



ICRC

independent competition and regulatory commission

Issues paper
**Regulated water and
sewerage services prices
2018–2023**

Report 4 of 2017, March 2017

The Independent Competition and Regulatory Commission (the Commission) is a Territory Authority established under the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act). The Commission is constituted under the ICRC Act by one or more standing commissioners and any associated commissioners appointed for particular purposes. Commissioners are statutory appointments. Joe Dimasi is the current Senior Commissioner who constitutes the Commission and takes direct responsibility for delivery of the outcomes of the Commission.

The Commission has responsibilities for a broad range of regulatory and utility administrative matters. The Commission has responsibility under the ICRC Act for regulating and advising government about pricing and other matters for monopoly, near-monopoly and ministerially declared regulated industries, and providing advice on competitive neutrality complaints and government-regulated activities. The Commission also has responsibility for arbitrating infrastructure access disputes under the ICRC Act. In discharging its objectives and functions, the Commission provides independent robust analysis and advice.

The Commission's objectives are set out in section 7 and 19L of the ICRC Act and section 3 of the *Utilities Act 2000*.

Correspondence or other inquiries may be directed to the Commission at the following addresses:

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The Commission may be contacted at the above addresses, by telephone on (02) 6205 0799, or by fax on (02) 6207 5887. The Commission's website is at www.icrc.act.gov.au and its email address is icrc@act.gov.au.

Foreword

This issues paper sets out the key issues the Independent Competition and Regulatory Commission will be addressing in its investigation into regulated water and sewerage services prices that will apply in the ACT for the period 1 July 2018 to 30 June 2023.

In accordance with the terms of reference and the legislative requirements of the *Independent Competition and Regulatory Commission Act 1997*, the Commission proposes to continue to use the current regulatory model where it is working well, but will investigate whether improvements can be made for the next regulatory period. This will include consideration of:

- mechanisms to ensure the recovery of prudent and efficient costs, while minimising the potential for significant price fluctuations;
- the potential for implementing incentive schemes for service levels and for operating and capital expenditure; and
- any amendments to the tariff structure.

As part of its investigation, the Commission will outline its intended approach to meeting its various regulatory objectives within its decision-making processes.

The Commission welcomes submissions on this issues paper. The process for making submissions is set out on the following page.

The timeline for the investigation is set out in Chapter 1.

Joe Dimasi

Senior Commissioner

31 March 2017

How to make a submission

The Commission welcomes submissions on this issues paper as well as any other relevant information that could assist the Commission's inquiry into regulated prices for water and sewerage services for the period 1 July 2018 to 30 June 2023.

Submissions may be mailed to the Commission at:

Independent Competition and Regulatory Commission
PO Box 161
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Alternatively, submissions may be emailed to the Commission at icrc@act.gov.au. The Commission encourages stakeholders to make submissions in either Microsoft Word format or PDF (OCR readable text format – that is, they should be direct conversions from the word-processing program, rather than scanned copies in which the text cannot be searched).

For submissions received from individuals, all contact details (for example, home and email addresses, and telephone and fax numbers) will be removed for privacy reasons before the submissions are published on the website.

The Commission is guided by and believes in the principles of openness, transparency, consistency and accountability. Public consultation is a crucial element of the Commission's processes. The Commission's preference is that all submissions it receives be treated as public and be published on the Commission's website unless the author of the submission indicates clearly that all or part of the submission is confidential and not to be made available publicly. Where confidential material is claimed, the Commission prefers that this be under a separate cover and clearly marked 'In Confidence'. The Commission will assess the author's claim and discuss appropriate steps to ensure that confidential material is protected while maintaining the principles of openness, transparency, consistency and accountability.

The Commission may be contacted at the above postal and email addresses, by telephone on (02) 6205 0799 or by fax on (02) 6207 5887. The Commission's website is at www.icrc.act.gov.au.

The closing time for submissions on the issues paper is **5 pm, 28 April 2017**.

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1 Introduction

1.1 Background to the investigation

On 13 December 2016, the ACT Treasurer signed terms of reference under the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act) for an investigation into, and the making of a price direction for, regulated water and sewerage services provided by Icon Water Limited. The price direction will be for the period 1 July 2018 to 30 June 2023.

This investigation represents the seventh occasion on which the Commission (or its predecessor bodies) has been called upon by the ACT Government to develop a price direction for Icon Water's (and formerly ACTEW's) regulated water and sewerage services. The first price direction covered the period 1997–98.

The current regulated prices for the period to 30 June 2018 are specified in the Industry Panel report, *Substituted price direction: Regulated water and sewerage services – 1 July 2013 to 30 June 2018*.¹ The substitute price direction was developed and implemented following an application by Icon Water for review of the Commission's price direction that was to apply for the period 1 July 2013 to 30 June 2019.²

The original price direction specified a six-year regulatory period, with recalibration of prices on a biennial basis and adjustment for inflation and cost pass-through of specified items in alternate years. The Industry Panel maintained the same price levels as in the Commission's original decision for 2013–14 and 2014–15 but used a different methodology to determine prices for the following three years, changed the regulatory period from six to five years, and provided for an annual adjustment to prices for inflation and cost pass-through of specified items but without full recalibration.

The main differences³ between the Commission's original price direction and the Industry Panel's substitute price direction were that:

- the Commission set a lower nominal rate of return (4.42 per cent) with no allowance for net tax liabilities for 2013–14 and 2014–15,⁴ based on a firm-specific approach, while the Industry Panel set a higher nominal after-tax

¹ Industry Panel, 2015a.

² ICRC, 2013.

³ There were other differences, but they did not make a difference on a net present value basis when considered over the same regulatory period and assuming the allowed operating and capital expenditure for the final three years of the regulatory period.

⁴ With scope to update the rate of return parameters at the biennial recalibrations.

return (7.20 per cent) with an allowance for net tax liabilities based on a benchmark efficient entity approach; and

- the Commission adopted materially lower forecast water sales (38 GL in 2013–14 and 2014–15) and lower customer numbers growth compared to the Industry Panel’s forecast of water sales (41.9 GL in 2013–14 and 43.1–44.8 GL per annum for 2014–15 to 2017–18).⁵

This review will consider whether any improvements can be made to the current methodology that was specified by the Industry Panel, in accordance with specific matters set out in the terms of reference and taking into account relevant regulatory practice and supporting principles. Changes to the current methodology may be made where the Commission believes that changes are likely to entail substantially better outcomes for the ACT community as a whole.

1.2 Purpose of the issues paper

The purpose of this issues paper is twofold.

The first is to alert stakeholders that the Commission is undertaking an investigation into regulated water and sewerage prices for the period from 1 July 2018 to 30 June 2023 and is seeking stakeholder input on any issues they consider relevant.

The second purpose is to inform stakeholders of key issues that the Commission has identified for this price investigation, including carryover issues from the current regulatory period and issues arising from the terms of reference.

1.3 Scope of the terms of reference

The terms of reference (reproduced in Appendix 1) require the Commission to consider the following matters in this investigation:

- the relevant regulatory objectives and requirements as set out in the ICRC Act;
- ACT government policies relating to water and sewerage services including the *ACT Water Strategy 2014–44 – Striking the balance*;
- national and intergovernmental water policies and commitments;
- continuing to use the current regulatory model and implement improvements to particular aspects of the methodology;
- appropriate mechanisms to ensure the recovery of the prudent and efficient costs of Icon Water during the regulatory period, while minimising the potential for significant price fluctuations; and

⁵ Industry Panel, 2015a: Table 1.7.

- whether there is potential for implementing incentive schemes for service levels, operating expenditure or capital expenditure for Icon Water in the future.

As part of its investigation, the Commission is also required to outline its intended approach to meeting its various regulatory objectives within its decision-making process.

It is also required to identify the incremental impact on prices associated with any changes to the total allowed revenue for Icon Water; any changes to the water demand forecasts used in the regulatory model; and the implementation of any amendments to the tariff structure arising from the Commission’s review of Icon Water’s regulated water and sewerage services tariff structures.

The Commission is required to make a draft report available for public inspection within the period 1 September 2017 to 12 December 2017 and submit its final report within the period 1 March 2018 to 1 May 2018.

The terms of reference prescribe a five-year regulatory period from 1 July 2018 to 30 June 2023.

1.4 Investigation timeline

The Commission proposes to adopt the timeline set out in Table 1.1.

Table 1.1 Indicative timeline for the water and sewerage services price investigation

Task	Date
Terms of reference signed	13 December 2016
Release of issues paper	31 March 2017
Submissions on issues paper close	28 April 2017
Draft report and proposed price direction	12 December 2017
Submissions on draft report close	February 2018
Public hearing	February 2018
Release of final report and price direction	1 May 2018

The closing date for submissions on the issues paper is 28 April 2017. Written submissions received by the closing date will be considered in the development of the draft report and the proposed price direction. The Commission is required under section 17(4)(b) of the ICRC Act to conduct a public hearing for all price regulation investigations. The Commission intends to conduct a hearing after the release of the draft report.

1.5 Structure of the issues paper

The remainder of this paper is structured as follows:

- Chapter 2 discusses regulatory objectives and the role of the Commission.
- Chapter 3 discusses the current regulatory model and form of control.
- Chapter 4 discusses carryover issues from the 2013–14 to 2017–18 price direction.
- Chapter 5 discusses issues raised in the terms of reference.
- Chapter 6 presents a consolidated list of the issues raised in the report.
- Appendix 1 reproduces the terms of reference.

2 Regulatory objectives and the role of the Commission

2.1 Introduction

This chapter discusses the regulatory objectives and public policies that are relevant for the Commission's price investigations and decisions, and the Commission's intended approach to achieving its various regulatory objectives within its decision-making process.

2.2 Legislative context

In carrying out its functions under the ICRC Act, the Commission has the following objectives set out in section 7 of the Act:

- (a) to promote effective competition in the interests of consumers;
- (b) to facilitate an appropriate balance between efficiency and environmental and social considerations;
- (c) to ensure non-discriminatory access to monopoly and near-monopoly infrastructure.

In making a price direction, the Commission has the following overarching objective set out in section 19L of the Act:

The objective of the commission, when making a price direction in a regulated industry, is to promote the efficient investment in, and efficient operation and use of regulated services for the long term interests of consumers in relation to the price, quality, safety, reliability and security of the service.

In making a price direction, the Commission is also required to have regard to the provisions set out in section 20(2):

- (a) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies (including policies relating to the level or structure of prices for services) and standard of regulated services; and
- (b) standards of quality, reliability and safety of the regulated services; and
- (c) the need for greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers; and
- (d) an appropriate rate of return on any investment in the regulated industry; and
- (e) the cost of providing the regulated services; and
- (f) the principles of ecologically sustainable development mentioned in subsection (5);
- (g) the social impacts of the decision; and
- (h) considerations of demand management and least cost planning; and
- (i) the borrowing, capital and cash flow requirements of people providing regulated services and the need to renew or increase relevant assets in the regulated industry; and

- (j) the effect on general price inflation over the medium term; and
- (k) any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person.

At a high level, there are essentially three considerations: economic efficiency, environmental considerations and social impacts. The concept of economic efficiency encompasses many of the other specific objectives, including financial considerations, monopoly power and certain environmental effects. There are likely to be trade-offs in balancing the various objectives and further objectives set by government policies. The Commission's key considerations in balancing the objectives are discussed in section 2.4.

2.3 Government policy context

There are a number of government policies and national agreements that are relevant in determining appropriate regulatory arrangements and prices for regulated water and sewerage services.

2.3.1 The ACT Water Strategy 2014–44

The *ACT Water Strategy 2014–44: Striking the balance* sets out the ACT Government's overarching long-term water resources management policy. The strategy is intended to achieve three outcomes, the second of which – a sustainable water supply used efficiently – is of primary interest for the price investigation. Strategy 5, directed to this outcome, is to manage and promote the sustainable use of water. Action 15 under this strategy is to encourage water users to conserve and use water wisely. The ACT water strategy also proposes investigating the use of scarcity pricing to promote water use efficiency.

To help achieve the outcome of a sustainable water supply used efficiently, the ACT has a number of schemes in place, including permanent water conservation measures and a temporary water restrictions scheme that can be imposed in times of acute water shortage. The ACT has been under permanent water conservation measures since Stage 2 temporary restrictions were revoked on 31 October 2010.

The ACT Government's overarching planning act, the Territory Plan, also places a number of water quality requirements on developers relating to the control of stormwater and run-off.

These various water conservation actions are complementary and supportive of tariff reform directions that are being considered by the Commission.

2.3.2 National agreements

The ACT is a signatory to the Murray–Darling Basin Agreement, an intergovernmental agreement between Basin jurisdictions. The agreement, among other things, sets a

long-term cap – or upper limit – on surface water diversions. This allows the ACT to take out of the ACT watercourses (dams and rivers) a long-term average of 40.5 GL net per year for consumptive use. The net take in the ACT has fallen significantly in recent years to below or around 20 GL per year.

The 2004 National Water Initiative commits the ACT Government to a number of best practice water pricing and institutional arrangements covering the relevant aspects in relation to economically efficient prices for water infrastructure and water resources.

In 2010, a set of National Water Initiative pricing principles, agreed by all Australian governments and endorsed by the Natural Resource Management Ministerial Council, was developed as the basis for setting water prices in all jurisdictions. The price-setting principles cover various additional aspects of economically efficient prices, including application of two-part tariffs unless demonstrated to not be cost effective.

2.4 The Commission’s approach to addressing regulatory objectives

2.4.1 The need for pricing principles

The terms of reference refer to regulatory objectives and public policies that are relevant for the Commission in making a determination about appropriate prices for water and sewerage services. As part of its investigation, the Commission is required to outline its intended approach to meeting its various regulatory objectives within its decision-making process.

In order to clarify how it intends to take account of the regulatory objectives in its decision-making process, the Commission has established key pricing principles that take account of both legislative and government policy objectives as well as generally accepted economic and regulatory principles. The principles provide the basis for the assessment framework that the Commission is intending to use to develop its recommendations for prices for water and sewerage services. The pricing principles set out in this section are consistent with the pricing principles recently presented in the Commission’s final report on the tariff structure review.⁶

The key price-setting principles that the Commission considers relevant to setting prices for regulated water and sewerage services are summarised in Table 2.1. The principles reflect the Commission’s interpretation of the legislative objectives, government policies and national agreements that prescribe and guide its decisions on water and sewerage prices. However, these principles are also likely to be relevant in considering other economic regulation matters, although they may require some modification or expansion depending on the circumstances.

⁶ ICRC, 2017.

A challenge faced by the Commission, and regulators more generally, is in setting priorities. There are multiple objectives that may sometimes conflict and limited policy instruments for the regulator to deal with them. In this respect, it is noted that there is a long-established economic and public policy principle that if one wants to be effective in achieving multiple, potentially conflicting objectives, there need to be at least as many separate and well-designed policy instruments (i.e. specific policy actions or mechanisms) as there are objectives. Furthermore, a single policy mechanism needs to be assigned exclusively to a specific objective.

The main instrument over which the Commission has control is pricing, yet in setting prices it must have regard to efficiency, environmental and social considerations. Primary responsibility for environmental and social objectives lies with other parts of government, but the Commission must give them due regard and consideration in its decisions. This then inevitably requires some compromise and consultation with affected parties in arriving at conclusions that will effectively balance the various objectives.

The principles set out in Table 2.1 are consistent with how the Commission believes economic regulators in similar jurisdictions consider and assess the various objectives. In balancing competing objectives, the Commission will consider economic efficiency aspects as a starting point, but will also give careful and transparent consideration of social and environmental impacts.

Table 2.1 Regulatory objectives and pricing principles for water and sewerage services tariffs

Category	Aspect	Detail
Objective	Overarching	To promote efficient investment in, and efficient operation and use of, regulated services for the long-term interests of consumers in relation to the price, quality, safety, reliability and security of the service.
	Interpretation	The various aspects of economic efficiency are given emphasis, but with the ultimate objective being the long-term interests of consumers. Economic efficiency when properly defined encompasses environmental objectives. Consumer interests must take account of equity and other social impacts as required by the ICRC Act. Economic efficiency considerations related to pricing are a starting point but need to be balanced with environmental and social considerations.
Pricing principle	1 Economic efficiency in use	Regulated prices should promote the economically efficient use of Icon Water's water and sewerage services infrastructure, and should also encourage economically efficient use of the water resource itself. This includes having regard to uneconomic bypass where water supply is sourced from a higher cost alternative.
	2 Economic efficiency for investment and operation	Regulated prices and supporting regulatory arrangements should facilitate the efficient recovery of the prudent and efficient costs of investment and operation. The finance recovery aspect of this principle is often described as ensuring revenue adequacy or financial viability. Costs also need to be efficient, which is primarily addressed by auditing and incentive-sharing mechanisms.
	3 Environmental considerations	Regulated prices and complementary mechanisms should ensure that environmental objectives are effectively addressed.
	4 Community impact – gradual adjustment	Any change to prices or other regulatory arrangements that will have substantial customer impacts should be phased in over a transition period to allow reasonable time for customers to adjust to the change.
	5 Community impact – fair outcomes for low-income households	Adverse impacts on households with low incomes need to be limited or moderated by phasing and other compensating mechanisms or limits on changes to regulated prices or other regulatory arrangements.
	6 Regulatory governance – simplicity	Regulated prices and their form should be simple for customers to understand and straightforward for the utility to implement.
	7 Regulatory governance – transparency	Regulated prices should be set using a transparent methodology and subject to public consultation and scrutiny.

2.4.2 Explanation of the principles

As already noted, the Commission is required to set prices that address a number of potentially conflicting objectives. The recent inclusion of section 19L in the ICRC Act assists in clarifying objectives and priorities. It highlights the importance of all the main aspects of economic efficiency for the long-term interests of consumers.

The focus on economic efficiency is consistent with the starting point for economics in evaluating virtually all government policies and regulatory decisions. It is consistent with how decisions are made about economic regulation in other sectors and other jurisdictions. However, the approach of the Commission (and many other regulators) is to pursue economic efficiency while also giving due consideration to social, environmental and other specific objectives.

To help ensure that the final outcome is well understood and broadly accepted by the community, the Commission endeavours to consult thoroughly and make its recommendations as simple as possible and the reasoning for those recommendations as transparent as possible. In this respect, two of the pricing principles relate to simplicity and transparency.

Pricing principle 1: Economic efficiency in use

The overarching efficiency objective leads to the first proposed pricing principle that tariff structures and prices should promote the economically efficient use of Icon Water's water and sewerage services infrastructure, and should also encourage economically efficient use of the water resource itself.

This principle reflects the fundamental economic proposition that the community as a whole will benefit if the usage component of a tariff is based on the additional social costs that are incurred as a result of using an additional unit of water. The social costs in this case need to be defined to include the value of additional water use, including the impact if less water is available for future use.

In addition, the tariff structure and tariff levels may create a risk of uneconomic bypass where a large user is able to access a lower priced alternative source of supply, but one which is in fact of higher cost than the efficient costs of the regulated natural monopoly. This effect means both inefficient use and higher cost of supply, which is an aspect of principle 2.

Pricing principle 2: Economic efficiency for investment and operation

The second pricing principle is that tariff structures should facilitate the efficient recovery of the prudent and efficient costs of investment and operation.

The principle covers two aspects of economic efficiency. First, overall revenue needs to be sufficient to finance the costs of operation and investment. If this is not the case, efficient investment may not occur, which could have a major adverse impact on services. The finance recovery aspect of this principle is often described as ensuring revenue adequacy or financial viability.

Second, the cost of investment and operations expenditure needs to be efficient – that is, investment and operations should occur at the lowest cost possible to provide the defined desirable services. Other regulatory mechanisms (auditing and incentive-sharing mechanisms) are the major means of addressing this objective; however, the

structure of the tariff or other form of regulation and, in particular, the extent to which revenues are guaranteed, may affect this aspect of economic efficiency.

Pricing principle 3: Environmental considerations

Tariff structures, prices and complementary mechanisms should ensure that environmental objectives are effectively addressed.

Some environmental impacts can be reflected in prices, but typically environmental objectives are primarily addressed by specific legislated and government policy requirements. This includes giving priority to designated environmental flows and various permanent and temporary water conservation measures or restrictions.

Pricing principle 4: Community impact – gradual adjustment

Any change to the structure of tariffs and prices that will have substantial customer impacts should be phased in over a transition period to allow reasonable time for customers to adjust to the change.

Customers prefer price stability in the overall bills they face. An appropriate transition period for any material changes in prices can ease adjustment costs.

Pricing principle 5: Community impact – fair outcomes for low-income households

Adverse impacts on households with low incomes need to be limited or moderated by phasing and other compensating mechanisms or limits on changes to regulated prices or other regulatory arrangements.

Effectively addressing concerns about increases in water bills for households with low incomes is probably the most difficult issue in developing a set of pricing principles for water and sewerage services. This is especially the case when the Commission does not have authority for implementing specific policies that are targeted at addressing the impact on households with low incomes or tight budgets. It is also difficult to identify the impacts on all households with low incomes and form a judgement about the value of equity or fairness impacts.

The Commission will carefully consider the likely impacts of price changes on households with low incomes and suggest mechanisms to address or moderate any adverse impacts. Where such measures cannot be implemented in a reasonable period of time, the Commission will form a judgement about an acceptable cap for price increases for low and moderate levels of water usage. However, it is noted that this matter is not just limited to low and moderate water users as many low-income households include large families with high water usage.

Pricing principle 6 – Regulatory governance – simplicity

Tariff structures should be simple for customers to understand and straightforward for the utility to implement.

This principle seems self-evident. Most consumers of water are likely to prefer regulated prices and regulatory arrangements that are readily understood. Readily understood tariff structures have the added benefit of being easier and cheaper for the utility to implement, which also contributes to economic efficiency.

Pricing principle 7 – Regulatory governance – transparency

Tariffs should be set using a transparent methodology and subject to public consultation and scrutiny.

This principle relates to process and is an important aspect of achieving good governance with respect to regulatory actions. The community as a whole needs to have confidence in the regulatory arrangements, and this requires that there is generally a good understanding across the community of how regulated prices for water and sewerage services are decided.

Issue 1: The Commission welcomes any comments on the pricing principles that will form the basis for addressing and balancing economic, social and environmental objectives.

3 Current regulatory model and form of control

3.1 Introduction

As discussed in Chapter 1, in April 2015 the Industry Panel released its final report on its review of the Commission's 2013 price direction for water and sewerage services. The Industry Panel report substituted the Commission's price direction with a price path for water and sewerage services until 30 June 2018. The Industry Panel also modified the form of control from individual price caps with maximum prices for water and sewerage preferred by the Commission, to a hybrid price and revenue cap form of control that included elements of both a revenue cap and individual price caps for water and sewerage charges. Further, the Industry Panel made some changes to the risk allocation measures to deal with demand risks in the regulatory framework. This differed from the Commission's approach outlined in its 2013 price direction.

In the terms of reference for a price direction for regulated water and sewerage services for the 2018–2023 regulatory period, the Commission is directed to consider continuing to use the current regulatory model, and where identified, implement improvements to particular aspects of the methodology. The terms of reference also cover other aspects of the form of regulation, including incentive mechanisms, price path smoothing and recovery of efficient costs. Chapter 5 contains a detailed discussion of these and other issues raised in the terms of reference.

3.2 Form of control

Section 20A(1) of the ICRC Act states:

- (1) A price direction must include a direction about the pricing of regulated services in the form of either or both of the following:
 - (a) a price, a maximum price or both a minimum and maximum price for each regulated service;
 - (b) a maximum total amount (*revenue cap*) that may be earned by a person providing regulated services from the provision of those services.

The alternative forms of control provided for by this section of the Act include:

- A pure revenue cap: this form of control involves placing a cap on the revenue that a regulated service provider can earn in each year. To account for deviations between actual revenue and the revenue cap arising as a result of variations between actual and forecast demand, an 'unders and overs' account will typically be established. Prices can then be adjusted in the subsequent regulatory period to reflect the extent of any under- or over-recovery.

- An average revenue cap: this form of control involves placing a cap on the revenue a regulated service provider can earn per unit of output (e.g. revenue per customer).
- A price cap on individual services: this form of control involves placing a cap on the price of each regulated service.
- A hybrid price and revenue cap: this form of control contains elements of both a price and revenue cap. The precise elements that will be combined can vary, but one example that a number of Australian regulators have used is a price cap that can be adjusted for any under- or over-recovery of revenue above a certain threshold (deadband). Under this hybrid cap, the regulated service provider bears demand risk up to the threshold, while customers bear the risk beyond this threshold.⁷

The choice between the alternative forms of price control affects how demand risks are allocated between customers and the regulated business, how prices are allowed to vary within the regulatory period, the stability of the regulated business's revenue, and the regulated business's incentive to encourage efficient utilisation of the asset.

It is helpful to contrast some key features of a pure revenue cap that effectively guarantees a specified maximum revenue and a price cap that is set as a maximum but indexed for certain cost pass-through items but not for the impact of variations in demand. A pure revenue cap transfers all volume (demand) risk from the regulated business to its customers. In contrast, a strict price cap means that the regulated business bears all the demand risk within the regulatory period. Both mechanisms enable adjustments to be made across regulatory periods.

Both mechanisms still retain incentives to reduce costs that depend on the extent to which cost savings can be retained by the regulated entity; however, under a revenue cap the removal of demand risk may affect the incentives of the entity to reduce costs when there is a material reduction in demand.

Under a revenue cap, profits can be maintained because prices can be readily adjusted and may increase if variable costs can be reduced. In contrast, a price cap provides incentives to supply more services but entails greater financial risk. Another issue in the choice between a revenue cap and a price cap is the extent to which there is a material change in demand risk and how that should affect the allowed rate of return.

A hybrid mechanism can be helpful in avoiding the extreme effects of a pure revenue cap or strict price cap.

As noted, the current form of price control for Icon Water is a hybrid revenue and price cap where individual price caps apply for water and sewerage services and there is a

⁷ Industry Panel, 2015a: 30.

demand volatility adjustment to account for deviations between actual and forecast water sales revenue in excess of a deadband.

In reviewing the form of control, the Industry Panel had regard to a number of factors such as providing customers with a degree of price stability and predictability, minimising regulatory costs, ensuring that Icon Water remains financially viable and promoting economic efficiency.

The Industry Panel decided to implement a hybrid price and revenue cap form of control that consists of individual price caps for water and sewerage charges. The panel also specified a demand volatility adjustment mechanism to account for deviations between actual and forecast water sales revenue above or below a threshold (deadband) over the regulatory period between 1 July 2013 and 30 June 2018. The deadband was defined as six per cent of the allowed revenue in net present value terms. Under this approach, Icon Water bears the demand risk up to the level of the deadband and consumers bear the risk beyond the deadband.

In adopting a hybrid of a revenue and price cap model, the Industry Panel was guided by the approach taken by other regulators and its judgement that this form of regulation would best satisfy its desire for price stability, financial viability of the regulated business and encouraging economic efficiency. It took the view that the other regulatory approaches did not provide an appropriate allocation of the risks between customers and the regulated business, particularly since the demand for water services is difficult to predict with any certainty.

Given this, the Commission's view is that a hybrid revenue and price cap remains the appropriate regulatory approach, although the Commission is open to making modifications to the current regulatory model and form of control where appropriate.

In determining the cap, the Commission has to make assessments about efficient expenditure of capital and about rolling prudent expenditure into the regulatory asset base, the cost of capital, depreciation and operational expenditure. It then applies the expected demand forecast to costs to determine the price caps. These issues are further examined in Chapter 4.

Issue 2: The Commission welcomes any comments on the regulatory model and form of control and its proposal to continue with the hybrid revenue and price cap approach for the 2018–2023 regulatory period.

Issue 3: What are the advantages and disadvantages of adopting a pure revenue cap or a pure price cap as the form of control?

4 Carryover issues from the 2014–2018 price direction

4.1 Introduction

The Industry Panel report noted that the main risk in the regulatory period to 30 June 2018 was that prices would be set either too low or too high due to uncertainties about actual expenditure and demand.⁸ To address this risk, the panel adopted the following regulatory control and risk allocation tools:

- a hybrid price and revenue cap form of control with individual price caps for water and sewerage service charges and a demand volatility adjustment mechanism that would be triggered if deviations between actual and forecast water sales revenue were to fall outside a six per cent deadband;
- a consumer price index (CPI) escalation mechanism, to provide Icon Water with some protection against changes in inflation over the period;
- an annual cost pass-through mechanism, to provide Icon Water and customers with some protection against material changes (positive and negative) in non-controllable costs over the period;
- an ex post capital expenditure review, to allow the Commission to assess the prudence and efficiency of the capital expenditure actually incurred by Icon Water over the current regulatory period before rolling it into the regulatory asset base in the next determination; and
- a price variation trigger event mechanism, to deal with any major unforeseen event that may occur in the period (subject to meeting a materiality threshold).

It is likely that actual water sales revenue for the current regulatory period will be well below the forecast, which may mean that the demand volatility adjustment mechanism will be triggered. The under-recovery of approved revenue and application of the demand volatility adjustment mechanism are discussed in section 4.2.

The expected substantial forecasting error for water sales volumes raises the issues of both the methodology for forecasting water sales and other mechanisms to ensure efficient recovery of allowable expenditure. These other mechanisms address the extent to which the tariff structure enables efficient recovery of costs, and regulatory mechanisms similar to the hybrid price and revenue cap implemented as part of the Industry Panel's substitute price direction, as well as other forms of price control. The form of price control was discussed in section 3.2. Expenditure risk is discussed in section 5.2 and the tariff structure is discussed in section 5.4.

⁸ Industry Panel, 2015a: 5.

The CPI escalation and annual cost pass-through mechanisms have been applied during the current regulatory period and the price variation trigger mechanism has not been needed.

There may be a need to undertake an ex post capital expenditure review, even if actual total expenditure does not exceed forecast capital expenditure, in order to assess the prudence and efficiency of major capital expenditure projects. The scope for an ex post capital expenditure review is discussed in section 4.3.

4.2 Under-recovery of approved revenue

Around 90 per cent of Icon Water’s revenue comprises revenue from volumetric-based usage charges that depend on actual water demand. Regulated prices are based on the quantum of allowable costs and forecast demand. If actual demand varies relative to forecast demand, then actual revenue will vary relative to forecast revenue.

To address the risk of potential variability in revenue, the Industry Panel’s substitute price direction specified a ‘demand volatility’ adjustment that would be triggered if revenue was less than or exceeded a threshold (deadband). The panel decided to implement this form of control because it considered that Icon Water should bear demand risk up to the level of the deadband and customers should bear the risk beyond that.⁹

The bounds of the deadband were defined by the Industry Panel’s estimate of the 95 per cent and five per cent probabilities of exceedance for the water sales forecast range, and adjusted conservatively to ensure finance ratios were met. The deadband was defined as six per cent of the allowed revenue, in net present value terms.¹⁰

Note that the revenue risk can be positive or negative in the sense that there can be under-recovery or over-recovery of revenue, respectively, depending on actual demand relative to forecast demand.

The substitute price direction defined the application of the demand volatility adjustment as follows:

(e) The Commission will make provision for a demand volatility adjustment in the next price determination if the net present value of the water sales revenue earned over the period 1 July 2013 to 30 June 2018 differs by more than 6% of the revenue set out in Table 11.1 below.

The demand volatility adjustment will be determined as the difference between:

(i) the net present value of the revenue earned through tier 1 and tier 2 water charges over the period 1 July 2013 to 30 June 2018; and

⁹ Industry Panel, 2015a: 30–7.

¹⁰ Industry Panel, 2015a: 35–6.

(ii) the net present value of the volumetric water sales revenue (i.e., the revenue to be recovered from tier 1 and tier 2 charges) allowed in the Final Report (see Table 11.1 below), adjusted where necessary for any pass-through amounts approved by the Commission in the period, plus or minus 6% depending on whether there has been an over collection or an under collection of revenue.

The net present value in 11(e)(i) and (ii) is to be measured as at 1 July 2013.

Forecast revenue will be used for those quarters of the financial year 2017–18 for which actual revenue data is unavailable.

The rate of return to be used in the calculation of the net present value and to roll forward the demand volatility adjustment to the next regulatory period is 7.2% (nominal vanilla Weighted Average Cost of Capital (WACC)).¹¹

The Industry Panel report noted that, if there was a demand volatility adjustment, the net present value of relevant under- or over-recovery of revenue would be included in the calculation of charges in the regulatory period from 1 July 2018.¹²

Data to determine whether the demand volatility adjustment is likely to be triggered are not publicly available at this stage. But, even if it is not triggered, if demand for the next regulatory period remains at levels similar to what has eventuated in recent years, it may be difficult to avoid a material increase in prices over the next regulatory period. However, to avoid a price shock, price increases can be smoothed across several years.

Another option to avoid a price shock is to capitalise any revenue shortfall by adding it to the regulatory asset base, with formal recognition that the regulatory asset base is low risk and recovery of capital and an appropriate rate of return are effectively assured. This may create some intergenerational equity issues if costs are transferred from present to future consumers; however, the risks would be limited by the extent to which there is demand growth and higher capacity to pay in the future.

Another issue is whether a revenue catch-up mechanism should continue to apply and if so what is the best form for such a mechanism.

Issue 4: If the demand volatility adjustment is triggered, how should it be dealt with in prices in the regulatory period from 1 July 2018 to 30 June 2023?

Issue 5: Is there scope to avoid price shocks by including a component of under recovered revenue in the regulatory asset base for future recovery?

Issue 6: Should revenue adjustment mechanisms continue to apply to address under or over recovery of revenue?

¹¹ Industry Panel, 2015b: 13.

¹² Industry Panel, 2015a: 36.

4.3 Capital expenditure outcome

The substitute price direction provided scope for an ex post capital expenditure review, to allow the Commission to assess the prudence and efficiency of the capital expenditure actually incurred by Icon Water over the current regulatory period before rolling it into the regulatory asset base.

The Commission will consider this issue in the context of determining the amount of capital expenditure to be included in the opening value of the regulatory asset base for 1 July 2018. In deciding the level of capital expenditure to include, the Commission will apply a prudence review followed by an efficiency review. In assessing prudence and efficiency, the Commission will take account of the policies of the ACT Government.

A prudence review assesses whether the capital expenditure was necessary. If expenditure is deemed to have been necessary, an efficiency review then determines the efficient cost of the activity in question. The Commission engages engineering consultants to undertake prudence and efficiency reviews and advise the Commission on the appropriate costs. Once determined, the efficient costs are used in the roll-forward of the regulatory asset base in order to calculate the opening value of the asset base as of 1 July 2018.

Another issue that arises relates to a situation where actual capital expenditure is materially less than the forecast allowed expenditure. If there was a material underspend of allowed capital, Icon Water would in effect receive a financing benefit that would include both a return on capital component and a return of capital (depreciation) component related to the amount of the underspend. The issue is whether the value of this financing benefit should be determined and deducted from allowed revenue or the regulatory asset base in the next regulatory period.

Issue 7: The Commission welcomes any comments on the process for reviewing the prudence and efficiency of capital expenditure over the current regulatory period before the capital expenditure is allowed and included in the regulatory asset base.

Issue 8: The Commission welcomes any comments on whether and how the financing benefit of any capital underspending (should it have occurred) should be determined and used to adjust prices for regulated water and sewerage services.

4.4 Forecasting sales volumes

In the current regulatory period, Icon Water has been heavily reliant on usage charges to raise revenue to cover its efficient costs. However, actual demand may be materially

below the levels forecast in the Industry Panel’s substitute price direction. This would have implications for price levels over the next regulatory period.

The Commission must set prices in advance and in doing so must forecast water consumption volumes. If actual consumption exceeds that forecast, the water business will earn greater than expected revenue and profit. Conversely, if actual consumption falls short of that forecast, the water business will earn lower than expected revenue and profit. Forecasting is an inherently uncertain exercise, and the risk of forecasts diverging from actual outcomes increases with the forecast horizon.

The most contentious forecasts relate to water sales. Forecasts of customer numbers (including water and sewerage service customers) can be determined more accurately and so have less significant revenue implications.

The Commission in its original price direction for the current regulatory period used a different forecasting model to that adopted by the Industry Panel.¹³ The Industry Panel’s model has tended to forecast a higher level of demand than the Commission’s model.

It is also relevant to recognise that in response to water conservation measures and restrictions and the high second-tier usage charge, demand has reduced and been maintained at lower levels than in the past for several years now. It may well be the case that, if this pattern continues, demand will be easier to forecast but at a lower level – with the implication that average prices might need to increase materially in order to ensure that revenue is sufficient to recover efficient costs.

If the tariff were restructured to better align the fixed and usage components with the fixed and variable cost structure of Icon Water, forecasting of demand would play a less critical role in revenue recovery. In the absence of material rebalancing of the tariff components, there is likely to be a need for revenue adjustment mechanisms to take account of the impacts of forecasting errors.

The Commission expects Icon Water to take these factors into account when developing its forecasts of water sales for the forthcoming regulatory period.

Issue 9: The Commission welcomes comments on how it can best forecast the demand for water.

Issue 10: How much rebalancing of the tariff structure components should be undertaken (or other mechanisms implemented) so that forecasting of demand for water is less critical in ensuring the recovery of efficient costs?

¹³ ICRC, 2015: Appendix 1.

5 Issues raised in the terms of reference

5.1 Improvements in the regulatory methodology

5.1.1 Links to other sections of this paper

A number of specific matters in the terms of reference relate to improvements in the regulatory methodology. These include clarifying the Commission's approach to taking account of relevant regulatory objectives and public policies (section 2); appropriate mechanisms to ensure the recovery of prudent and efficient costs (section 5.2); the potential for incentive schemes (section 5.3); and the tariff structure (section 5.4). The reliance on forecasts of water demand and better forecasting of demand are also issues where improvements could be made (section 4.4).

The terms of reference also provide the Commission with the scope to identify other improvements in the regulatory methodology used by the Industry Panel. The mechanisms to ensure the efficient recovery of prudent and efficient costs, while minimising the potential for significant price fluctuations, include consideration of the hybrid price and revenue cap mechanism that currently applies as well as other forms of regulation. These mechanisms are discussed in sections 3.2, 5.2, 5.3 and 5.4.

The Commission considers that it is relevant to review the Industry Panel's cost of capital methodology to determine if there is scope for improvement that is in the long-term interests of consumers. The cost of capital methodology that is currently used is considered in the following section (5.1.2).

5.1.2 Cost of capital

Introduction

This section outlines the current model used to set the cost of capital (the allowed expected maximum rate of return) for Icon Water. The approach is standard, but it has one parameter (the market risk premium) that leads to an estimate that is materially higher than is typically preferred by other regulators. The methodology and key parameters are summarised here for completeness. Comments on the methodology as a whole and all the individual parameters are welcome, but the discussion in this issues paper focuses on the market risk premium.

Efficient benchmark approach

The cost of capital refers to the overall rate of return on assets that the regulated business is permitted to earn when calculating allowed revenue. In a regulatory application, it is typically expressed as a weighted average of the cost of debt and the cost of (return on) equity that is required to ensure that assets can be efficiently financed, where the weights reflect the relative importance of debt and equity in

financing the firm. The definition of the weighted average cost of capital (WACC) that is currently used for Icon Water is in the form of the ‘nominal vanilla WACC’:¹⁴

$$(1) \text{WACC}_{\text{nominal vanilla}} = E(R_d) \times \frac{D}{V} + E(R_e) \times \frac{E}{V}$$

where

$E(R_d)$ is the expected nominal pre-tax rate of return on debt;

$E(R_e)$ is the expected nominal post-(company) tax rate of return on equity;

$\frac{D}{V}$ is the proportion of debt in total financing; and

$\frac{E}{V}$ is the proportion of equity in total financing.

Most regulators in Australia specify a WACC that is considered to reflect the efficient financing costs of a benchmark entity that is the same irrespective of whether the assets are privately or publicly owned. This entails specifying relationships and parameters for the equity and debt returns and the shares of equity and debt financing based on a benchmark private entity with similar risk characteristics to the regulated business.

The cost of debt, $E(R_d)$, is established by determining the appropriate cost of debt for a private entity considered to have a relevant benchmark credit rating.

The rate of return on equity, $E(R_e)$, is established by applying the widely used capital asset pricing model (CAPM). The CAPM requires only three parameters: a risk-free rate; a market risk premium that reflects the risk relating to the market for investments as a whole relative to the risk-free rate; and a beta parameter that reflects the sensitivity of the benchmark entity’s returns relative to the return for the market as a whole.

Thus, the CAPM is defined as:

$$(2) E(R_e) = E(R_f) + \beta_e [(E(R_m) - E(R_f))]$$

where

$E(R_f)$ is the expected risk-free rate;

β_e is the equity beta, which is a measure of the amount of relevant risk of the investment (as measured by the sensitivity of the return on the specific asset to the return on the market as a whole); and

$E(R_m) - E(R_f)$ is the expected market risk premium above the expected risk-free rate and can be interpreted as the price of relevant risk.

It is important to recognise that the CAPM relies on two basic assumptions: that business-specific risk can be fully diversified by investors so that the only risk for the

¹⁴ The term ‘nominal’ means that the return components are in nominal as opposed to real (inflation-adjusted) terms, so an inflation premium is already included in the components. The term ‘vanilla’ refers to the simple form of the WACC, where explicit tax effects are not included in the formula but treated separately in defining allowed revenue requirements.

benchmark entity depends on the risk for the market as a whole (measured by the market risk premium) and that the benchmark business's return is related to returns for the market as a whole (measured by the equity beta). This means that many business-specific risks that are not related to risks in the economy as a whole are not recognised (priced) in the CAPM.

This model in effect assumes that the distribution of risks for the benchmark entity is symmetric, so that upside risk is balanced by downside risk. In applying the CAPM, regulators need to recognise that regulation caps the upside potential (by regulating prices), but that regulation may also put a floor on many downside risks, depending on the nature of those risks and how they are treated, so that expected symmetry in returns may still be retained. For example, there may be minimal relevant downside risk if there is considerable scope to pass through cost increases and good assurance that the value of the regulatory asset base will not be written down by the regulator.

It should also be recognised that to the extent that regulation reduces the variability of returns relative to an unregulated benchmark, the variability of returns should be reflected in the beta parameter.

Application of the components of the cost of capital framework to Icon Water

The current cost of debt allowed for Icon Water is based on the risk of debt default reflected in a BBB credit rating for Australian corporate bonds with an additional small provision for debt-raising costs. The Industry Panel report preferred a debt margin of 3.13 per cent and debt-raising cost of 0.125 per cent, which were added to a risk-free rate of 3.22 per cent, to result in an overall cost of debt of 6.48 per cent as at 31 May 2013.¹⁵ If this methodology continued to apply in the next regulatory period, these components would need to be reviewed and updated to reflect changed circumstances. For example, the risk-free rate, which averaged 2.33 per cent for 2016, would need to be updated.

A gearing ratio, D/E , of 60 per cent was preferred for the current regulatory period, largely reflecting regulatory precedent.¹⁶

The current equity beta parameter of 0.7 is based on regulatory precedent.¹⁷ An issue is whether this still remains appropriate.

An important parameter in determining the cost of equity is the market risk premium. This parameter is a general market parameter that does not vary with different investments or specific firms. The market risk premium parameter of 7.23 per cent that was preferred in the Industry Panel report is higher than that adopted by several other

¹⁵ Industry Panel, 2015: 65.

¹⁶ Industry Panel, 2015: 65.

¹⁷ Industry Panel, 2015: 65.

regulators in recent decisions and reviews, although similar to that adopted in a recent Independent Pricing and Regulatory Tribunal (IPART) decision for Sydney Water.¹⁸

The Industry Panel report estimated the market risk premium as a 40-day average of Bloomberg's daily implied market risk premiums.¹⁹ This approach assumes that the current equity market is correctly priced and is calculated by solving for the required rate of return that equates the present value of expected dividends with the current price of the market portfolio.²⁰

The approach adopted in the Industry Panel report is one of several methodologies currently used by IPART to help form a preferred estimate of the market risk premium.²¹ IPART completed a major review of its WACC methodology in 2013, where it set out its preferred approach to estimating the market risk premium.²² IPART uses both long-term averages and current market data (with six methodologies for current market data, including the Bloomberg approach) to establish a range for the market risk premium, with the mid-point of the range being the default estimate.²³ The default estimate may be adjusted along with other parameters in the WACC, if an uncertainty index measure exceeds one standard deviation of the long-term average. IPART's most recent decision for setting the price for water services for Sydney Water estimated the market risk premium as the average of the mid-points for a long-term average of six per cent and an implied short-term value of 8.7 per cent to obtain a preferred average estimate, across the various approaches, of 7.35 per cent.²⁴

Other regulators have also tended to use a range of methodologies to arrive at a preferred estimate of the market risk premium. Both the Australian Energy Regulator (AER) and the Queensland Competition Authority (QCA) have completed major reviews of their WACC methodologies in recent years and used a range of information to establish a preferred market risk premium.²⁵ This perspective recognises that there is no consensus on how the market risk premium should be estimated for regulatory applications and that the various estimation methods have advantages and disadvantages.

The AER's current approach to estimating the market risk premium uses a range of theoretical and empirical evidence, including historical excess returns, the dividend growth model, survey evidence, financial market volatility measures and credit

¹⁸ IPART, 2016a: 125.

¹⁹ Industry Panel, 2015a: 71.

²⁰ Industry Panel, 2015a: 78.

²¹ IPART, 2013: 33.

²² IPART, 2013.

²³ IPART, 2013: 2–4.

²⁴ IPART, 2016a: 125.

²⁵ AER, 2013; QCA, 2014.

spreads, regulatory precedents and regulatory judgement.²⁶ The AER's preferred estimate of the market risk premium has been 6.5 per cent for several years now.

The QCA used a similar approach to the AER's – comprising two types of historical averaging methods, a dividend growth model, survey evidence, information about volatility of returns and debt premiums, and regulatory judgement – to also arrive at a preferred market risk premium of 6.5 per cent.²⁷

The Commission has a concern about the reliance on the Bloomberg methodology as the sole method for estimating a preferred market risk premium, as adopted in the Industry Panel report for Icon Water for the current regulatory period. This is particularly the case given that the Bloomberg methodology appears to be relatively sensitive to short-term fluctuations in share prices and the objective is to obtain the best estimate of the market risk premium that is likely to be relevant for a five-year regulatory period.

In this respect, SFG Consulting advised IPART on methodologies to estimate the market risk premium and noted:

Over the time period for which data is available, it is clear that the Bloomberg estimates of the market cost of equity are both higher than our estimates, and more variable over time. We cannot say with certainty which series exhibited the 'correct' level of variation over time because both series are estimates of the cost of capital. The Bloomberg series could be more volatile over time because the true cost of equity varied considerably over this time period; or the Bloomberg series could be more volatile because of noise.

The Bloomberg series is more sensitive to short-term price fluctuations because analysts do not instantaneously adjust their earnings forecasts every time the share price moves. When there is a large change in the share price, this reflects news about expected cash flows, or news about the risk of those cash flows, or both. If analysts instantaneously adjusted their earnings forecasts every time the share price moved, the news about expected cash flows would be reflected in the share price and the analyst's earnings forecast. But if the share price changes and analysts do not immediately adjust their earnings forecasts, the movement in the implied cost of capital will be overstated.²⁸

²⁶ AER, 2013e: 11.

²⁷ QCA, 2014: 23.

²⁸ SFG Consulting, 2013: 12.

Issue 11: Is there a better alternative to the current efficient benchmark approach for estimating an allowed rate of return for Icon Water?

Issue 12: Are there comments about individual WACC parameters in the current model?

Issue 13: Does the current value of the equity beta parameter continue to be appropriate?

Issue 14: Is it appropriate to rely solely on the current single Bloomberg implied measure of the market risk premium to estimate the market risk premium?

Issue 15: If not, what methods should be used to measure the market risk premium?

5.2 Recovery of prudent and efficient costs

5.2.1 Introduction

The recovery of prudent and efficient costs is an important requirement for effective economic regulation of a natural monopoly. Here, the term ‘prudent’ means the expenditure was (reasonably) necessary in the circumstances, while the term ‘efficient’ means the cost was the lowest feasible given the functions performed or nature of the investment.

There is a need to undertake efficiency reviews and develop incentive mechanisms to help ensure that costs are efficient. Section 4.3 discussed the scope for ex post efficiency reviews of capital expenditure. Section 5.3 considers mechanisms for providing incentives for efficiency improvements as well as for sharing of efficiencies and cost overruns between Icon Water and its customers. These are aspects of identifying and providing incentives for efficient costs.

This section considers how costs should be recovered, including the nature, extent and operation of cost pass-through arrangements that best meet the regulatory objectives. Preparing estimates of allowed revenue requires consideration of how best to recover unexpected non-controllable costs as well as how to adjust prices when demand outcomes differ from what is assumed.

The tariff structure is another tool for helping to ensure the recovery of prudent and efficient costs. Tariffs are considered separately in section 5.4, drawing on the findings of the Commission’s recent review of the tariff structure.²⁹

²⁹ ICRC, 2017.

5.2.2 Expenditure risks

This section considers mechanisms to address unexpected changes in non-controllable expenditure. Various cost pass-through mechanisms have been developed to allow defined unexpected costs that arise during the regulatory period to be passed through to customers either within the regulatory period or across future regulatory periods.

Controllable and non-controllable expenditure risks and cost-sharing

For cost-pass through mechanisms that relate to non-controllable costs (i.e. costs that the regulated entity has no or very limited control over), various criteria can be defined in the regulatory arrangements specifying what can be passed through and how it is to be passed through. For controllable costs, the incentive and auditing arrangements for operating and capital expenditures and the cost allowances should be designed so that there is no need to consider additional arrangements to compensate for the risks associated with these costs. Efficiency incentive schemes for operating expenditure and capital expenditure should also be designed to be complementary to any cost pass-through mechanisms.

A threshold issue for non-controllable costs is the extent to which they should be explicitly fully recovered with separate cost pass-through provisions. In this respect, it should be recognised that the benchmark cost of capital methodology that is used to set the allowed rate of return does not provide an allowance for risks that are specific to a business (as opposed to risks related to general economic developments). This is because the underlying methodology assumes that business risks can be effectively diversified by investors so that there is no additional risk component required in the benchmark rate of return to induce efficient financing. In other words, the application of the CAPM assumes that the only non-controllable risk is the market risk relevant to the firm or the investment, as reflected in the product of the beta parameter and the market risk premium in the CAPM. All other business-specific non-controllable risks are not relevant because they can be effectively diversified away by investors.

However, regulators typically still allow some recovery of business-specific risk when the standard cost of capital methodology is used. This is done in recognition that regulation effectively puts a cap on upside profit potential and it is valid to set a symmetric floor to downside risk.³⁰ However, this in turn implies there is less scope for variability in realised returns, which should in turn affect the allowed cost of capital for regulatory purposes if the reduction in risk is material.

Another point about compensation for the risk of unexpected non-controllable expenditure is that full compensation is likely to effectively eliminate the incentive for the regulated firm to make an effort to manage, avoid or minimise the impact of such risks. There are also likely to be many instances where it is difficult to confirm that the business has no influence over the risks.

³⁰ Symmetry of expected returns is effectively assumed in the standard cost of capital methodology – the CAPM.

In addition, there are some risks (e.g. regulatory risks associated with the regulator changing its approach to non-controllable expenditure) where the business's control of the expenditure is limited but the business as a stakeholder should be an advocate for the most effective and efficient solutions. However, the business would have limited incentive to advocate for effective solutions if associated costs were automatically fully passed through.

It should also be recognised that there is upside risk as well as downside risk for the regulated entity, and that there is a risk that the entity may tend to characterise cost increases as outside its control and cost decreases as within its control. The Commission considers that it is generally not likely that this would constitute a net benefit to customers in the long term.

A final point is that the provision for the regulated business to share some of the risk for non-controllable events has an analogy in the existence of deductibles in insurance policies.

These considerations provide a justification for limiting the nature and materiality of events that lead to automatic and full cost pass-through for unexpected cost changes and the extent of cost pass-through that is allowed. However, the extent to which there should be less than full automatic cost pass-through is a matter for consultation and the application of regulatory judgement.

Basic cost pass-through mechanisms

Cost pass-through mechanisms can include pre-approved, automatic pass-through of defined specific costs; a 'Z' factor adjustment to annual prices for specified items but with a requirement for regulatory approval; and provisions for reopening part or all of a regulatory determination. All of these measures require criteria to guide their application.

A regulator's decision to employ any of these tools will depend on how significant it considers the risks to be and the relative importance it places on:

- providing the regulated business with an opportunity to recover efficient costs;
- providing the regulated business with incentives to pursue efficiency gains and to minimise or manage risk;
- providing price stability over the regulatory period; and
- minimising regulatory costs.

Measures currently used to deal with Icon Water’s expenditure risks

The main measures that are currently used to deal with the risk that Icon Water’s actual expenditure will differ from forecast expenditure are:³¹

- a CPI escalation mechanism to provide protection against unexpected general inflation;
- an annual cost pass-through mechanism to provide Icon Water and customers with some protection against material changes (positive and negative) in specified non-controllable costs over the regulatory period.³² The specified cost categories are the water abstraction charge; utilities network facilities tax; subvention payments received from the Commonwealth Government; changes in other taxes; changes in service standards or regulatory obligations; and a Tantangara transfer payment event which would be triggered if Icon Water was required to exercise its option to transfer water from the regulated Murrumbidgee River to the ACT via the Snowy Mountains Scheme;
- an ex post capital expenditure review mechanism, which allows the Commission to assess the prudence and efficiency of the capital expenditure actually incurred by Icon Water over the current regulatory period before rolling it into the regulated asset base in the next determination; and
- a price variation trigger event mechanism that can be activated if one of the following unforeseen events occurs and satisfies the materiality threshold:³³
 - a) an act of terrorism
 - b) a major natural disaster
 - c) major damage to infrastructure
 - d) a significant change in Icon Water’s financial or corporate structure
 - e) an unforeseen or *force majeure* event.

Issue 16: Are there any concerns about the current approaches for the treatment of expenditure risks?

Issue 17: If so, what forms of different treatments are appropriate?

Issue 18: In what circumstances should Icon Water be required to absorb non-controllable costs as opposed to those costs being fully or substantially passed on to customers?

³¹ Industry Panel, 2015a: 37–42.

³² The materiality threshold for the cost pass-through mechanism is \$0 for the water abstraction charge, the utilities network facilities tax and subvention payments, and \$2 million (2012–13 dollars) per event for all other cost pass-through categories (Industry Panel, 2015a: 41).

³³ The event must severely restrict Icon Water’s ability to provide water and/or sewerage services and impose a total annualised cost on Icon Water for the remainder of the regulatory period of more than \$12 million (Industry Panel, 2015a: 42).

Issue 19: What materiality thresholds should apply in relation to the pass-through of unexpected non-controllable costs?

Issue 20: To what extent would the transfer of all non-controllable risk to customers affect Icon Water’s incentives to develop effective mechanisms to minimise risk?

Issue 20: If Icon Water is permitted to pass through some or all non-controllable costs, should the regulator set a lower rate of return?

5.3 Incentive schemes

5.3.1 Introduction

The terms of reference require the Commission to consider whether there is potential for implementing incentive schemes for service levels, operating expenditure or capital expenditure for Icon Water in the future. Consideration of such schemes, to help improve the regulatory framework, was also suggested by the Industry Panel in its report.³⁴

This section summarises key issues that would need to be addressed if appropriate incentive schemes were to be developed and implemented for Icon Water.

The effective regulation of a natural monopoly entity, like Icon Water, requires setting prices that reflect efficient costs but also ensuring that costs are prudent and efficient and that specified service standards are achieved. Auditing and benchmarking of costs and services standards is one approach that can be used, but there can be difficulties in obtaining and analysing relevant information and the process can also be intrusive and costly from an administrative perspective.

An alternative or supplementary approach is to develop and implement incentive schemes that may entail financial rewards and penalties linked to cost efficiency and service performance. Regulators of water, energy and other infrastructure-based businesses in other jurisdictions have implemented various schemes to help provide incentives consistent with achieving various aspects of economic efficiency, including service delivery. Two key examples are the approaches adopted by IPART in New South Wales for urban metropolitan water businesses and by the AER for electricity transmission and distribution network service providers (NSPs). This section first outlines the key problems that the schemes are designed to focus on and then discusses the IPART and AER examples.

It should also be highlighted that service standard and cost-sharing incentive schemes and the auditing and benchmarking of costs are complementary mechanisms in

³⁴ Industry Panel, 2015a: 129.

providing incentives for regulated businesses to operate efficiently and provide information about efficient costs.

5.3.2 Regulating service standards

A focus on the regulation of price can mean that service standards are overlooked. In addition, the introduction of efficiency incentive schemes for operating and capital expenditure may result in lower expenditure and therefore, in some circumstances, lower service standards.

Many price cap regimes incorporate explicit incentives to counter any potential adverse impact of the price regulatory regime on quality. In order to regulate quality, the regulator needs to define and monitor the relevant quality performance measures. Some quality measures may be technical in nature, such as water quality, leakage and supply interruptions, while others may be based on customer surveys on service performance.³⁵

5.3.3 Periodicity of incentives problem

Incentives to reduce costs depend on the extent to which the regulated firm is allowed to retain part of the cost savings that it is able to achieve. Icon Water is allowed to retain the difference between actual and forecast operating expenditure and the return on capital and depreciation allowed for the difference between actual and forecast capital expenditure for the current regulatory period. These arrangements create a distortion with respect to the timing of efficiency saving initiatives. There is an incentive to reduce operating or capital expenditure below allowed expenditure in the early part of a regulatory period and defer potential savings near the end of a regulatory period to the next regulatory period. This is known as the ‘periodicity of incentives problem’.

In light of these issues, regulators have implemented efficiency carryover mechanisms to provide continuous incentives for efficiency in capital and operating expenditure. A carryover scheme allows the firm to retain a fixed percentage of any cost savings, irrespective of when the efficiency gain is initiated. This is done by adding a carryover component as one of the building blocks when establishing the efficient cost base for the next period. This carryover amount reflects the additional income that the firm would have retained had the cost allowance not been reset at the end of the regulatory period.

5.3.4 Balancing operating and capital expenditure incentives

Efficiency-sharing schemes also need to ensure that incentives to pursue operating and capital expenditure savings are balanced so that, for example, an incentive scheme for operating expenditure does not create a distortion whereby the operating saving is

³⁵ The UK Office of Water Services has used customer surveys to determine how satisfied customers were with services and with the handling of complaints (Ofwat, 2010).

reflected in higher capital expenditure. This means that there is a need to consider incentive schemes for both operating expenditure and capital expenditure or complementary mechanisms to avoid distorted outcomes.

5.3.5 Symmetry of incentives for underspending and overspending

Another issue is the extent to which rewards for reducing costs should be balanced by penalties if expenditure is higher than forecast. In the context of economic regulation, it is typical to allow a wide range of cost pass-through events so that consumers bear all of the costs of specified non-controllable events. However, it is also the case that ex post reviews can disallow overspending of operating and capital expenditure, and in particular not allow some capital expenditure to be rolled into the regulatory asset base in the next regulatory period.

In particular, in implementing a capital expenditure efficiency scheme, there is a need to determine the extent to which there is a penalty for overspending of controllable capital expenditure.

5.3.6 Incentives to bias forecasts

When efficiency incentive schemes are introduced, there can be stronger incentives to exaggerate forecasts of expenditure to the extent this increases the profits of the regulated entity. This can be addressed by improving the review process for forecasts and also by ex post adjustments where there are material differences between actual and forecast expenditure.

For capital expenditure deferrals, adjustments can be made to remove or reduce the financing benefit (return on and return of the difference between actual and forecast capital expenditure) if the capital expenditure difference is largely attributable to a pure deferral of the expenditure rather than a permanent efficiency benefit.

It should also be recognised that an efficiency-sharing scheme can be effective in revealing a business's efficient cost, thereby reducing the need for more intrusive expenditure reviews.

5.3.7 IPART incentive scheme for Sydney Water

Service performance incentives measures

IPART has responsibility for regulating the performance of urban water utilities according to standards (output measures) specified in their operating licences.³⁶ In the most recent price regulation determination for Sydney Water, IPART revised the performance measures to reflect the nature of Sydney Water's capital program. A list of output measures for the current determination period is provided in Appendix G of

³⁶ See IPART, 2015a; 2016a, b.

the IPART final decision.³⁷ The output measures largely relate to various targets for asset renewal.

IPART's guidelines for water agency submissions to a pricing review specify that regulated agencies should report on their performance over the current determination period, including various measures of service levels, complaints, revenue, connections, operating expenditure and capital expenditure.³⁸

At this stage, the output measures for service standards are not linked directly to financial rewards or penalties but rather provide information for assessing the efficiency of expenditure.

Operating expenditure efficiency benefit sharing scheme

In recognition of the disincentives to pursue operating cost efficiencies under the previous regulatory arrangements, IPART approved an efficiency benefit sharing scheme (EBSS) for Sydney Water.³⁹ The main reason for introducing the EBSS was IPART's concern about the periodicity of incentives problem – that is, the incentive to delay cost savings from the end of one regulatory period to the beginning of the next.⁴⁰

Some key features of the EBSS that applies to Sydney Water are:⁴¹

- The scheme applies to controllable operating expenditure (defined as total operating expenditure less bulk water costs covering 70 per cent of total operating expenditure for regulated services).
- The scheme is asymmetric in that it equalises incentives as to the timing of permanent efficiency savings over time but does not allow automatic sharing of permanent cost increases, as this is considered to be in the long-term interests of consumers. There are separate cost pass-through mechanisms that apply to defined non-controllable costs.
- Temporary over- and underspends within budget are treated symmetrically and not passed on to customers.
- The scheme does not apply to capital expenditure (reflecting concerns about limited coverage, the risk of incentives to over-forecast and inefficiently defer capital expenditure, limited opportunities for efficient trade-offs between operating and capital expenditure, and complexity).
- The scheme is designed to apply to the four years preceding its application (three years for the first application). This means that the value of a permanent

³⁷ IPART, 2016a: 282.

³⁸ IPART, 2015a: 5–7.

³⁹ IPART, 2016a: 53–60.

⁴⁰ IPART, 2016a: 53–55.

⁴¹ IPART, 2016a: 53–62.

efficiency gain is allowed to be retained for four years irrespective of when it is realised.⁴²

5.3.8 AER incentive schemes

Service target performance incentive scheme

The AER applies the service target performance incentive scheme (STPIS) to NSPs. The STPIS aims to encourage NSPs to improve or maintain the performance of their electricity distribution and transmission networks. This is achieved by linking NSPs' allowed revenues to their performance against defined service-level measures. Different measurements of performance and service standards apply to distribution and transmission businesses.

When the AER first introduced the STPIS in 2007, it was based on the service standards guidelines developed by the Australian Competition and Consumer Commission. Those guidelines were designed to address the incentives provided to transmission NSPs under a revenue cap to reduce operating expenditure at the expense of service quality, by linking transmission NSPs' allowed revenues to their performance against defined service-level measures.

The STPIS has since undergone three major rounds of amendments. The latest version of the STPIS for transmission NSPs has three key components:

- a service component, with performance measures covering the frequency of unplanned outages and the duration of these events. This can lead to a maximum reward or penalty worth 1.25 per cent of the maximum allowable revenue (MAR);
- a market-impact component, which provides an incentive to reduce the impact of planned and unplanned outages on wholesale market outcomes. This has a maximum reward of 1 per cent of the MAR; and
- a network-capability component, which encourages NSPs to undertake low-cost projects that deliver improvements in network capability, availability or reliability. This has a maximum reward of 1.5 per cent of the MAR, and there are penalties if improvement targets are not met (up to a maximum of 3.5 per cent of the MAR).⁴³

The rewards and penalties are based on estimates of consumers' willingness to pay for service and reliability improvements.

⁴² This gain can be measured in terms of the share of the permanent present value gain that is realised, which depends on the gain and a discount rate. The share of the gain increases as the discount rate increases since future gains are worth less relative to gains for the first four years. For a four-year holding period and a 5.3 per cent discount rate, the share of the present value of a permanent efficiency gain is approximately 18 per cent (IPART, 2015b: 86).

⁴³ AER, 2015a.

Efficiency benefit sharing schemes

The AER has also implemented efficiency incentive schemes relating to operating expenditure and capital expenditure. Both schemes are still in place for transmission NSPs and the capital expenditure scheme is still in place for distribution NSPs. But the operating expenditure scheme was recently replaced by a more comprehensive use of benchmarking for distribution NSPs.⁴⁴

The EBSS for operating expenditure was designed to provide continuous incentives for NSPs to pursue efficiency and to share efficiency gains and losses between NSPs and customers.

Similar to IPART’s scheme for Sydney Water, the AER’s EBSS has an incremental rolling mechanism where NSPs retain a share of ‘incremental’ efficiency gains and losses for a fixed period (known as the carryover period and typically equal to the length of the regulatory period of five years). The unused carryover amounts are added into the NSP’s allowed revenue for the next regulatory period.

This mechanism ensures that NSPs retain a fixed percentage of any efficiency gains in net present value (NPV) terms, irrespective of the nature of the operating expenditure reduction (i.e. one-off or recurrent) and the time when the efficiency gain occurs. Thus, NSPs have continuous incentives to pursue operating expenditure efficiency. The EBSS operates on a symmetric basis in the sense that both over- and underperformance are shared between NSPs and their customers.

The EBSS is linked to the AER’s approach for setting the operating expenditure allowance, which is usually the revealed-cost approach. With the revealed-cost approach, the AER uses actual operating expenditure in a base year (either the penultimate or the final year of the previous regulatory period) as a starting point for forecasting operating expenditure. This actual operating expenditure is then adjusted downwards for any past inefficient costs (if identified), and scaled to reflect forecast changes in input costs, productivity and output growth, in order to establish a cost benchmark.

The AER argues⁴⁵ that actual operating expenditure from the previous period would be an appropriate efficient benchmark if the regulated firm had operated under an effective incentive framework (such as the EBSS) and had behaved in a profit-maximising manner. If adjustments are made to actual operating expenditure, this implies that the incentive framework was not fully effective (e.g. there are distortions affecting the company’s decision-making). Note also that the effectiveness of the incentive framework should encompass the extent to which the firm behaves in a profit-maximising manner.

⁴⁴ AER, 2015b: 47.

⁴⁵ AER, 2015a: 15.

The efficiency incentives are designed to recognise that the NSPs can underspend their operating expenditure allowances (hence earning additional profits) and to ensure they face no clawback of the allowed additional profits in the future.

However, the fundamental problem of a firm not revealing its true efficient costs still exists under the AER's regime, to the extent that forecast costs are not efficient. This problem is partially addressed by the AER's revealed-cost approach, but it underlines the importance of continuing to use benchmarking as a complementary mechanism to help identify efficient costs.

Capital expenditure sharing scheme

The EBSS for operating expenditure was first introduced by the AER in 2007 but there was no similar scheme for capital expenditure. This provided incentives for NSPs to favour capital expenditure solutions and to misclassify operating expenditure as capital expenditure, as they would gain from the EBSS for operating expenditure but receive a return on and return of capital for capital expenditure provided it was allowed. NSPs also faced the periodicity problem for capital expenditure. In addition, while an NSP would incur additional financing costs if it overspent the capital expenditure allowance, actual capital expenditure would automatically be rolled into the regulatory asset base at the end of the regulatory period without being subjected to any ex post assessments.⁴⁶

In 2012, the Australian Energy Market Commission made a number of changes to the National Electricity Rules in response to these issues.⁴⁷ The changes provide the AER with the following responsibilities:

- to develop a capital expenditure sharing scheme (CESS) to provide incentives to incur efficient capital expenditure; and
- to undertake ex post efficiency reviews of actual capital expenditure including the ability to preclude inefficient capital expenditure from being rolled into the regulatory asset base.

The AER has since developed guidelines on the scheme and a new ex post test that will apply to a NSPs' actual capital expenditure.⁴⁸ These measures were introduced to apply to all NSPs by 2016.

Similar to the AER's EBSS, the CESS is an application of an efficiency carryover scheme. Under the EBSS, NSPs retain any incremental efficiency gains or losses for a fixed period via carryover payments. However, the exact share of the present value of permanent benefits retained by NSPs under an EBSS will depend on the value of the

⁴⁶ AER, 2013d.

⁴⁷ AEMC, 2012: v.

⁴⁸ AER, 2013c, d.

discount rate (WACC) used to calculate the present value as well as the carryover period.

In contrast, the CESS operates on an exact fixed-sharing basis. At the end of each regulatory period, a sharing ratio of 30 per cent is applied to the value of the cumulative capital expenditure underspend or overspend to determine the NSP's share that can be retained or paid for by the NSP (the scheme is symmetric). A CESS payment is calculated which can be positive or negative depending on whether there is underspending or overspending. The CESS payment also takes account of the net benefit that the NSP has already earned, or net cost already incurred, in the regulatory period. This amount is added to or deducted from the next period's allowed revenue.

Customers are better off because the regulatory asset base is lower (hence lower return on and return of capital in the future) than what it would have been if the NSP had spent the full capital expenditure allowance. As both the CESS and EBSS have approximately the same sharing ratio of 30 per cent (given a six per cent real WACC), there are limited incentives for the NSP to prefer one type of expenditure to the other.

The AER scheme also makes adjustments to remove the incentive to inefficiently defer capital expenditure. Without such an adjustment, a business can advantage from the financing benefit (return on and return of capital) associated with the difference between forecast capital expenditure and lower actual expenditure in the current regulatory period while still being compensated when the deferred capital expenditure actually occurs.

To calculate the CESS payment, the AER estimates the present value of the underspend in the current regulatory period; the present value of any material increase in forecast capital expenditure in the next regulatory period, as a result of a material deferral; and the present value of the financing benefits during the regulatory control period. It then calculates the CESS payments to be made to or paid by the regulated NSP as follows:

$$\text{CESS payments} = 30 \text{ per cent} \times (\text{NPV of underspend in period } n - \text{NPV of forecast marginal increase in capex in period } n+1 \text{ from capex deferred in period } n) - \text{financing benefits received in period } n.^{49}$$

This approach means that the NSP will still retain 30 per cent of the estimated present value of the short-term deferral.⁵⁰

The calculation of the CESS payment when there is no deferral is simply 30 per cent of the NPV of an underspend, after deducting the NPV of the financing benefit that the

⁴⁹ AER, 2013b: 32.

⁵⁰ The AER (2013b) explanatory statement shows that the NSP would receive 30 per cent of the estimated benefit of an inter-period deferral after an adjustment to the CESS payments (Attachment D).

entity has already received from the underspend. If there is overspending, the NSP will be faced with a deduction from its allowed revenue in the next regulatory period.

It is also relevant to recognise that a deferral of a fixed nominal amount of capital expenditure entails a benefit in present value terms because the expenditure is delayed a year and there will be a financing benefit to both the regulated firm and its customers from such a delay. However, the deferral could mean that capital costs increase materially for the same project, which would reduce or more than offset the financing benefits from the delay. The benefits and risks of a delay can be shared between the regulated business and its customers, and these considerations should be recognised when specifying how the financing benefits or costs of a deferral should be treated.

To reiterate, the CESS ensures that the NSP receives 30 per cent of the accumulated capital expenditure underspend (in NPV terms), and the value of the financing benefits in the regulatory period in which the underspend occurs is recognised when calculating the carryover amount.

However, as noted above, the scheme is symmetric so that if there is an overspend (and the overspend does not relate to cost pass-through or reopener category) the regulated firm will bear 30 per cent of the cost of the overspend in present value terms. This is considered appropriate given that the regulated firm will benefit from 30 per cent of an underspend in present value terms.

Issue 22: Should incentive schemes be developed for service performance, operating expenditure and capital expenditure?

Issue 23: Should these incentive schemes include financial rewards and penalties and, if so, how should these be determined?

Issue 24: What are relevant service performance measures that should be considered for water and sewerage services?

Issue 25: Should expenditure efficiency schemes only apply to controllable expenditure, recognising that this means that customers bear all the risk of non-controllable expenditure that is passed through?

Issue 26: Is the periodicity problem material for both operating expenditure and capital expenditure?

Issue 27: To what extent should incentive schemes be symmetric so that there are rewards for good performance and penalties for poor performance, including in relation to both underspending and overspending of operating and capital expenditure?

Issue 28: Is it problematical to implement an operating expenditure incentive scheme without implementing a capital expenditure efficiency scheme?

Issue 29: What is an appropriate share of benefits and costs from efficiencies or inefficiencies that should apply to Icon Water for both operating and capital expenditure?

Issue 30: Can the incentive to defer capital expenditure under a capital expenditure efficiency scheme be effectively addressed by adjustments to the financing benefit of deferral?

Issue 31: Will ex post review of capital expenditure still be required if a capital expenditure efficiency sharing scheme is in place?

Issue 32: Are there suggestions for how service, operating expenditure and capital expenditure schemes could be trialled or implemented in the next regulatory period?

5.4 Changes in the tariff structure

The Commission undertook a review of the tariff structures for water and sewerage services in 2016 and released a final report in March 2017.⁵¹

As part of the review, the Commission developed and applied pricing principles based on its regulatory objectives and relevant government policies to determine preferred directions for changing the water tariff structure.

If the water tariff structure is looked at from an economic efficiency perspective alone, it would comprise a fixed tariff and a single usage charge. The usage charge would reflect the additional costs to society that are incurred as additional water services and the water itself are used and the fixed charge would be set to ensure that overall costs are recovered. The fixed charge should not be related to usage, but it can differ by type of use (for example, businesses or households) or in other ways that help to minimise adverse impacts on low-income users.

A tariff with these characteristics can ensure that the efficient level of output is provided as well as ensure that fixed costs are recovered, provided the fixed charge does not mean that some users opt out of the service. When the single usage price is based on an appropriate measure of marginal cost and the fixed component is set to help recover efficient costs, the risk of uneconomic bypass should also be avoided.

However, economic efficiency considerations need to be balanced with social and environmental objectives. And several submissions provided strong support for retention of a two-tier water usage charge, particularly in relation to concerns about the impacts on low-income households if the existing structure was changed to raise fixed charges and reduce usage charges.

⁵¹ ICRC, 2017.

Recognising these concerns and difficulties in effectively addressing equity concerns with other measures, the Commission proposes to retain the existing inclining block tariff with two usage components for water services for the next regulatory period. However, the Commission proposes to take the opportunity to narrow the difference between the two usage components and reduce the over-reliance on usage charges by increasing the fixed charge. Nonetheless, any change will be cautious, gradual and measured, taking account of the concerns mentioned earlier. Over time, more consideration can be given to adopting a single usage charge, provided economic, environment and social objectives can be appropriately balanced.

The Commission’s final report on the tariff structure proposed that any change to the structure of tariffs for water services, should it be considered appropriate, would be undertaken as part of the price investigation for regulated water and sewerage services. This will allow the use of relevant information on costs and demand when it becomes available.

The Commission proposes to retain the current tariff structure for sewerage services where a single fixed service charge applies, given difficulties in developing a usage charge and the fact that fixed costs for sewerage are approximately 93 per cent of total costs.

However, a more cost-reflective tariff is likely to be beneficial for trade waste, and the Commission welcomes Icon Water’s commitment to introducing a trade waste pricing regime in the next regulatory period, starting on 1 July 2018.

Issue 33: The Commission welcomes comments on its approach to determining the structure of tariffs.

Issue 34: How should customer characteristics affect the fixed supply charge in the water tariff?

Issue 35: Should there be different fixed charges for business and household water use? Should there be higher fixed charges but lower usage charges for very large users to ensure that larger users do not develop other options for the supply of water?

Issue 36: What other options are there to address concerns about adverse impacts of tariff structure changes on low-income households?

5.5 Incremental impacts on prices

The terms of reference require the Commission to identify the incremental impact on prices of:

- any changes to the total allowed revenue for Icon Water;
- any changes to water demand forecasts used in the regulatory model; and

- the implementation of any reforms to the tariff structure for the water and sewerage services tariffs.

The incremental impacts for these aspects will be identified in the draft and final reports.

6 Issues for consultation: Summary

In this paper, the Commission has identified specific issues on which it welcomes responses from interested parties. The full list of issues is reproduced in Box 1.1 for ease of reference.

The Commission also welcomes comments on any other issue or the provision of any other relevant information that interested parties think could assist the Commission's investigation into the prices for regulated water and sewerage services that should apply for the period 1 July 2018 to 30 June 2023.

Box 1.1 List of issues

Issue 1: The Commission welcomes any comments on the pricing principles that will form the basis for addressing and balancing economic, social and environmental objectives.

Issue 2: The Commission welcomes any comments on the regulatory model and form of control and its proposal to adopt the hybrid revenue and price cap approach for the 2018–2023 regulatory period.

Issue 3: What are the advantages and disadvantages of adopting a pure revenue cap or a pure price cap as the form of control of prices?

Issue 4: If the demand volatility adjustment is triggered, how should it be dealt with in prices in the regulatory period from 1 July 2018 to 30 June 2023?

Issue 5: Is there scope to avoid price shocks by including a component of under-recovered revenue in the regulatory asset base for future recovery?

Issue 6: Should revenue adjustment mechanisms continue to apply to address under- or over-recovery of revenue?

Issue 7: The Commission welcomes any comments on the process for reviewing the prudence and efficiency of capital expenditure over the current regulatory period before the capital expenditure is allowed and included in the regulatory asset base.

Issue 8: The Commission welcomes any comments on whether and how the financing benefit of any capital underspending (should it have occurred) should be determined and used to adjust regulated prices for water and sewerage services.

Issue 9: The Commission welcomes comments on how it can best forecast the demand for water.

Issue 10: How much rebalancing of the tariff structure components should be undertaken (or other mechanisms implemented) so that forecasting of demand for water is less critical in ensuring revenue recovery of efficient costs?

- Issue 11:** Is there a better alternative to the current efficient benchmark approach for estimating an allowed rate of return for Icon Water?
- Issue 12:** Are there comments about individual parameters in the current approach?
- Issue 13:** Does the current value of the equity beta parameter continue to be appropriate?
- Issue 14:** Is it appropriate to rely solely on the current single Bloomberg implied measure of the market risk premium to estimate the market risk premium?
- Issue 15:** If not, what methods should be used to measure the market risk premium?
- Issue 16:** Are there any concerns about the current approaches for the treatment of expenditure risks?
- Issue 17:** If so, what forms of different treatments are appropriate?
- Issue 18:** In what circumstances should Icon Water be required to absorb non-controllable costs as opposed to those costs being fully or substantially passed on to customers?
- Issue 19:** What materiality thresholds should apply in relation to the pass-through of unexpected non-controllable costs?
- Issue 20:** To what extent would the transfer of all non-controllable risk to customers affect Icon Water's incentives to develop effective mechanisms to minimise risk?
- Issue 21:** If Icon Water is permitted to pass through some or all non-controllable costs, should the regulator set a lower rate of return?
- Issue 22:** Should incentive schemes be developed for service performance, operating expenditure and capital expenditure?
- Issue 23:** Should these incentive schemes include financial rewards and penalties and, if so, how should these be determined?
- Issue 24:** What are relevant service performance measures that should be considered for water and sewerage services?
- Issue 25:** Should expenditure efficiency schemes only apply to controllable expenditure, recognising that this means that customers bear all the risk of non-controllable expenditure that is passed through?
- Issue 26:** Is the periodicity problem material for both operating expenditure and capital expenditure?
- Issue 27:** To what extent should incentive schemes be symmetric so that there are rewards for good performance and penalties for poor performance including

in relation to both underspending and overspending of operating and capital expenditure?

Issue 28: Is it problematical to implement an operating expenditure incentive scheme without implementing a capital expenditure efficiency scheme?

Issue 29: What is an appropriate share of benefits and costs from efficiencies or inefficiencies that should apply to Icon Water for both operating and capital expenditure?

Issue 30: Can the incentive to defer capital expenditure under a capital expenditure efficiency scheme be effectively addressed by adjustments to the financing benefit of deferral?

Issue 31: Will ex post review of capital expenditure still be required if a capital expenditure efficiency sharing scheme is in place?

Issue 32: Are there suggestions for how service, operating expenditure and capital expenditure schemes could be trialled or implemented in the next regulatory period?

Issue 33: The Commission welcomes comments on its approach to determining the structure of tariffs.

Issue 34: How should customer characteristics affect the fixed supply charge in the water tariff?

Issue 34: Should there be different fixed charges for business and household water use? Should there be higher fixed charges but lower usage charges for very large users to ensure that large users do not develop other options for the supply of water?

Issue 36: What other options are there to address concerns about adverse impacts of tariff structure changes on low-income households?

Appendix 1 Terms of reference

Australian Capital Territory

Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Determination 2016

Disallowable instrument DI2016-297

made under the

Independent Competition and Regulatory Commission Act 1997 ('the Act'), Section 15 (Nature of industry references) and Section 16 (Terms of industry references).

Reference for investigation under s. 15

Pursuant to subsection 15(1)(a) of the Act, I refer to the Independent Competition and Regulatory Commission (the 'Commission') the matter of an investigation into, and the making of a price direction for regulated water and sewerage services provided by Icon Water Limited.

The price direction will be for the period of 1 July 2018 to 30 June 2023.

Terms of Reference for investigation under s. 16

1. The Commission must consider:
 - a. the objectives of the Commission outlined within section 7 of the Act;
 - b. the objective related to price directions outlined in section 19L of the Act;
 - c. the legislative requirements outlined in section 20(2) of the Act;
 - d. the policies of the ACT Government as they relate to the supply and use of water and sewerage services, including the *ACT Water Strategy - Striking the Balance 2014-2044*;
 - e. the National Water Initiative, Murray-Darling Basin Plan commitments and associated policies and agreements; and
 - f. any other matters considered to be directly relevant to the pricing investigation.

2. The Commission should consider:
 - a. continuing to use the current regulatory model, and, where identified, implement improvements to particular aspects of the methodology;
 - b. appropriate mechanisms to ensure the recovery of the prudent and efficient costs of Icon Water Limited during the regulatory period, while minimising the potential for significant price fluctuations; and
 - c. whether there is potential for the implementation of incentive schemes for service levels, operating expenditure or capital expenditure for Icon Water Limited in the future.
3. As part of its investigation, the Commission should outline its intended approach to achieving its various regulatory objectives within its decision making process.
4. The Commission should identify, in the draft and final reports of the investigation, the incremental impact on prices associated with:
 - a. any changes to the total allowed revenue for Icon Water Limited;
 - b. any changes to the water demand forecasts used in the regulatory model; and
 - c. the implementation of any reforms to the tariff structure arising from the Commission's review of Icon Water Limited's regulated water and sewerage services tariffs.
5. In accordance with subsection 16(2)(d) of the Act, the Commission must make available a draft report for public inspection within the period of 1 September 2017 to 12 December 2017.
6. In accordance with subsection 16(2)(a) of the Act, the Commission must submit its final report to the referring authority within the period of 1 March 2018 to 1 May 2018.

Andrew Barr MLA Treasurer

13 December 2016

Authorised by the ACT Parliamentary Counsel—also accessible at www.legislation.act.gov.au

Abbreviations and acronyms

ACT	Australian Capital Territory
ACTEW	Australian Capital Territory Electricity and Water
AER	Australian Energy Regulator
CAPM	capital asset pricing model
CESS	capital expenditure sharing scheme
CPI	consumer price index
EBSS	efficiency benefit sharing scheme
GL	gigalitre
ICRC	Independent Competition and Regulatory Commission
IPART	Independent Pricing and Regulatory Tribunal
MAR	maximum allowable revenue
NPV	net present value
NSP	network service provider
QCA	Queensland Competition Authority
STPIS	service target performance incentive scheme
WACC	weighted average cost of capital

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