher than the potable water volumetric charge).
		5.4	Where volumetric charges do not ensure revenue adequacy, fixed charges in a two-part tariff are set to recover remaining revenues, subject to willingness to pay.
		5.5	If the revenue requirement is still not achievable (that is, where fixed and volumetric charges exceed willingness to pay), unrecovered amounts are allocated to potable and sewerage charges in proportion to avoided cost allocations.
		5.6	The approach and charges are periodically reviewed, as customer acceptance increases.
	Sewer mining	5.7	Charges for sewer mining are set on a case-by-case basis to reflect relevant direct costs, a share of sewerage system common costs, service costs for any returns, less avoided/avoidable costs.
Storm-water	Stormwater Reuse	6.1	Stormwater reuse pricing is subject to the same pricing principles as recycled water.
	Stormwater drainage	6.2	Rate-based charges are to continue to be used for recovery of stormwater drainage costs.
		6.3	Charges for stormwater drainage are transparently identified on customer bills.
Industry-wide issues	Externality pricing	7.1	The inclusion of externality prices is supported where material impacts can be valued accurately and cost effectively.
		7.2	Prices incorporating estimates of externalities avoid duplication with other mechanisms and are to be transparent.
		7.3	Licences and market mechanisms (such as developed by DEHP) be applied by Government where the benefits are considered to justify the costs.

Chapter	*Topic*	*No*	*Principle*
	Third party access	7.4	Third party access prices are based on the cost of service methodology, and take account of relevant joint or common costs. Any departure from this methodology (such as applying the retail minus methodology) is to be justified.
		7.5	Where retail prices are averaged across user groups (postage stamp tariffs) access prices are adjusted (where required) to ensure costs are not increased for remaining customers.
	Price paths	7.6	Price paths are implemented where there are substantial price increases, having regard to customers' ability to pay and the impacts on the service provider's financial viability.
		7.7	Price paths are set on a revenue neutral basis.

APPENDIX C—LONG-RUN MARGINAL COST

Introduction

The QCA (2014c) recommended that the pricing of water and sewerage services be consistent with the principles of long-run marginal cost (LRMC), except where water retailers can justify departures from these principles to meet other objectives such as equity, price stability, pricing of externalities, or water scarcity.

The Turvey perturbation method (Turvey 2000) and the average incremental cost (AIC) method are two commonly used methods for estimating LRMC.

Which method?

In the final report, the QCA (2014c) indicated that retailers could use either method, but generally observed a preference for the AIC method, as it is:

(a) more suited to scenarios where there are multiple small augmentations

(b) more transparent and more easily explainable to stakeholders

(c) computationally easier.

The AIC method estimates the likely efficient costs of capex and opex needed to accommodate a projected increase in demand. This incremental cost is divided by the increment in demand to generate the average incremental cost per unit of capacity. The increase in costs per unit of demand over a planning period is expressed in net present value (NPV) terms.

The Turvey method requires a 'perturbation' or a realistic variation to the base demand forecast. LRMC is estimated by taking the increase in costs in net present value terms of bringing forward augmentations necessary to meet the higher demand forecast. If there is a large number of small demand-driven capex items over the planning period, the timing of each capex item would need to be identified for each demand scenario.

In deciding which method to use, retailers should consider the complexity of their capex profiles. The AIC method is generally easier and simpler to apply, and especially so where there is a large number of small demand-driven augmentations or upgrades. The two methods are computationally different and can be expected to give different estimates of LRMC.

The QCA has generally demonstrated a preference for the less information-intensive AIC method and used it in estimating LRMC for Gladstone Area Water Board (GAWB) (QCA 2010).

This chapter provides guidance on application of both methods.

Methods for estimating LRMC

AIC method

The AIC method seeks to estimate the LRMC of a change in output caused by a change in demand by customers.

The steps in applying the AIC method are:

(a) determine existing demand

(b) establish ongoing costs to meet existing demand

(c) forecast the future incremental demand – that is, the forecast demand over the planning period less existing demand (by time period)

(d) establish the optimal (least-cost) program of opex and capex (incorporating demand management options) to meet the forecast demand over the planning period

(e) estimate LRMC as the present value of the expected additional costs of meeting the incremental demand (that is, (d) less (b)) divided by the present value (PV) of the incremental demand.

The AIC LRMC is calculated as:

$$AIC\ LRMC = \frac{\text{PV of future least-cost opex and capex costs to meet incremental demand}}{\text{PV of future incremental demand}}$$

Turvey perturbation method

The Turvey perturbation method (Turvey 2000) measures LRMC by estimating the effect on operating and capital costs of making a marginal change in demand. The steps in estimating LRMC using the Turvey method are:

(a) forecast supply and demand over a planning period (base demand)

(b) establish the least-cost program of opex and capex to meet the base demand

(c) modify the demand forecast by a hypothetical permanent adjustment (perturbation) – this is typically a permanent increase in demand

(d) develop the new least-cost opex and capex program (incorporating demand management options) to meet the revised demand

(e) estimate LRMC as the difference in the PVs of the operating and capital costs to meet the base and revised demands (that is, the PV of the costs associated with (d) minus (b)) divided by the PV of the hypothesised perturbation change in demand.

The Turvey LRMC is therefore calculated as:

$$\text{Turvey LRMC} = \frac{\text{PV of change in costs due to a permanent change in demand}}{\text{PV of permanent change in demand}}$$

As LRMC is the sum of the estimated long-run marginal operating costs (LRMOC) and the long-run marginal capacity costs (LRMCC), the Turvey LRMC can be alternatively expressed as:

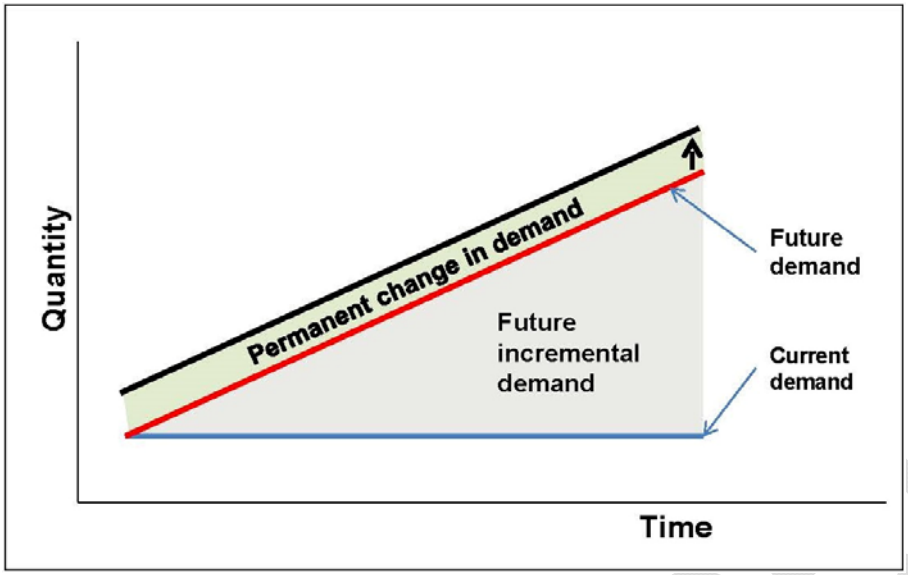
$$\text{Turvey LRMC} = \text{Turvey LRMOC} + \text{Turvey LRMCC}$$

$$= \frac{\text{PV}(\text{opex}_{\text{revised demand}} - \text{opex}_{\text{base demand}}) + \text{PV}(\text{capex}_{\text{revised demand}} - \text{capex}_{\text{base demand}})}{\text{PV (revised demand - base demand)}}$$

How the methods differ

Both approaches essentially measure the impact of demand growth on capital and operating costs discounted and averaged over a time period. However, where they differ is in the measurement of demand. The Turvey method is based on a variation (perturbation) to the forecast demand growth, whereas the AIC method is based on an increment to existing demand. The difference is illustrated below.

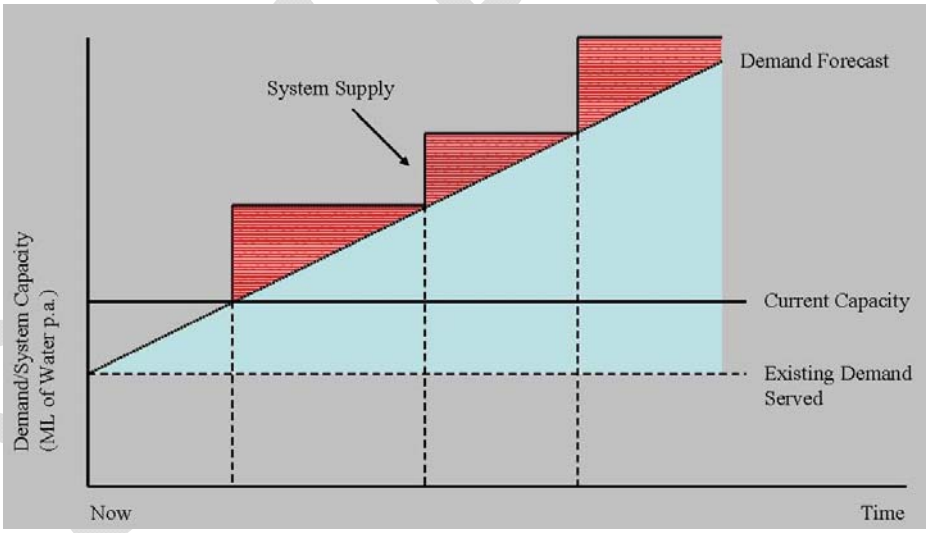
Figure 1 Measurement of demand under the Turvey and AIC approaches



Source: Sapere (2014)

The AIC estimate of LRMC will include the cost of spare capacity in the calculation. This means that where augmentations are 'lumpy', the numerator in the LRMC calculation includes the cost of this excess capacity but the additional demand served by this capacity is not included in the denominator. In this case AIC and Turvey estimates can differ significantly.

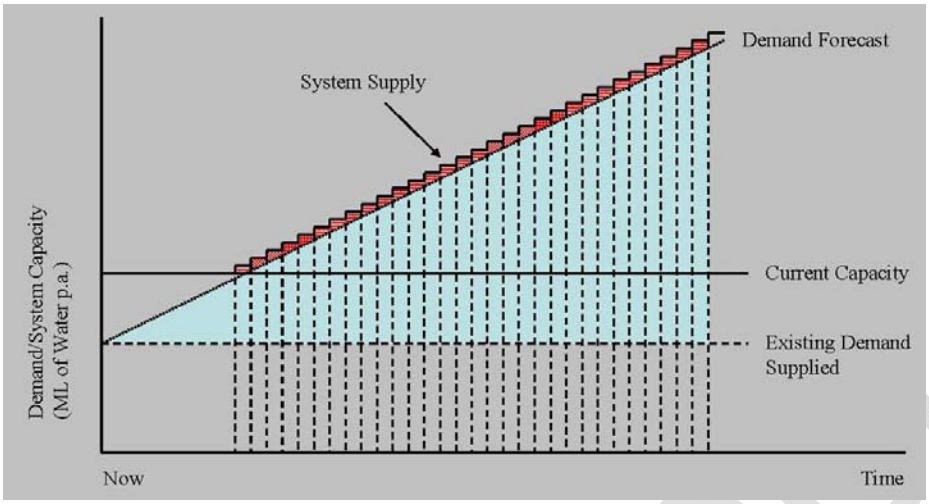
Figure 2 AIC method with relatively 'lumpy' capex



Source: NERA (2012)

However, where system augmentations proceed relatively uniformly as demand also increases (as illustrated by the small red triangles in Figure 3), the AIC and Turvey approaches can provide similar results.

Figure 3 AIC method with relatively uniform capex



Source: NERA (2012)

For these reasons, NERA (2012) suggested that the Turvey approach may be more suitable where expected capital expenditure is relatively 'lumpy'. An example is a bulk service provider that invests in a single major augmentation of storage capacity. The AIC approach may be better suited to a relatively smooth, 'periodic' profile of expected capital expenditure, a profile that is more akin to that of SEQ retailers.

As noted above, the AIC method is also simpler to apply and requires less demand information. For SEQ retailers, the AIC method would seem to be the most suitable approach for these reasons.

LRMC parameters

Regardless of whether the Turvey or AIC method is used, it will be necessary to determine some common parameters.

Recommendations for the key parameters are:

(a) Planning period—this should be at least 20 years, or sufficiently long enough to include expected major augmentations

(b) Discount rate—this should be the water retailers' WACC as it should reflect the risk-adjusted opportunity cost of capital of the water retailers' activities

(c) Real and nominal values—nominal cash flows should be discounted using a nominal discount rate, whereas real cash flows should be discounted using a real discount rate

(d) Forecast expenditure—capital and operating expenditure forecasts for the purposes of estimating LRMC should relate only to demand growth.

Variable costs

Relevant operating costs for estimating LRMC are the incremental operating costs arising from the incremental demand. These could include:

(a) short-run marginal costs (SRMC) of meeting an additional unit of demand (e.g. electricity and chemicals). These direct operating costs should be easily identified and expressed as an amount per kL.

(b) LRMC - costs that vary with the volume of water demanded over the long term for the distribution/retail share of costs. Retailers may identify these costs by estimating (to an indicative level) total operating costs (labour, repairs, maintenance, etc.), for forecast volumes of demand at the end of the 20-year period and converting the total increase to an amount per kL of additional demand.

(c) the additional specific opex associated with new demand-driven infrastructure, if any and if separately identifiable, for example, a new wastewater treatment plant.

The bulk water charge is effectively part of LRMC and is directly passed to customers through a separate 'per kL' charge with no fixed component.

Estimation of Turvey perturbation

While there is no commonly accepted rule for the size of the Turvey demand perturbation, should a retailer choose the Turvey method, it would be prudent for the water retailer to:

(a) consider the materiality of the change (in terms of percentage of base demand)

(b) ensure the assumed change in demand is plausible and does not produce unrealistic or unintended outcomes

(c) assess the sensitivity of LRMC estimates to alternative demand perturbations.

Worked example

For illustrative purposes, a worked example is provided in the attached spreadsheet for the Turvey perturbation and AIC methods. This spreadsheet is not intended to be used as a template, but as a guide to assist retailers with their own modelling. Retailers should adapt the simple spreadsheet to accommodate their forecast data.

For convenience, all assumed cost values and the WACC in the example are in real terms. A model using nominal values would require all cost elements to be escalated.

In the example given, opex associated with augmentations is included as a separate line item. Marginal opex is estimated as an amount per kL. A separate line is provided to enable lumpy demand-driven increments in opex to be entered. Care should be taken to ensure marginal opex is not double-counted.

The Turvey method in the example involves a demand increment that would uniformly bring forward augmentation capex by one year.

The example demonstrates that the two methods will give divergent estimates of LRMC. As noted above, the smaller and more frequent the augmentations, the closer the different LRMC estimates will be.

APPENDIX D—SCENARIO EXAMPLES

Introduction

The following scenarios provide some examples of price increases for a retailer and compliance (non-compliance) with the different requirements of the framework and possible QCA response/action.

The scenarios are not intended to cover all possible outcomes, but should provide some guidance on the level of information that should be submitted and the QCA's approach to monitoring.

Table 16 Scenario 1: Prices increase by CPI+2 (Y1), CPI+2 (Y2), CPI+2 (Y3), CPI+2, CPI (Y5)

Status	*Action required*
Price increases result in (different levels of) breach of the CPI-X threshold each year.	Cost information to be provided at retailer's discretion, but recommended to enable QCA to update the Reference MAR.
Retailer claiming under-recovery from past or due to being below MAR in current year.	Retailer would be required to submit level 3 information.
Does not breach QCA Reference MAR in any year as still catching up to MAR.	Retailer would need to submit level 3 information on past under-recovery.
Never 100% compliant with pricing principles.	QCA will note in its report.
Meets customer engagement and service standard requirements.	QCA will note in its report.
Seeks a binding ruling in Year 4 due to significant capital investment that will have a material impact on MAR calculation in 3–4 years when commissioned.	A binding ruling is sought at retailer's discretion.
If binding ruling is agreed, does the business exclude the associated costs when considering information to be provided to the QCA?	If level 4 information is submitted, item subject to binding ruling would be part of total costs.
When does a binding ruling need to be applied for and approved—how many years in advance?	The QCA can respond at any time, but at least 2 to 3 months is required for an assessment.
What level of information is required for the QCA to be satisfied for approval?	Level 3 — if claiming under-recovery.

Table 17 Scenario 2: Prices increase for all 5 years are below the CPI-X thresholds

Status	*Action required*
Retailer is claiming past under-recovery.	Need to submit to level 3 detailing past under-recovery.
Retailer is claiming under-recovery from unfulfilled demand forecasts in Years 1 and 3.	Need to submit details under level 3 requirements.
Retailer is claiming under-recovery due to unexpected cost pass-throughs in Years 1 and 5.	Need to submit details under level 3 requirements. QCA will update Reference MAR.
For each year, the retailer is claiming outperformance based on pricing below the threshold.	Need to submit level 4 cost data to claim outperformance.

Status	*Action required*
Can outperformance be claimed every year?	Outperformance can be claimed every year in which it occurs.
Does the calculation of the value of the outperformance need to exclude the previous additional allowance for outperformance?	Each year of outperformance is carried forward 3 years.
How is outperformance calculated—does it factor in growth?	QCA will add growth (G) to the Reference MAR—i.e., CPI-X+G. Outperformance is established separately from all other factors.

Table 18 Scenario 3: Retailer increases prices by less than CPI-X for Years 1-3; in Year 4 there is an increase of CPI+2 for outperformance incentive; in Year 5 it increases prices by CPI+1 (not driven by any specific factor)

Status	*Action required*
The retailer is unsure if it wants outperformance to be recognised, whether it should provide cost data to support.	Retailer should provide supporting cost data, but should be aware that lower than threshold prices do not necessarily lead to outperformance being automatically claimed.
From years 1-4, no cost information is required to be provided to the QCA.	Retailer does not need to submit cost information if prices increase by less than CPI-X.
Seeking a binding ruling in Year 2.	A binding ruling is sought at the retailer's discretion.
Never 100% compliant with pricing principles. Customer engagement did not meet the minimum requirements for Years 2 and 3.	QCA will report to the Minister on its findings.
Breach of QCA Reference MAR, however it doesn't breach the retailer's own estimate of MAR (there has been a divergence in retailer/QCA MAR estimates given that cost information has not regularly been provided).	If the difference is considered material, or if the retailer would like the MAR estimates to coincide, it should provide details to update QCA Reference MAR.
What impact does the non-compliance with pricing principles and customer engagement have?	In this scenario, where the overall price increase is not materially different to CPI-X, the QCA will simply note this in its findings and report to the Minister.
Will outperformance be factored into QCA Reference MAR?	MAR will retain any outperformance information for 3 years.
How will changes in WACC be factored into the Reference MAR?	The QCA will update its benchmark WACC annually.
Will QCA Reference MAR be re-set when cost information is provided, or will it strictly adhere to an escalated version of the 2014/15 QCA recommendation?	The Reference MAR would be reset using actuals if provided by the retailer.
Will QCA provide components making up indexation?	The Reference MAR will be adjusted using available indexes, including CPI.

Table 19 Scenario 4: Increases of CPI-X in Years 1, 3, 4 and 5, and increases of CPI+3 in Year 2

Status	*Action required*
Retailer asks if it should submit level 3 or 4 information for Year 2, depending on the reason for increase in prices above CPI-X.	This would be at the retailer's discretion, but it is recommended, in order to assist QCA to update its Reference MAR.

Status	*Action required*
Recovering past under-recovery in Year 1, with an additional claim of revenue risk under-recovery in Year 2 (resulting from Year 1).	Retailer should submit level 3 information.
Outperformance is claimed from Year 1 as price increased by CPI-X and costs increased by less than CPI-X.	Retailer should submit level 4 data.
In Year 2, a breach of QCA Reference MAR triggered by indexation of the RAB based on the actual inflation result (i.e. actual inflation higher than forecast inflation causing a decrease in MAR calculation and the retailer priced to recover MAR based on forecast inflation).	It is recommended that the retailer submit level 4 data to enable QCA to update RAB and MAR.
This outcome is replicated in Years 3 and 4 as actual inflation continually comes in higher than forecast - even though the retailer prices under threshold for Years 3 and 4	Retailer may elect to submit level 4 information to allow QCA to update MAR.
Is calculation of under- or over-recovery based on QCA Reference MAR or retailer's actual cost MAR?	The calculation will be based on the latest information available to QCA—the reference MAR or the actual MAR if details are provided by the retailer.
Treatment of any implications of differences between actual and forecast inflation on the MAR?	Actual CPI is adopted to update the Reference MAR—this is an ex post framework.
Clarify that there is no subsequent removal of outperformance if cost increases after the outperformance year?	Outperformance is retained for 3 years, regardless of later years' performance.
Can outperformance be claimed if price increases by more than CPI-X are due to past under-recovery?	Outperformance can be claimed—it reflects costs not prices.

GLOSSARY

A	
AIC	Average incremental cost
B	
C	
CPI	Consumer price index
D	
DEHP	Department of Environment and Heritage Protection
DEWS	Department of Energy and Water Supply
E	
F	
G	
H	
I	
J	
K	
kL	kilolitre
L	
LRMC	Long run marginal cost
LRMCC	Long-run marginal capacity costs
LRMOC	Long-run marginal operating costs
M	
MAR	Maximum allowable revenue
MRP	Market risk premium
N	
NPV	Net present value
NPR	National performance reporting
O	

P	
PV	Present value
Q	
R	
RAB	Regulatory asset base
RBA	Reserve Bank of Australia
S	
SRMC	Short-run marginal cost
T	
U	
V	
W	
WACC	Weighted average cost of capital
X	
Y	
Z	

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