



# **Alternative approaches for establishing a water entity's revenue requirement**

**A REPORT PREPARED FOR THE ESSENTIAL SERVICES  
COMMISSION, VICTORIA, AUSTRALIA**

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# Alternative approaches for establishing a water entity's revenue requirement

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>Introduction and summary of recommendations</b>                                    | <b>1</b>  |
| 1.1      | <i>Summary of Recommendations</i> .....   | 2         |
| <b>2</b> | <b>Background</b>   | <b>5</b>  |
| 2.1      | <i>The structure of the industry</i> .....  | 5         |
| 2.2      | <i>Economic regulation</i> .....  | 7         |
| 2.3      | <i>Public ownership and incentives</i> .....  | 9         |
| 2.4      | <i>Key objectives for this review</i> .....   | 9         |
| 2.5      | <i>Assessment framework</i> .....   | 10        |
| <b>3</b> | <b>Reform options</b>   | <b>12</b> |
| 3.1      | <i>Introduction</i> .....   | 12        |
| 3.2      | <i>Primary methods</i> .....  | 12        |
| 3.3      | <i>Secondary 'tools'</i> .....  | 19        |
| 3.4      | <i>Packages for further evaluation</i> .....  | 28        |
| <b>4</b> | <b>Evaluation of options against criteria</b>   | <b>30</b> |
| 4.1      | <i>Introduction</i> .....   | 30        |
| 4.2      | <i>Summary of evaluation</i> .....  | 30        |
| 4.3      | <i>Detailed assessment</i> .....  | 31        |
| <b>5</b> | <b>Implementation issues</b>  | <b>36</b> |
| 5.1      | <i>Information requirements</i> .....   | 36        |
| 5.2      | <i>Methods for benchmarking</i> .....   | 37        |
| 5.3      | <i>Methods for customer engagement</i> .....  | 39        |
| 5.4      | <i>Processes and timeline</i> .....   | 40        |
| <b>6</b> | <b>Conclusions and recommendations</b>  | <b>41</b> |
|          | <b>Annexe 1: Matters that water businesses and the Commission must have regard to</b> | <b>45</b> |
|          | <b>Annexe 2: Assessment framework criteria</b>  | <b>47</b> |

|  |           |
|--|-----------|
| <i>Core criteria</i> .....                     | 47        |
| <i>Supplementary criteria</i> .....            | 49        |
| <b>Annexe 3: Primary methods of regulation</b> | <b>51</b> |
| <b>Annexe 4: Secondary tools</b>               | <b>54</b> |

## Alternative approaches for establishing a water entity's revenue requirement

|   |    |
|---|----|
| <b>Figure 1.</b> Metropolitan sector                                    | 5  |
| <b>Figure 2.</b> Regional sector  | 6  |
| <b>Figure 3.</b> Current regulatory framework                           | 7  |
| <b>Figure 4.</b> Core Assessment Criteria                               | 11 |
| <b>Figure 5.</b> Supplementary Assessment Criteria                      | 11 |
| <b>Figure 6.</b> Primary methods for regulating infrastructure business | 14 |
| <b>Figure 7.</b> Building block methodology for setting prices          | 15 |
| <b>Figure 8.</b> Secondary tools in regulation                          | 21 |
| <b>Figure 9.</b> Ofwat's criteria for Risk Based Review at PR14         | 24 |
| <b>Figure 10.</b> Performance targets and ODIs – an example             | 27 |
| <b>Figure 11.</b> Reform option packages                                | 29 |
| <b>Figure 12.</b> Grading against criteria                              | 30 |
| <b>Figure 13.</b> Evaluation of reform options                          | 31 |
| <br>  |    |
| <b>Table 1.</b> Initial screening of primary methods                    | 17 |
| <b>Table 2.</b> Description of primary methods                          | 51 |
| <b>Table 3.</b> Description of secondary tools                          | 54 |



# 1 Introduction and summary of recommendations

The Essential Services Commission (ESC) has engaged Frontier Economics (Frontier) to provide expert economic advice on alternative approaches for establishing a water entity's revenue allowance. This initiative follows the revision in 2014 of the Water Industry Regulatory Order (WIRO), which allowed the ESC greater flexibility in the choice of price setting approaches. This work forms part of a wider review by the ESC of its regulatory framework for the water sector in Victoria.

Pervasive drought conditions during the decade preceding 2010 have prompted a period of heavy investment in supply and consequent increases in bills for customers. While supply security is no longer a pressing issue, concern has turned to reducing the pressure on bills and increasing the quality of service. This has raised the priority on the regulatory system to drive greater efficiency and better outcomes for customers, while remaining a proportionate system of regulation.

We were asked to think creatively as to how the regulatory approach might be adapted to better deliver these objectives. We have drawn on Frontier's cross-sector experience of the range of approaches to utility regulation in the UK and elsewhere. We have been careful to consider the particular characteristics of the water sector in Victoria, notably, the public sector ownership model, the particular objectives for the sector set out in legislation and the varied nature of the 19 businesses comprising the sector. To assess the range of options for change, we have established a framework of clear criteria to encapsulate first principles, legislative and regulatory objectives.

Our recommendations are established at a high level, outlining the broad character and elements of a fresh approach. This is based on the principles of incentive based regulation, within a CPI-X framework, adapted to give a greater role for customer engagement and applied in different ways to different elements of the sector, as we have considered proportionate and effective. We have also given a high level overview of the potential challenges for implementation.

The recommendations are a starting point for discussion. They are not a final package for implementation. As they are at a high level, we highlight, where relevant, possible permutations. This will allow a full public discussion of the options leading to selection, refinement and ultimately implementation of a preferred approach. Finally, we note that questions of ownership and governance of the sector have been outside the scope of our review, although we indicate how these issues might interact with the effective operation of efficiency incentives.

Our report is structured as follows:

## Introduction and summary of recommendations

- **Section 2:** Background – this provides the context of the industry structure, regulatory framework and recent developments and summarises our assessment framework;
- **Section 3:** Reform options – this sets out and analyses which options for reform may be most appropriate for the industry in Victoria, given its specific characteristics and derives some ‘packages of options’ for further evaluation;
- **Section 4:** Evaluation of options against criteria – here we evaluate the packages of options against our assessment framework and derive some recommendations for reform;
- **Section 5:** Implementation issues – this section addresses at high level the implications for information and modelling, customer engagement and regulatory process that the ESC will have to take into account in pursuing reform;
- **Section 6:** Conclusions and Recommendations – this section summarises our conclusions.

## 1.1 Summary of Recommendations

The Exhibit below summarises our Recommendations

### *Summary of Recommendations*

Recommendations 1 to 5 describe our recommendations for the basic form of regulation in Victoria. Recommendations 6 to 7 establish particular recommendations in respect of specific businesses. Recommendations 8 to 9 concern aspects of implementation. Recommendation 10 addresses innovation specifically.

**Recommendation 1:** the ESC should consider developing an enhanced price cap approach (based on the ‘building block’ methodology) to regulation. This will best deliver the objectives of greater efficiency and long term sustainability, while it can be tailored to ensure proportionality.

**Recommendation 2:** the ESC should explore the scope for it to develop more enhanced cost transparency and benchmarking. This will enable the identification of challenging and transparent targets on which public sector managers can focus and be held to account formally or by reputation. Benchmarking and efficiency setting is a task that needs to be done independently of government and the businesses, and is typically a role for an economic regulator. This will help to drive efficiency.

**Recommendation 3:** Further development of and formalisation of a clear

### Introduction and summary of recommendations



framework for enhancing local customer engagement should be considered. This should clarify the role of any customer 'forum' in the price setting framework, which may be on a spectrum from an advisory/consultative role in business planning, a remit for determining outcomes to a formal role in agreeing the business plan. Models of engagement in Scotland, England and Wales are worth further consideration. In the Melbourne area, a formal process to agree the wholesale price, between Melbourne Water and the three separate retail businesses, could be a consideration, perhaps as a longer term objective. These approaches could help to secure better outcomes for customers, and local acceptability and legitimacy of water businesses' activities.

**Recommendation 4:** The ESC and the water businesses should consider, in consultation with customers, what additional outcome incentives may be appropriate, paying attention to reputational as well as financial incentives. This together with Recommendation 3, will enhance outcomes for customers.

**Recommendation 5:** Consideration should be given to the development of a transparent framework for the sharing of outperformance between customers and the shareholder. The Scottish Water model provides a useful example to consider. This could contribute to enhancing incentives to outperform on cost efficiency and service performance.

In terms of the range of businesses, some possible permutations on the general form of price cap regulation can be identified.

**Recommendation 6:** Separate price caps could be considered for different parts of the value chain in the metropolitan area.

**Recommendation 6a:** For Melbourne Water, consideration could be given to whether, in the longer term, long-run incremental cost (LRIC) based pricing in the resource or bulk water part of the value chain could provide better long term incentives than a price cap.

**Recommendation 6b:** For the three dedicated retailers, and possibly for the one integrated retail/wholesale business in the metropolitan area, consideration could be given to the merits of and scope for developing a separate price cap for the purely retail (customer facing) activities (billing, meter reading, collection etc). This could drive clearer cost and service performance focus in those businesses.

**Recommendation 7:** For the smaller regional urban businesses, careful attention in particular should be made to a proportionate implementation of the adapted price cap approach. While there remains a strong efficiency driver, benchmarking between the businesses (and possible external comparators) could help secure significant benefits to customers in terms of value for money. Therefore appropriate levels of cost information and benchmarking should be considered. The aim should be to provide the 'lighter' touch that smaller businesses might warrant, while retaining the powerful benefits of cost recovery and efficiency. Over time, once solid benchmarking has been established, and improved

efficiency performance sustained, it may be possible to consider further lighter touch approaches. In addition, separate retail caps for the regional urban businesses could also be an option, again subject to consideration of proportionality.

**Recommendation 8:** Consideration should be given to the scope for developing a ‘risk based review’ approach to the price setting process. The reputational incentives are likely to be of some relevance in a public sector context. This would help to drive better business planning, and outcomes for customers; it would also help to move price setting towards a lighter touch approach for high performing businesses. A business that put forward a plan that showed strong customer engagement and sector leading performance on quality measures and cost efficiency would be subject to minimal regulatory scrutiny.

**Recommendation 9:** The regulator should aim to secure a package of reforms that works well together to deliver the objectives.

**Recommendation 10:** Consideration could be given to the introduction of specific innovation funding. To avoid wasteful expenditure this may be more appropriate once any new incentives have bedded in and the industry has established a track record in productivity improvement. It may also be considered in terms of potential rewards in a ‘risk based review’ framework.

## 2 Background

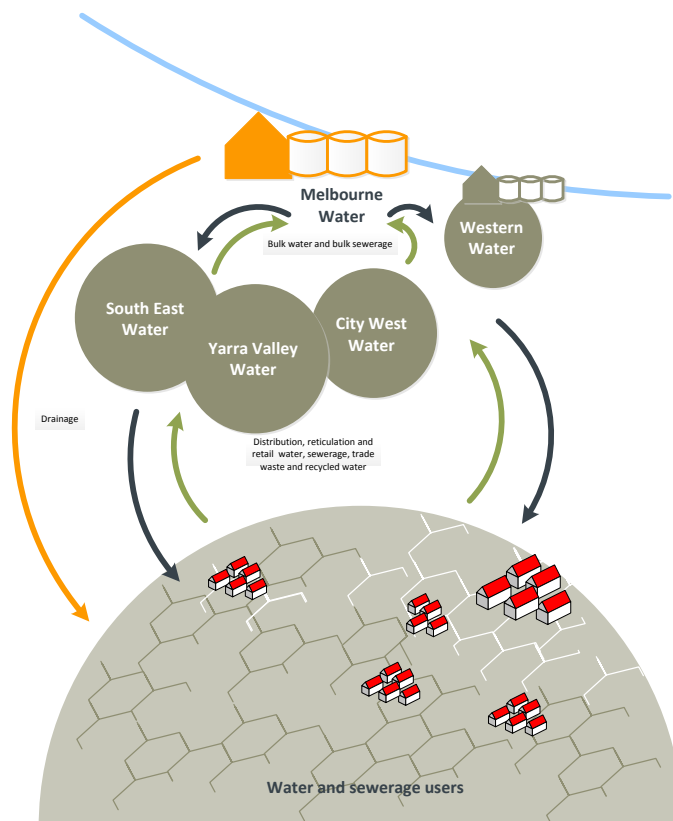
This section gives a brief overview of the structure of the industry and the regulatory framework in Victoria and establishes criteria for assessing reform options.

### 2.1 The structure of the industry

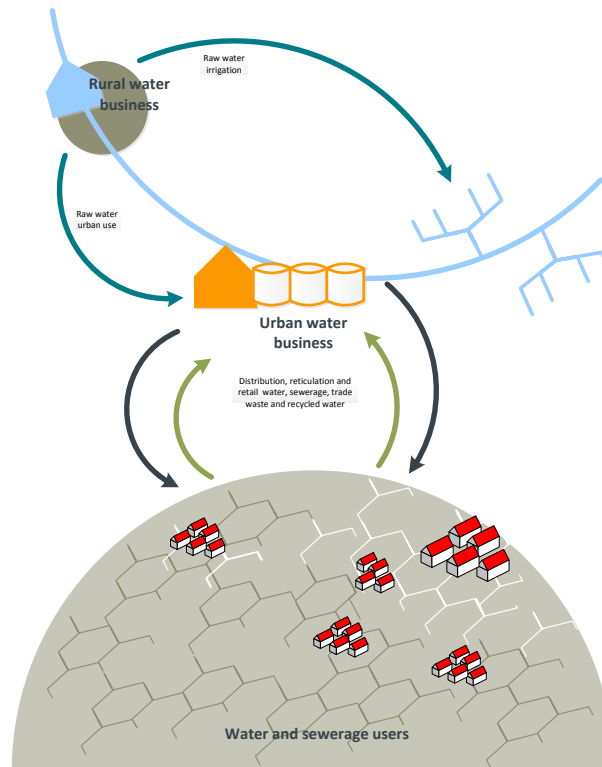
The water sector in Victoria is made up of 19 government-owned water corporations, operating as statutory monopolies, constituted under the Water Act 1989. They exhibit a range of size, activities and operating environment, reflecting the varied geography of the province.

**Figure 1** and **Figure 2** illustrate the two distinctive ‘metropolitan’ and ‘regional’ systems.

**Figure 1.** Metropolitan sector

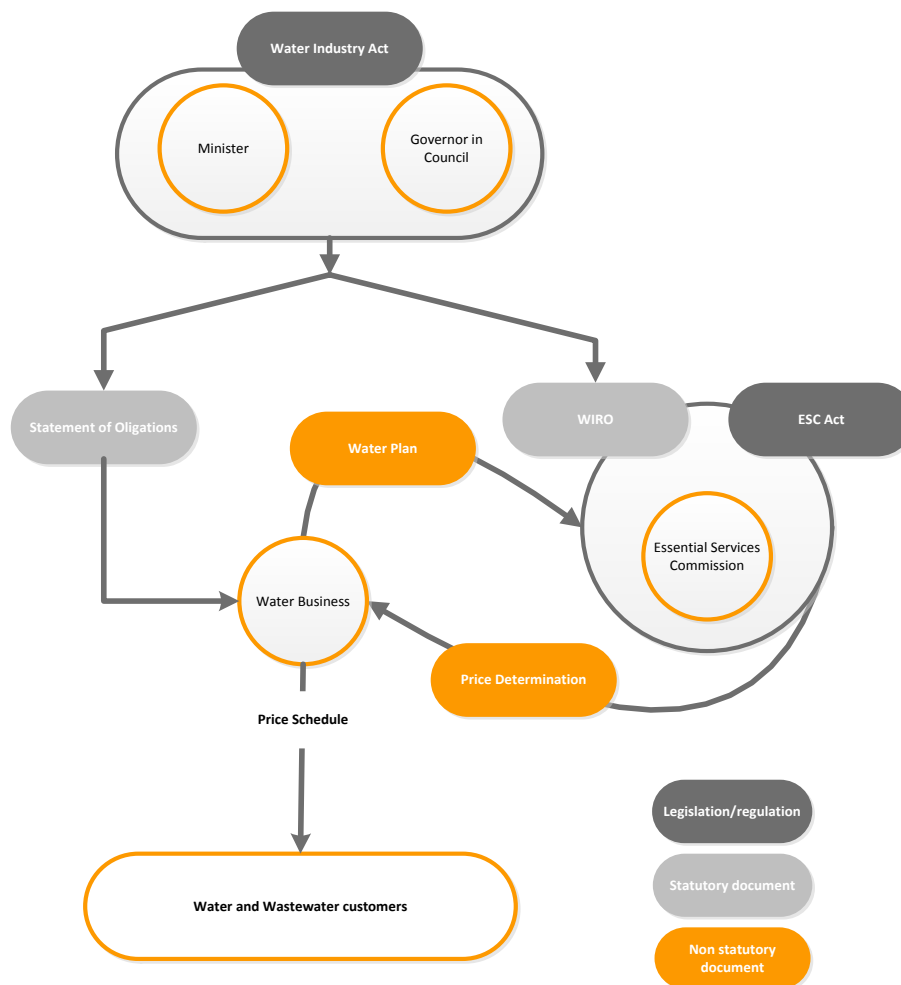


Source: Frontier Economics

**Figure 2.** Regional sector

Source: Frontier Economics

The interplay of government ownership and the regulatory framework is illustrated in **Figure 3** below. With the government acting as ‘shareholder’, and setting obligations for the businesses in terms of performance and operations, independent economic regulation (of prices and service standards) is provided by the ESC acting alongside the EPA and Department of Health, with responsibilities for environmental performance and water quality and drinking standards respectively.

**Figure 3.** Current regulatory framework

Source: Frontier Economics based on Gilbert and Tobin (2014) Review of Victoria's Framework for Economic Regulation of the Water Sector

## 2.2 Economic regulation

The ESC is guided by the regulatory framework set out in the *Essential Services Commission Act 2001* and the *Water Industry Act 1994*. The more detailed framework is set out in the Water Industry Regulatory Order (WIRO) made by the Governor in Council in 2012 under the Water Industry Act.

Under the current framework, the prices, revenues and service standards of the water businesses in Victoria are either approved or determined through cyclical price reviews conducted by the ESC. Businesses propose to the ESC via Water Plans their expenditure and prices for the forthcoming regulatory period (generally five years). The ESC assesses these proposals against the regulatory requirements and principles set out in both the WIRO and the ESC Act. Annex

1 sets out the specific objectives and the various matters the Commission must have regard to when making a price determination. On the basis of this assessment the ESC is required to make a determination which will either cap revenue or prices for the next regulatory period.

### 2.2.1 Rationale for economic regulation and the current building block approach

Economic regulation aims to protect customers by regulating the returns, revenues or prices that monopoly businesses can charge. In a public ownership context, although the lack of profit motive may limit the scope for such exploitation, it may nonetheless lead to weak incentives for efficiency.

In Victoria, regulation has been by way of price or revenue controls<sup>1</sup> set every five years, based on a bottom up calculation of the costs and returns estimated to be required to deliver the service. This has been known in Victoria as the ‘building block’ approach. It has, until reforms of the WIRO in 2014, been a requirement that prices were set in this manner. The approach is common in the regulation of monopoly utilities in the UK and elsewhere. Section 3 discusses this further and **Figure 7** in Section 3 illustrates the building block methodology.

This form of regulation is designed to create incentives to drive efficiency. The price/revenue controls set by the ESC have inbuilt assumptions of the overall productivity improvement the businesses can achieve. If the businesses can beat these targets by becoming even more efficient, they may retain a share of the outperformance achieved. Such additional dividends generally accrue to the owner (i.e. in this case the Government), however, in Victoria, only the larger entities are required to pay a dividend.

There has been some debate about recent performance of the sector and the regulatory framework. While there has been considerable effort and investment in water supply security, there appears to have been concern that less attention may have been paid to productivity and efficiency. Rising customer bills have been a matter of public concern.<sup>2</sup> Some concerns have also been raised as to the perceived complexity of the ‘building block’ approach.

These concerns, and recognition that, for a large part of the state, the peak in investment in supply security is now passed, have resulted in attention being refocused on how to drive greater efficiency and better outcomes for customers. The Government, as owner, has taken steps to impose significant efficiency demands on the businesses, and some businesses are taking steps to engage more

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<sup>11</sup> In some instances the form of control is a revenue cap, in others a price cap

<sup>2</sup> Although we note that a recent prize freeze was imposed on Melbourne Water, as customers were seen to have overpaid in advance for the dealination plant.

constructively with their customers. Recent changes to the WIRO have now made it possible to consider a range of alternative approaches in addition to the existing 'building block' approach, including options that may be more 'light handed' and not appear to require such detailed bottom up scrutiny of costs. We return to consideration of alternative models in Section 3.

## 2.3 Public ownership and incentives

The legislative framework encourages an incentive based approach to regulation, and indeed this has been found to have worked to powerful effect in the UK and elsewhere.

In Victoria, a key feature of the water sector is that of public ownership. The nature of public ownership creates a challenge for the design of effective efficiency incentives. Effective incentives will depend not just on the design of the regulatory control, but also, crucially on governance, as has been clear, for instance in the careful attention given to creating a framework that makes the Government an active shareholder, and enhances and focuses managerial incentives. The ownership model and governance are out of scope of our review.

## 2.4 Key objectives for this review

Against the background described above we have identified a number of specific objectives in the context of the water industry in Victoria that our Review will need to address.

- First, it is clear that the pursuit of economic efficiency, and the use of incentive based mechanisms to drive this, is a high priority of government and the regulatory system in Victoria at this time.
- Second, the legislation sets out that the objective of the Commission is 'to promote the long term interest of Victorian consumers' (s8(1) ESC Act). This objective combines both the importance of being effective in promoting good outcomes over the long term, recognising the sector's long lived assets and long term impacts, and the importance of putting customers first. There are also several other objectives that highlight attention to customer impacts. Therefore two objectives, sustainability and 'customer focus', should be key to our assessment.
- Third, investment sustainability and public ownership – the significant long term capital requirements of a water business mean that financial sustainability is generally a key function of an economic regulator. Revenue certainty maybe of somewhat less crucial significance in a public sector context, compared with that of private investors, but it is still important that

water is priced efficiently so as to give correct incentives for water use efficiency and to ensure investment is channelled to the right things. It is also important to establish an efficient framework should there be a future intention to attract private capital or to introduce competition. This suggests that it will be important to consider the short and long term effects of continuing with the present RAB based approach.

- Fourth, as elsewhere, the water sector in Victoria will benefit from innovation in responding to new challenges – while general incentives / benchmarking to drive efficiency will help, other options may also be worthy of consideration. For example, whether certain new projects may benefit from innovative financing; whether there might be competitions for research/innovation in certain areas; or what scope there may be for increasing contestability in the delivery of outcomes.
- Fifth, the differences between the businesses suggest there may be scope for differentiation of approach. It may also be appropriate to consider whether different approaches might be adopted for different elements of existing businesses. In introducing new approaches and increasing differentiation of approaches, the key will be to balance proportionality of the approach at an individual business level, simplicity of the regime overall (too many differences can sum to a complex regime), and the benefits to be derived from more targeted regulation. Benefits of reform should be seen to outweigh costs.
- Finally, we will need to cross check our proposals for consistency with the principles and objectives of the relevant government legislative framework. Each of the above bullet points reflects one or more of the key ‘matters that water businesses and the commission must have regard to’ (see Annexe 1).

## 2.5 Assessment framework

We have developed a set of criteria to assess each of the potential approaches. Our aim was to choose the best criteria to match the objectives of the sector and to be aligned with legislative requirements (see for instance Annexe 1). We have also taken account of principles of better regulation generally recognised in modern regulatory systems, such as those developed by BIS in the UK.<sup>3</sup>

As an effective assessment framework, our criteria need to be kept simple. We have devised a two stage approach. We have identified three high level core criteria that we believe largely encapsulate the overarching objectives and

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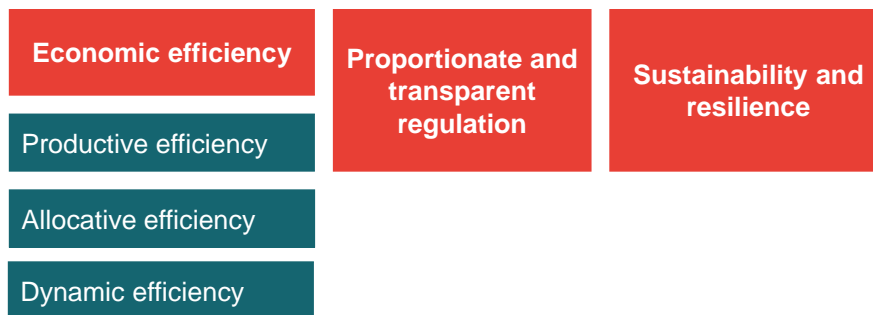
<sup>3</sup> Department for Business, Innovation and Skills, UK, Principles for Economic Regulation, April 2011



requirements on the sector. These are shown in **Figure 4**. We have enhanced this with a supplementary set of criteria, designed to capture more specific characteristics of regulation that should deliver better outcomes. These are shown in **Figure 5**. Annex 2 describes these criteria in more detail.

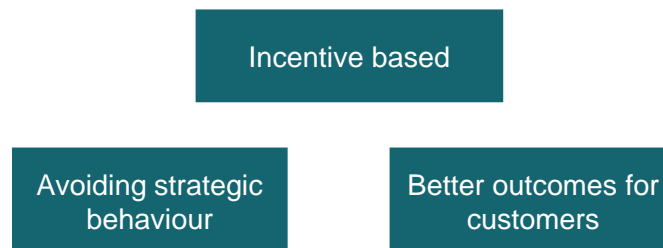
The resulting framework comprises a set of criteria that is short, facilitating clear assessment, but encompassing all drivers and considerations of key importance.

**Figure 4. Core Assessment Criteria**



Source: Frontier Economics

**Figure 5. Supplementary Assessment Criteria**



Source: Frontier Economics

## 3 Reform options

### 3.1 Introduction

This section describes the options available for the regulation of the water utilities. As requested by the terms of reference we have considered a wide range of potential options. We have identified these options based on knowledge of the regulation of infrastructure sectors across different countries, combined with a review of regulation literature.

We have divided the options into two categories, primary methods and secondary tools.

- Primary methods describe the overall methodology for how revenues and prices are set. They range from detailed ‘ex ante’ methods through to light touch monitoring by the regulator.
- Secondary tools are specific design options that can be applied to one or more of the primary methods.

The range of primary methods is well established. Innovation in regulation in recent years has focussed on the development of secondary tools. These can play an important role in incentivising efficiency and good outcomes for customers.

We have identified a short-list of potential reform options for more detailed evaluation. Each option reflects a ‘package’ of primary method and secondary tools. The short-list has been chosen to reflect the circumstances of the water sector in Victoria and initial assessment of the options against our criteria.

### 3.2 Primary methods

The range of primary regulatory methods can be classified in terms of whether they are ‘ex ante’ or ‘ex post’ methods:

- ‘ex ante’ methods involve the regulator determining revenue or prices, in advance, for a period of years; and
- ‘ex post’ methods involve the regulator reviewing prices after they have been applied.

### *'Ex ante' and 'Ex post' regulation*

Ex ante price controls are used to **prevent** a firm using its market power to charge excessive prices. These controls cap revenues, prices or earnings. They are set **at the start** of a price control period, so pre-empting monopolistic pricing and profits and providing strong protection for customers.

Ex post controls by contrast do not presume misconduct. They expect a firm to price appropriately and to be constrained by competition from excessive pricing or earning excess profits. These controls take the form of obligations regarding non-discrimination and anticompetitive behaviour and disclosure of information / monitoring. Regulatory intervention takes place if it is suspected or found that a firm has been abusing its market power. Ex post controls are therefore suitable for industries where competition provides strong constraints on behaviour.

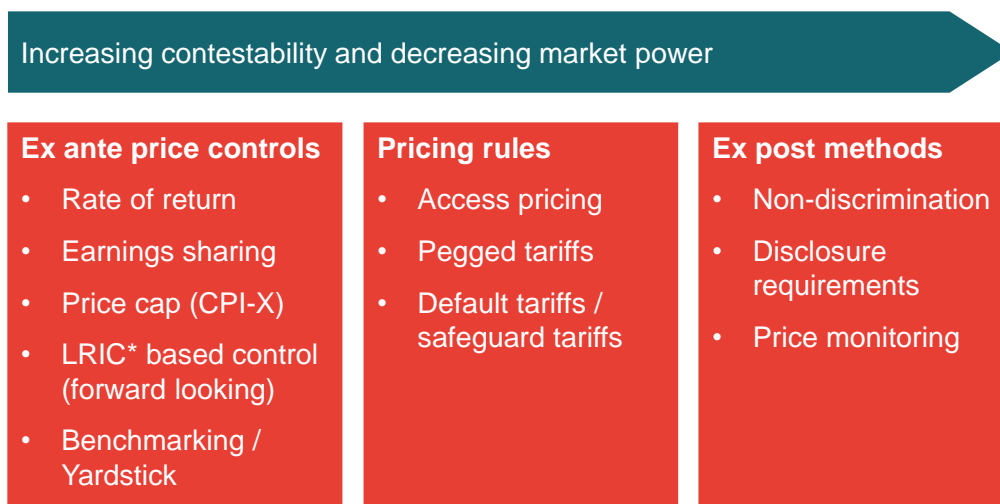
The 'ex ante' methods can be divided into price controls<sup>4</sup> and pricing rules:

- price controls generally involve detailed calculations and analysis of the appropriate price level;
- pricing rules involve a more high level approach to controlling prices.

**Figure 6** shows the range of regulatory options according to this classification. It highlights that the choice of broad category is linked to the degree of market power and contestability in the sector. A utility sector with more market power would be more suited to a method based on ex ante price controls. These provide the greatest protection to customers from a monopolist's excessive pricing or inefficiency. Sectors with less market power are more suited to ex post methods. Pricing rules tend to be appropriate to sectors in transition to market opening.

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<sup>4</sup> We use the term 'price control' and 'price cap' to include both a price cap and a revenue cap form of control

**Figure 6.** Primary methods for regulating infrastructure business

Source: Frontier Economics

\*LRIC – long run incremental cost (see Annexe 3)

Annexe 3 to this paper provides a summary description of each of these methods, including details of how and where they have been used.

### 3.2.1 Preventative economic regulation – ex ante methods

Because of the monopoly status of the water businesses in Victoria, our assessment of options is inevitably focussed on ex ante methods, with some consideration to some pricing rules. This assessment is set out in section 3.2.2 below.

These approaches divide between those that employ a 'building block' methodology (rate of return and price cap methods) and those that do not ('LRIC' and benchmarking/yardstick approaches). This is discussed further below.

#### *Rate of return and price cap methods and their use of building block methodology*

Rate of return and price cap are two important methods of ex ante regulation.

- **Rate of return.** Under rate of return regulation the regulator sets the regulated tariffs to allow the utility to recover its operating and depreciation expenses and earn a fair return on investment. Tariffs are often re-set on a frequent basis (i.e. yearly) to reflect new cost information. Regulators can disallow expenditure that they consider inefficient, but even so the method is often referred to a 'cost pass-through'.

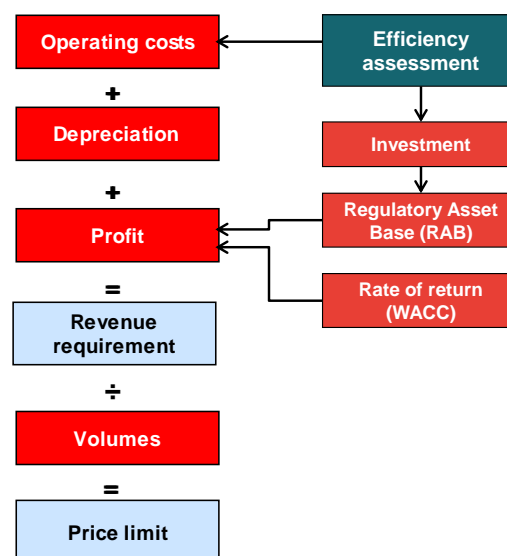
## Reform options

- **Price cap.** Under price cap regulation the regulator sets the maximum allowed tariffs for a longer period of time (e.g. for a five year period). The tariffs are set to allow recovery of efficient operating and depreciation expenses and a return on investment. However, since prices are fixed for a period the utility has an incentive to reduce costs and is also exposed to the risk of external cost shocks.

Under both rate of return and price cap methods, the regulator will employ the building block methodology to estimate the revenue requirement, from which the price/revenue cap is then derived.

**Figure 7** shows how the building block methodology works. The regulator estimates the revenue required based on the sum of operating costs, depreciation and pre-tax profits<sup>5</sup>. The level of 'profits' is estimated based on the level of the asset base multiplied by the rate of return, which is generally set at the weighted average cost of capital (WACC).<sup>6</sup> Prices are then calculated so that for a given level of demand, the revenue earned will equate with the revenue requirement.

**Figure 7.** Building block methodology for setting prices



Source: Frontier Economics

<sup>5</sup> The allowance for corporate tax on profits can be determined as a separate item.

<sup>6</sup> The allowed profit is the return that the businesses are allowed on the level of investment they have made. It represents the opportunity cost of capital – what could be earned if the capital were invested in alternative activities with similar risk. This is a real cost to investors (or the public, in a public ownership context) of investing in water. As the allowed return is a 'normal' or competitive return, the allowed profit by definition does not include any returns from the use of market power. Actual returns will vary depending on performance against cost and efficiency assumptions.

The differences between rate of return and price cap lie not in the building block methodology itself, but in how it is applied:

- Role of efficiency assessment. Price cap methods can involve a wider application of the efficiency assessment, departing from the level of actual costs. This includes formal benchmarking of costs.
- Fixed length of control. As explained above the price cap involves a longer duration between regulatory controls.

Rate of return and price cap options can be compared to other ‘ex ante’ methods where the regulator sets a limit of prices, but does not employ the building block method. These include:

- the LRIC method, where prices are set based on an assessment of forward looking costs; and
- price pegging or benchmarking, where prices are set based on yardstick (i.e. industry average) or external benchmark.

In the next section we assess the suitability of the range of primary methods for the water industry in Victoria.

### 3.2.2 Initial assessment of suitability for water sector

We have undertaken an initial assessment of the primary methods set out in Annexe 3, to identify a set of potential methods that can be evaluated in more detail. This initial screening of the methods needs to reflect the characteristics of the water utilities in Victoria.

As discussed above the relevant characteristics of the utilities are as follows:

- all of the utilities include ‘natural monopoly’ functions, i.e. water and wastewater pipe networks;
- there is a wide variation in the of size and type of water utility – from large urban (wholesale and retail) through to small regional urban and rural; and
- all of the utilities are under public ownership.

The aim of the initial screening is to rule out any primary methods that, due to the characteristics of the sector, are considered not to be a suitable option for regulation. **Table 1** summarises the results of the initial screening, showing the short-listed methods and the methods that are not suitable for more detailed evaluation.

## Reform options

**Table 1.** Initial screening of primary methods

| Method                              | Rationale  |
|-------------------------------------|--|
| <b>Short-listed methods</b>         |  |
| <b>Earnings sharing</b>             | Relatively simple method that provides stronger efficiency incentives than rate of return.   |
| <b>Price cap</b>                    | Standard and more detailed method for 'ex ante' regulation, balances efficiency incentives and long-term sustainability.   |
| <b>LRIC</b>                         | Prices reflect forward looking costs and so more closely replicates 'competitive' benchmark. Encourages investment and new entry. May be complex to implement.                         |
| <b>Benchmarked / pegged tariffs</b> | Simple method linking prices or price changes to an external benchmark e.g. prices in a comparable or competitive sector, TFP*   |
| <b>Less suitable methods</b>        |  |
| <b>Rate of return</b>               | Simple rate of return is not suitable given the objective of improving efficiency. Amended versions, such as earnings sharing, can be considered.                                      |
| <b>Access pricing</b>               | Access pricing suited to sectors with contestable segments of the value chain.   |
| <b>Default / safeguard tariffs</b>  | Default tariffs do not offer sufficient customer protection or efficiency incentives in vertically integrated natural monopolies. Could be an option in stand-alone retail businesses. |
| <b>Non-discrimination</b>           | Non-discrimination policies do not offer sufficient customer protection in vertically integrated natural monopolies.   |
| <b>Disclosure requirements</b>      | Disclosure requirements do not offer sufficient customer protection in vertically integrated natural monopolies.   |
| <b>Price monitoring</b>             | Price monitoring does not offer sufficient customer protection in vertically integrated natural monopolies.  |

Source: Frontier Economics

\*TFP – total factor productivity – a measure of productivity in the economy

### *Excluded methods*

It can be seen from this table that we have ruled out the ex post methods and most of the simple pricing rules (such as price monitoring). This is on the basis that they are not appropriate for the natural monopoly elements of the utilities and do not provide sufficient incentive to promote efficiency and protect customers.

The Exhibit below describes areas where some of these lighter-touch methods can be used successfully.

### *Default tariffs and price monitoring*

A default tariff is a price limit applied to a single specific product within a market. It would usually apply to the basic service demanded by the majority of customers. By imposing a price limit on this product the regulator is able to leave other products unregulated, on the basis that the default tariff will constrain behaviour in these other segments.

Ofwat<sup>7</sup> has introduced default tariffs for retail services to non-household customers. The market will be open to competition from 2017 and business customers will be able to switch suppliers. By requiring the incumbent to continue to offer the default tariff Ofwat is preventing companies from rebalancing tariffs to the detriment of customers that are less likely to switch.

Price monitoring may be used when considering a transition away from or towards a more stringent ex ante regime, where market power is constrained or limited. It is used in airport regulation in the UK and in Australia. The rationale in the UK is that airports face some competitive constraints associated with pressure from rival airports and other transport modes, and the countervailing power of airlines.

Theory and experience indicate that the effectiveness of price monitoring in constraining behaviour depends on clear regulatory pricing principles and a credible threat of re-regulation. In the UK the point at which an airport faces a sufficient competitive constraint, such that ex ante price caps can be removed, has been controversial. Not all airports are seen to warrant light handed treatment.

Default tariffs and price monitoring are therefore suitable in areas which are in transition to a more competitive position. They are less suitable to a natural monopoly situation.

Of the ex ante methods we have ruled out simple rate of return regulation on the basis that it does not provide sufficient incentives for efficiency and therefore in the longer-term will result in higher costs for customers.

### *Short-listed methods*

Our initial screening results in the short listing of two ‘building block’ methods and two ‘lighter touch’ methods. The effectiveness of these short-listed methods for the water sector in Victoria will depend on how they are implemented. This highlights the importance of the ‘secondary regulatory tools’ that can be used alongside the different primary methods. These are considered in the next section, which concludes by proposing a number of ‘reform packages’

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<sup>7</sup> Ofwat is the independent economic regulator for water and sewerage providers in England and Wales

## Reform options



comprising a combination of primary methods and secondary tools. These packages are then evaluated in Section 4.

### 3.3 Secondary 'tools'

Secondary tools are more detailed regulatory options that can be applied alongside the primary methods. Many of these tools have been developed over the past two decades to refine and optimise economic regulation without changing the fundamental approach. Various combinations of the tools can be applied together (see exhibit on Ofgem's<sup>8</sup> RIIO below).

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<sup>8</sup> Ofgem is the independent economic regulator for the electricity and gas markets in Great Britain.

### Ofgem's RIIO

Between 2008 and 2010 Ofgem undertook a comprehensive review of how it regulates energy networks. It focussed on whether, 20 years after privatisation, the RPI-X model remained fit for purpose.

The outcome was the RIIO model. RIIO stands for – *Revenue* set with *Incentives* for delivering *Innovation* and *Outputs*. While the RIIO model retained many of the core elements of price cap regulation, for example the concept of the RAB, there were material changes to ways that regulatory outputs and incentives were applied and to the methodology for the allowed return and financeability.

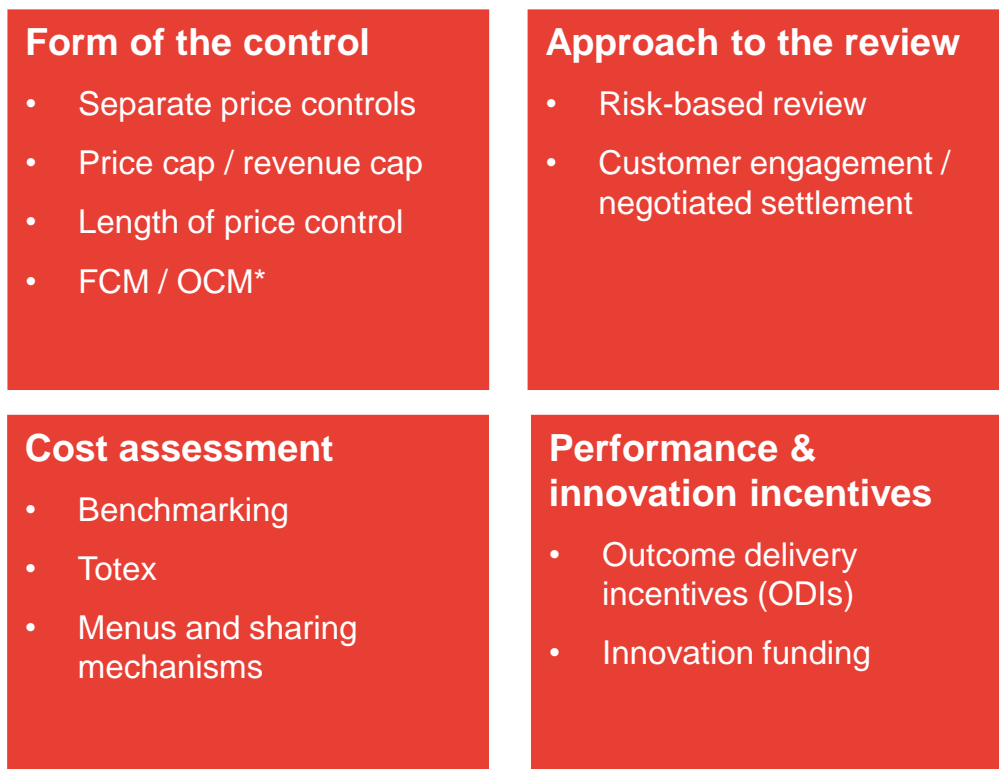
The main elements of the RIIO approach are:

- **Focus on outcomes / outputs.** Its main change was the central focus on outputs, not inputs. The principle is simple and based on the fact that customers care primarily about the end result.
- **Flexibility on how outputs are delivered.** The RIIO model ensures that networks rather than the regulator will decide how outputs are delivered.
- **Longer price controls.** To encourage longer-term planning the price control period was increased from a five year period to an eight year period.
- **Well justified business plans.** A core element of RIIO is the focus on companies developing their own long-term plans to deliver the outputs that their customers value.
- **Innovation.** Ofgem introduced specific funding for R&D projects – a ‘network innovation competition’, for which companies had to bid and a ‘lose it or use it’ network innovation allowance for all companies.

**Figure 8** sets out the eleven secondary tools, divided into four categories:

- those that define the form of the control;
- tools that are focussed on the approach to the review or how it is conducted;
- tools that relate to the assessment of costs, and finally
- tools aimed at service performance and innovation.

### Reform options

**Figure 8.** Secondary tools in regulation

Source: Frontier Economics

\*FCM/OCM – these are methods of depreciation and asset valuation, viz ‘financial capital maintenance’ and ‘operating capital maintenance’ – see Annexe 4.

A description of each of these secondary tools is provided in Annexe 4.

The mix of tools applied to each sector generally depends on how the sector has responded to economic regulation over time, as many of the tools have been implemented to address specific issues. For example, the concept of totex (total expenditure) was introduced to remove a bias towards capital expenditure. The rationale for outcome delivery incentives is to stimulate innovation and ensure that companies are more customer focussed.

In the next section we consider which of these secondary tools are likely to be relevant to the regulation of the water sector in Victoria. We also highlight where a tool may be particularly relevant to a specific activity or sub-set of companies.

We have not discussed further below the ‘form of control’ options: price cap/revenue cap and FCM/OCM. These options are not new, and have previously been assessed. This is not to say they could not be reviewed, or would not be appropriate alongside but to do so would require a more detailed technical analysis which is out of our scope.

### 3.3.1 Separate price controls

Separate price controls can be applied to the different services (water, wastewater) or the different functions within the services (bulk water, retail, etc). The benefit of the tool is that it creates greater transparency of the individual services and therefore promotes improved efficiency and in some cases restructuring of functions. It also supports greater cost-reflectivity of pricing. Customers would benefit from improved value for money and better services due to the improved business focus. The downside is that it involves greater regulatory burden and accounting separation within the businesses. This is the case even if for instance, a 'lighter touch' 'yardstick' approach to pricing were adopted in one of the segments (see Exhibit Ofwat –separate retail controls). This is because of the need for separate accounting and separate business planning for different segments within an integrated business.

#### *Ofwat - separate retail controls*

At the 2014 price control Ofwat introduced separate controls for retail and wholesale activities. The retail function is 'asset-light' and just includes billing, meter reading and customer handling. Ofwat has imposed a simple yardstick price control on retail activities, based on an 'average cost to serve'.

Separate price controls for the pure retail function of the metropolitan water utilities could be an option in Victoria (i.e. to have separate controls for the retail activities and the distribution activities of the 3 present 'retailers'). Due to the regulatory burden and data requirements, careful consideration will need to be given to the proportionality of this approach for the regional urban utilities.

### 3.3.2 Length of price control

The longer the length of the price control before readjustment, the longer the period over which actual costs and prices/revenues will be de-linked. This results in stronger incentives for efficiency and may also encourage innovation. However, the longer the period, the more price signals will diverge from underlying costs, leading to allocative inefficiency. If there is also uncertainty over the scale or nature of future investment needs, then this may favour a shorter price control. Regulatory precedent has tended to converge around 5 years being a reasonable compromise, with a range of 3 to 7 across sectors.

Currently the approach in Victoria is a 5 year review.

### 3.3.3 Cost Benchmarking, totex and menus

Cost benchmarking is the use of statistical techniques (ranging from simple unit cost comparisons to detailed econometric methods) to establish efficient cost levels for each utility. The objective is to establish an efficient cost level for each utility while reflecting the cost drivers that are outside of management control.

## Reform options

Benchmarking techniques can be complex and data intensive but can be effective at incentivising efficient behaviour and ensuring that customers do not pay for inefficient costs.

UK regulators have recently focussed cost assessment on total expenditure (totex) rather than operating and capital expenditure separately. This has reflected a concern that the separate assessment resulted in distorted decisions between opex and capex.

The ESC currently undertakes cost benchmarking when it periodically conducts productivity assessments of the Victorian water sector. These assessments usually occur between price reviews. The ESC currently uses the results of its benchmarking to inform the efficiency assumptions it adopts during price reviews. A cost benchmarking approach may involve incorporating some of this analysis into the price review itself.

### *Menu regulation in UK networks*

Ofwat and Ofgem have introduced cost menus since 2009. Under menu regulation the regulator publishes a 'baseline' level of expenditure for the period combined with the 'menu'. The utility can then choose the level of expenditure for the period from the menu, incurring penalties if it selects a figure higher than then baseline and rewards for a lower figure.

The menu is intended to be designed in such a way so that the utility will be better off if it chooses its best estimate of future costs. In this way it overcomes the information asymmetry that utilities have better information on costs than the regulator.

In theory menu regulation offers a lighter touch form of regulation, although it still requires the regulator to determine a baseline expenditure figure for each company. The effectiveness of the menus in the UK in addressing the information asymmetry is currently unclear and is likely to be reviewed in the next few years.

A greater focus on cost benchmarking methods is a realistic option for the Victoria water sector. With 19 utilities there is scope of cost comparisons across the sector, while recognising that the operating environments do vary significantly and would need to be captured in the benchmarking. Implementation of benchmarking is discussed further in Section 5.

Menu regulation is more difficult to introduce into the regulatory method in Victoria, given the 'propose and respond' model, where the business submits a business plan for review by the regulator. It could be introduced as an additional stage where the ESC would produce a cost menu at the 'respond' stage and the business would have a subsequent opportunity to select from the menu. Given

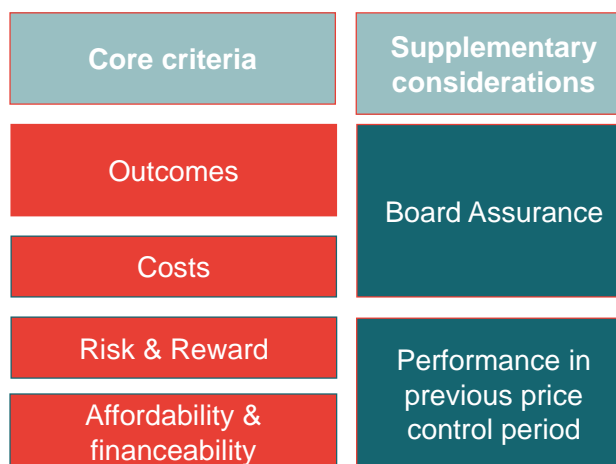
the current uncertainty over the effectiveness of menu regulation in the UK we are cautious in regard to the potential benefits of menu regulation in Victoria.

### 3.3.4 Risk based review

Under a risk based review the utilities submit business plans for the price control period. The regulator undertakes an initial review of the plans and if the plan is rated as a ‘well justified’ plan, according to pre-set criteria, then the regulator will subject the plan to less scrutiny than a standard business plan. The tool has been used by Ofgem (known as the fast-track process) and Ofwat (known as the enhanced process). The criteria for achieving the fast-track status would reflect not just the quality of the plan but also cost and service performance of the utility. **Figure 9** describes the criteria used by Ofwat in its risk based review at the last price review, PR14.

Experience suggests that the risk based review process has resulted in higher quality business plans and less strategic behaviour by the utilities. Companies that have been awarded ‘fast-track’ status have derived financial, reputational and process benefits. In principle for an effective mechanism, it is important that the assessment framework and potential rewards are clear upfront.

**Figure 9.** Ofwat's criteria for Risk Based Review at PR14



Source: Frontier Economics

This tool would seem an appropriate and proportionate tool for the regulator in Victoria. Although the value of financial rewards may be less significant than for a privately owned company, the potential process and reputational benefits – for both the companies and the regulator – can still be important. The benefit to customers from the process is that the higher quality of plans generated should, as one of the criteria, better reflect customers’ interests.

## Reform options

### 3.3.5 Customer engagement

Under this tool, engagement with customers becomes a formal part of the price control process. This could include the following components:

- Research on customer priorities, valuations of different service elements and trade-offs and then incorporating this evidence into the business plan proposals.
- Engagement with Customer Groups (CG) on the elements of the business plan. This can involve a separate submission by the Group to the regulator on the quality of the plan.
- ‘Collaborative community agreement’, where some or all of the business plan is agreed between the customers and the utility. This can be subject to previous guidance from the regulator and then final approval by the regulator.

#### *Scottish Water – ‘Customer Forum’ process*

Scottish Water reached an agreement with its Customer Forum in relation to the plan for the Strategic Review of Charges 2015-21. The Forum was established by the regulator (WICS) with members jointly appointed by the utility and WICS. The Forum played a key role in commissioning customer research and then agreed customer priorities with the company. The WICS published guidance notes on the technical elements of the price control (financing assumptions and efficiency benchmarks). A mechanism was agreed to share outperformance with customers. Scottish Water and the Forum then agreed a plan that was consistent with the guidance and reflected customer priorities. The WICS reviewed the plan and accepted it in its determination.

Key factors for success were considered to be the composition of the Forum (made up of respected community individuals), the ‘tramlines’ for performance that were set (which enabled less pressure on getting right the financial assumptions and more focus on constructive dialogue on outcomes), and the clear process and milestones set out upfront by the regulator (which gave credibility to the process).

The approach may lead to a smoother process, greater recognition of customer priorities, and less intervention by the regulator. However, to work, there is likely to need to be a strong regulatory role, both as a backstop if the parties cannot agree (to establish a clear process and roles) and to provide the necessary assumptions on financing and efficiency. As such there may be little conflict with this approach and an approach that saw greater benchmarking of efficiency between businesses.

This approach seems worth pursuing in all businesses in Victoria, and may have particularly strong resonance in closely knit communities. Indeed we understand that some businesses in Victoria have already made considerable strides in this direction.

Under the current approach businesses maintain customer forums and use their water plans (which contain their price and service proposals) as a basis for engaging with and consulting customers. We also understand that Victorian businesses have also established Community Engagement Panels and Stakeholder Feedback Panels to engage the community on specific infrastructure projects or specific areas of service provision.

Other examples of recent community engagement in Australia more broadly include the establishment of the Consumer Challenge Panel by the Australian Energy Regulator (AER). This panel is intended to advise the regulator on whether a business's proposal is justified in terms of the services to be delivered to customers; whether those services are acceptable to, and valued by, customers; and whether the proposal is in the long term interests of consumers. The panel also advises the AER on the effectiveness of businesses' engagement with their customers and how this engagement has informed, and been reflected in, the development of their proposals.

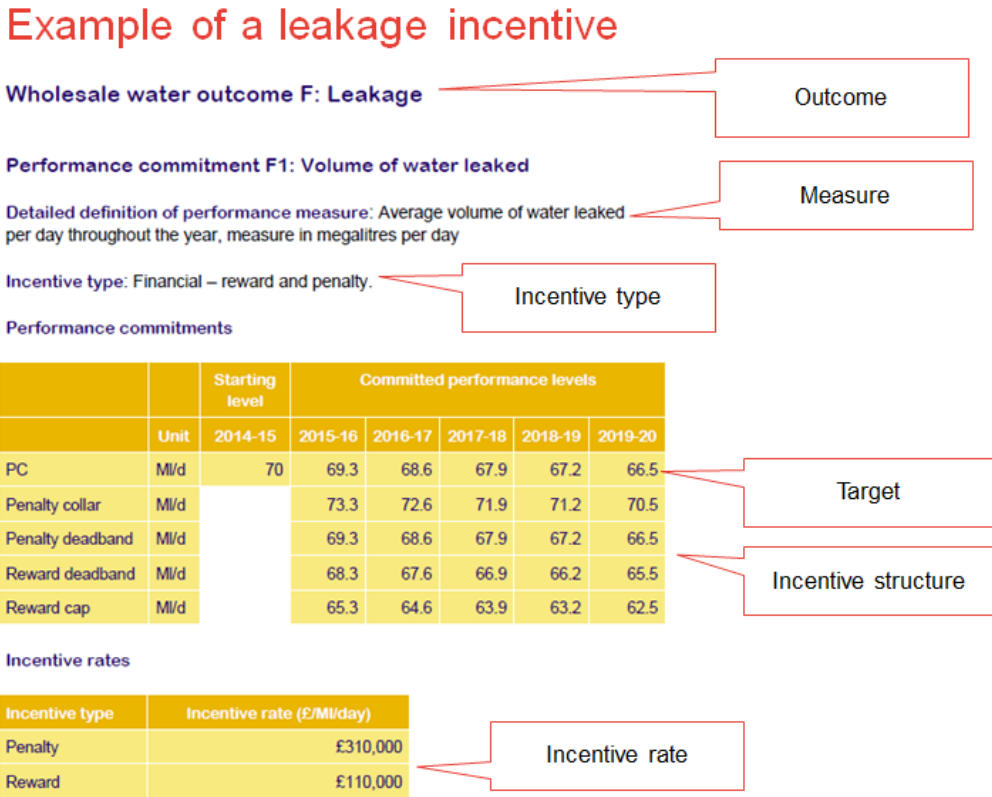
### 3.3.6 Outcome incentives

Outcome Delivery Incentives (ODIs) are a set of measures and incentives relating to the service performance of the utility. The utility, using customer engagement, identifies the priority areas for customers. From these a set of measures, targets and incentives are proposed by the utility to ensure that it faces the right incentives to deliver the service levels that customers want. The incentives generally consist of financial rewards for out-performance and financial penalties for under-performance. There are also some purely reputational incentives. When Ofwat applied this approach in PR14 it provided guidance on the development of ODIs. It also reviewed the proposals to ensure that targets were challenging and incentives were sufficient. It adjusted the utilities' proposals in a number of cases. **Figure 10** below provides a hypothetical illustration of the sorts of performance targets and ODIs developed by water companies in England and Wales for PR14.

## Reform options



**Figure 10.** Performance targets and ODIs – an example



Source: Frontier Economics

ODIs may be a potential option for the businesses in Victoria. It is of note that the ODIs developed by the English water companies included both reputational and financial incentives. Both financial and reputational incentives may have a role to play, coupled with appropriate managerial incentives and strong governance, in a public sector context, as in the Victoria water sector. In a context of greater customer engagement, the potential for sharing outperformance with customers in an agreed way, may also generate some useful incentives.

We note that the current regulatory approach includes a Guaranteed Service Level Scheme (GSL). Under the scheme businesses are obliged to make payments to customers if service levels are not maintained. These payments are not intended to represent compensation to customers; they are intended to provide a measureable metric for the businesses to assess their performance against. There may be scope to strengthen the GSL approach by adopting aspects of the ODIs.

### 3.3.7 Innovation funding

An example is Ofgem's two-pronged approach introduced in RIIO. It introduced the £500m Low Carbon Network Fund, to encourage innovation to bring both value for money and low carbon and environmental benefits for the consumer. It comprised a two tier approach, a 'first tier' set an innovation allowance (for all) and a 'second tier' involved an innovation competition. These are now superseded by a similarly structured Network Incentive Allowance (NIA) and the Network Innovation Competition (NIC). The NIA is an allowance within the price control that can be used by companies for small scale Research, Development, and Demonstration Projects on a use it or lose it basis. The NIC is designed to deliver flagship projects that have the potential to deliver low carbon and/or environmental benefits to customers. Ofgem determines the successful projects according to a set of transparent criteria. The NIC is also funded by customers.

A problem with innovation funding is that there is a risk of funding 'pet projects' or of the regulator 'picking winners'. Ofgem's approach has generated considerable R&D but it is too early for evaluation. Ofwat has remained sceptical about the value of such approaches.

This may be an option for consideration by the ESC, perhaps especially in the context of any greater customer engagement role for water businesses, in order to secure legitimacy for the additional funding of risky ventures through customers' bills. The pros and cons of a localised versus a more regional or national approach to innovation projects may need consideration.

## 3.4 Packages for further evaluation

The final step in the identification of reform options is to establish a set of reform 'packages' – combinations of primary methods and secondary tools, to be evaluated further in the next section. Based on the initial assessment of the options we have identified the five packages set out in **Figure 11**.

In essence we have enhanced the shortlisted primary methods with selected secondary tools. In doing so we have created two 'price cap' options, A and B, with B reflecting a more comprehensive and sophisticated approach.

- A longer price control is an option that would enhance the earnings sharing, LRIC and benchmarked/pegged tariffs – bringing them in line with the incentive period for price caps.
- Separate price controls may be an option within a sophisticated price cap approach, perhaps best suited to larger integrated utilities, and once other secondary tools have been established – it is therefore part of our price cap option B.

### Reform options

- Cost benchmarking, totex and menus – more extensive cost benchmarking could be a useful adaptation of a price cap or a LRIC approach to enhance efficiency incentives. Given the lack of clear evidence in the UK water experience that totex or menu approaches bring significant benefits, we are not convinced that these approaches would be tools to prioritise at this time, although they may be options for the medium term.
- Risk based review – this is a specific tool for adapting a price cap approach – it would rank as a second order priority in any enhancement of the price cap as options to enhance efficiency and outcome incentives may be more beneficial in the first instance.
- Customer engagement & outcome delivery incentives – these approaches have relevance and potential application to all the primary methods. In price cap Option A a formal, but more advisory/consultative role is envisaged. In price cap Option B the role may be extended into a formal role in decision making and a community led agreement.
- Innovation funding – this is an approach that could be applied to all packages.

**Figure 11.** Reform option packages

| Primary methods                   | Secondary tools   |
|-----------------------------------|---|
| 1<br>Earnings sharing             | Outcome incentives    Longer price control<br>Customer engagement   |
| 2<br>Price cap – Option A         | Outcome incentives    Customer engagement<br>Cost benchmarking  |
| 3<br>Price cap – Option B         | Outcome incentives    Customer engagement<br>Cost benchmarking    Separate retail controls<br>Risk based review |
| 4<br>LRIC                         | Cost benchmarking    Longer price control<br>Customer engagement  |
| 5<br>Benchmarked / pegged tariffs | Outcome incentives    Longer price control<br>Customer engagement   |

Source: Frontier Economics






## 4 Evaluation of options against criteria

### 4.1 Introduction

In this section we evaluate the reform option packages against the criteria set out in Section 2.5 (and in more detail in Annexe 2). The evaluation reflects the assessment of the project team combined with input from our workshop with experts from across different regulated industries.

Against each criterion we have graded each option on a scale from 1 to 5, using the structure set out in **Figure 12**.

**Figure 12.** Grading against criteria

| Score   | Grade   |
|---|---|
|    | Full – meets the criteria effectively           |
|   | Adequate – meets the criteria to a large degree |
|  | Moderate – meets the criteria in part           |
|  | Little – scores poorly against criteria         |
|  | None – does not meet criteria                   |

Source: Frontier Economics

The objective of this evaluation is not to identify or recommend a single option. Instead the aim is to identify a small number of candidate options and to highlight the pros and cons associated with each one. This set of options then merits further assessment and consideration. It should also be noted that, since the options involve a package of regulatory tools, that there may be combinations of the packages that are worth further consideration.

In undertaking the assessment we aim to identify where a specific option would apply to a segment of the industry. The grading is then undertaken with reference to that segment.

### 4.2 Summary of evaluation

**Figure 13** below summarises our assessment of the five reform options against the criteria. This high level assessment indicates that the two price cap options and the long-run incremental cost (LRIC) option rate relatively well. The

## Evaluation of options against criteria

earnings sharing option and the benchmarked prices option score poorly against one or more of the criteria.

**Figure 13.** Evaluation of reform options

| Primary method                              | Earnings sharing                                 | Price cap (A)                  | Price cap (B)  | LRIC  | Benchmarked prices    |
|---|--|--------------------------------|--|---|-----------------------|
| <b>Secondary tools</b>                      | ODIs, engagement, longer control                 | ODIs, engagement, benchmarking | ODIs, engagement, benchmarking, separate retail, risk based review | Benchmarking, longer control, separate controls | ODIs, engagement      |
| <b>Economic efficiency</b>                  |  |                                |  |   |                       |
| <b>Proportionality &amp; transparency</b>   |  |                                |  |   |                       |
| <b>Long-term sustainability</b>             |  |                                |  |   |                       |
| <b>Supplementary criteria</b>               |  |                                |  |   |                       |
| <b>Application to Victoria water sector</b> | Simple approach more suited to smaller utilities | Suitable for all utilities     | Suitable for all – separate retail for metropolitan only           | Best suited to Melbourne Water                  | Can be applied to all |

Source: Frontier Economics

The assessment is explained in more detail in the following section, looking at all of the options by each criterion.

## 4.3 Detailed assessment

### 4.3.1 Economic efficiency

The economic efficiency criterion covers the ability of the regulatory method to promote productive, allocative and dynamic efficiency. The regulatory methods achieve this through a combination of cost assessment based on efficient costs and incentives for outperformance.

The main findings from the assessment are as follows.

- The earnings sharing method scores poorly against this criterion. It does not include an assessment of efficient costs and although it provides incentives to outperform there is a material risk that these incentives will be diluted by the public ownership structure of the utilities. This method may be more suitable for private or shareholder-owned utilities.

- Price cap methods with robust benchmarking tools perform well against this criterion. We have rated the Option B higher as it assumes separate retail controls where appropriate, which should drive additional efficiency incentives and improvements in cost allocation.
- Regulation based on forward looking LRIC models should ensure prices based on proper economic costs and provide strong incentives for efficiency. A potential disadvantage with a LRIC approach is that prices may not be consistent with cost recovery if demand or investment projections turn out to be inaccurate (although this issue is also faced in a competitive market environment).
- Prices benchmarked on an external comparator (for example, price changes based on total factor productivity (TFP) movements) can also have strong incentive properties. However, there is a higher risk that the price level departs over time from the economic cost level, with a detrimental impact on allocative efficiency. In addition, it does not take account of different operating environments or investment needs.

#### 4.3.2 Proportionality and transparency

The options will score well against this criterion if they are proportionate in relation to the characteristics of the sector and also if they are relatively simple and transparent to apply. This will depend on the specifics of design and implementation and is therefore a factor over which there is some control.

All of the options score reasonably against this criterion, mainly due to the initial screening of options to produce the short-list. The main differences between the options are:

- The earnings sharing and benchmarked price options are simple and transparent.
- The price cap and LRIC methods are proportionate options although they are relatively complex to implement. The price cap option B involves more detail and processes and therefore is marked down against this criterion.

#### 4.3.3 Long-term sustainability

This criterion aims to ensure that the sector is resilient and flexible and is able to finance its long-term investment. The main findings from the assessment are as follows.

- The price benchmarking options score poorly in this area as the method can result in prices departing from the efficient cost recovery levels. This can be

### Evaluation of options against criteria

detrimental to delivering reliable services to customers and financing investment.

- The LRIC model is based on forward looking costs and therefore should ensure that services can be funded in the light of changing circumstances.
- Price cap methods can be effective at ensuring sustainable delivery and financing. We have assessed Option B as stronger in this regard as it includes more explicit customer engagement and a community led agreement. If the utility's investment plans are based on customer priorities then regulation is more likely to produce a sustainable and resilient industry.

Negotiated settlements are a more formal form of customer engagement where the business plan is agreed between the utility and its customers, subject to guidance and oversight by the regulator. In the longer term this option may be most suitable for Melbourne Water, where the three retail utilities can play an important role in representing the interests of customers.

#### 4.3.4 Supplementary criteria

The supplementary criteria are:

- the regulatory method should be incentive based;
- it should result in better outcomes for customers; and
- it should avoid strategic behaviour.

The main findings from the assessment are as follows.

- The earnings sharing and price benchmarking options score relatively poorly in this area. This is principally due to the concern that they would not result in better outcomes for customers.
- Price cap option A and LRIC pricing perform well to the extent that they are incentive based and should result in improved customer outcomes. The weakness with both options is the risk that the utility engages in strategic behaviour, in particular to influence the cost assumptions in the modelling.
- Price cap option B rates the highest in this area. It includes a risk based review, which provides incentives on the utility to submit a well justified business plan. The experience from the UK suggests that this can be effective at mitigating strategic behaviour in the preparation of business plans.

#### 4.3.5 Overall findings

Our overall findings are as follows.

## Evaluation of options against criteria

- The price cap options are appropriate models for the regulation of the water sector in Victoria. The options evaluated here include additional regulatory tools that reflect the innovations in utility regulation over the past 10-15 years. These models provide an appropriate balance of incentives for efficiency, financial and operational sustainability and proportionality.
- A basic price cap option (Option A) would include a robust approach to cost benchmarking, a formal process of customer engagement and the application of incentives for service performance based on customer priorities. This package would ensure greater transparency of costs and targeting of efficiencies, which would drive greater value for money for the customer. Involving customers more formally in the process of business planning and developing reputational and financial incentives for service performance could help drive innovation and better outcomes for customers.
- The additional tools included in Option B also rate well and could further enhance value for money and better outcomes for customers, and merit further consideration.
  - A risk based review incentivises good planning and results in a lower regulatory burden for top-performing utilities. It also underpins good customer engagement and drives planning towards better outcomes for customers.
  - An extension of customer engagement into a formal role may be envisaged in two ways:
    - a form of engagement similar to that undertaken in Scotland through the Customer Forum – which may be suitable for all businesses, or
    - a form of engagement more akin to airport style negotiations between Melbourne Water and the three retail utilities.

In both cases there would remain a strong role for the regulator either in determining key financial and efficiency assumptions, or in making the final determination. This would fit with the ‘propose/respond’ nature of the Victorian regulatory model.
  - Separate price controls for individual functions can improve cost transparency and efficiency incentives. This may be suitable for the pure retail functions of the metropolitan utilities and possibly also for the regional urban utilities, subject to considerations of proportionality.
- A potential concern with some of these options and tools is their complexity and the data burden on companies. While this is an important issue and it is

## Evaluation of options against criteria



right to continually challenge the regulatory burden, this concern can be overstated. Under all regulatory options the core issue for getting a handle on efficiency is to obtain a better understanding of costs. The data that the regulator collects should mirror the data that the utility itself needs to operate in an efficient and sustainable manner and so should not be seen as representing a 'high burden' in terms of regulation. Section 5 below considers implementation issues, and we discuss the information needs further. We see it as an important task in progressing reform that an early priority is to assess how the information needs of the price cap reforms could be minimised, in particular, to design them to be fit for purpose for the smaller utilities, and in the context of a risk based review approach.

- Simpler models such as earnings sharing or benchmarked prices, may appear attractive for smaller businesses, but raise concerns for government owned network monopolies, on efficiency grounds. Earnings sharing may offer only weak incentives for efficiency, while benchmarked prices may not ensure that the business could recover an efficient level of costs over time. In reality, prices are likely to need to be reset periodically, as prices diverge from true costs, as the approach would not reflect changing sector specific circumstances or investment needs. Therefore it is unlikely in practice to differ much from a benchmarked price cap approach. In the context of the current primary objective to drive greater efficiency, price caps would offer a better solution.

## 5 Implementation issues

This section provides an overview of the types of implementation issues that the ESC would have to consider when implementing regulatory reform. Lessons learned from regulatory reform in the UK suggest that regulators need to consider these issues carefully to ensure that the reform is a success.

### 5.1 Information requirements

Changes in the methodology for economic regulation almost always require new sets of information or data to inform the new approaches. For example, efficiency benchmarking or quality of service comparisons require detailed data on different types of costs and performance indicators based on consistent definitions. It is therefore important for the regulator to consider up front:

- the type of data and information required and how much clarity on the definition is required to ensure that data is comparable;
- the frequency of data submissions balancing the need for information with administrative burden on the companies;
- how quality assurance processes can be put in place to ensure that the data is accurate.

In the past, there has been a tendency for regulators to request large datasets to enable a degree of regulatory flexibility. However, this can require considerable resources from companies so ideally data requests should only include data that is used or has a reasonable prospect of being used.

At the same time, the additional administrative burden associated with regulatory data returns is minimised if it covers the core financial and performance data that the businesses themselves use. The regulator can play an important role in defining consistent measures that help the businesses to monitor and compare their performance.

The greater administrative burden for the businesses often arises from the complex modelling that is undertaken to assess efficiency. Ensuring these methods are proportionate is an important task and is discussed in the next section.

The exhibit below describes, at a high level, the types of data that could form part of the annual data return.

### Information requirements

The core data covers financial, operating and performance measures.

**Financial information** should be aligned with the accounting returns. The data should cover operating and capital expenditure (maintenance and new). The data should be split by service (retail, wholesale water and wholesale sewerage) and by type (wages, materials, power, etc.). Further division by sub-service, i.e. raw water, bulk treated water, distribution, could be useful but may not be proportionate for the smaller businesses.

**Operating information** covers the factors that can drive cost differences. The most important are scale variables (water volumes, connections, population served, length of main or sewer), average pumping head, measures of treatment complexity, number of works.

**Performance measures** cover the main outcomes for customers and correspond to the company's Key Performance Indicators (KPIs). These would include: compliance with drinking water standards, pollution incidents, and supply interruptions.

For example, in the UK up until 2012, Ofwat requested the so-called "June Returns" a comprehensive dataset of contextual data (e.g. population growth), cost data (with a high level of disaggregation) and performance data (again with substantial disaggregation, e.g. capturing interruptions greater than 3, 6, 12 and 24 hours). In a move towards lighter touch regulation, Ofwat discontinued this dataset and now requires a much "leaner" data submission.

It will be important to prioritise the assessment of data and modelling requirements deriving from the proposed options. This will be to ensure the proposals can be tailored to be fit for purpose for the different businesses.

## 5.2 Methods for benchmarking

Benchmarking methods are an important part of the assessment of costs for regulatory price setting. In implementing benchmarking methods the following considerations are important:

- Accuracy of method – does it provide a reasonable view of efficient costs and does it capture the main drivers of costs and how they vary between businesses?
- Data and administrative burden – collecting the data imposes a resource cost on companies, as does engaging with statistical benchmarking models. Are these costs reasonable?

### Implementation issues

- Simplicity and transparency – there is merit in applying methods that are simple to understand by businesses and wider stakeholders.

Given the small sample size of businesses in Victoria and the different structures and operating environments of the businesses it is unlikely to be realistic to apply statistical benchmarking techniques to determine efficient costs. The more realistic option is to develop simpler models and unit cost comparisons that can be used to assess the scope for efficiency improvement in proposed business plans. This would build on the existing approach employed by the ESC. It would also minimise the burden on the smaller businesses in terms of engaging with and responding to the benchmarking analysis.

For the integrated urban businesses it may be possible to use simple regressions to assess efficiency for water and sewerage operating expenditure. For example, these could control for scale, treatment complexity and pumping head. The alternative would be a unit cost comparison that adjusted for the main cost drivers. Given the small sample size, the differences in adjusted unit costs would need to be interpreted carefully. An approach which assumes that a proportion (say 50%) of the estimated gap can be closed over a 5 year period provides a balance between incentives for efficiency and safeguarding services.

For the three Melbourne retail businesses, unit cost comparisons may also be appropriate. The businesses could identify the case for adjustments for legitimate cost differences, though these may be less material than for the regional urban businesses. The regulator could also explore external cost benchmarks (e.g. from outside of Victoria) to provide an additional basis for efficiency challenge.

For Melbourne Water there is no direct comparator within the sector. There are a number of options that could be explored:

- requiring Melbourne Water to report costs for specific zones and benchmark on that basis;
- if sub-service cost data is collected from the urban businesses then the bulk water costs can be compared; and / or
- explore the use of comparators outside of Victoria.

A further option would be to build engineering cost models of the bulk water supply. This is generally used under a LRIC approach where the LRIC cost model is based on engineering expert values for efficient costs.

Melbourne Water also faces fixed contractual costs for desalination investments. In UK regulation it is standard practice to exclude these costs from the cost assessment and to pass them on to customers. At the same time, regulators have aimed to ensure that the company is incentivised to pursue efficiencies in these costs where these can be achieved through re-negotiation.

## Implementation issues

Finally, capital costs across the businesses can be benchmarked using a unit cost submission. Businesses are asked to submit cost information for a set of specific investments (i.e. replacing a pump or re-lining a km of 100mm main). Comparisons of these unit costs can be used to estimate relative efficiency and set targets. This additional data request would not need to be undertaken annually but once during the price control.

### 5.3 Methods for customer engagement

Introducing a greater focus on customers brings many benefits to the regulatory process but it is important for the regulator to clearly specify the type of engagement it expects. The UK Regulators Network has identified four principles for effective customer engagement:

- **Tailored** – providing clear and realistic timeframes for inputs, avoiding lengthy and convoluted consultation documents full of technical jargon, using a range of approaches and managing the volume of engagement sought.
- **Inclusive** – including all consumer cohorts (e.g. different age groups, geographical locations, etc.), not focusing on the “average” customer and aimed at building capacity for customer groups to engage.
- **Transparent** – communicating the objectives of the process, being clear on how inputs will be used and reporting customer inputs (both positive and negative) in a timely way.
- **Developing** – establishing indicators that measure success of engagement, review engagement strategies, consult on effectiveness of engagement and benchmark against other sectors.

We consider these to be useful principles that should be reflected in any form of customer engagement. In addition, the lesson learned from the UK regulated industries is that the regulator needs to provide sufficient clarity on the following.

- **The type of engagement** – this could include a customer panel, focus groups, surveys, willingness-to-pay studies etc. The regulator needs to provide guidance on the type of engagement it expects and the methodologies that it considers appropriate. For example, there is much debate about the usefulness of willingness-to-pay studies so some guidance is required on best practice approaches if this is one method of engagement.
- **How customer views will be used** – this can range from direct inputs without further scrutiny to the regulator maintaining the right to make decisions that are not in line with the evidence. For example, in the UK

water sector customers were not supportive of rewards for businesses for outperforming quality standards but the regulator requested businesses to include these anyway. The regulator justified this by stating that customers had not been consulted on the issue appropriately and businesses should have explained the role of rewards in more detail. Such decisions by regulators can undermine trust by customers if it is not absolutely clear at the start of the process how customer views will be used.

- **The scope of customer engagement** – this can range from a small number of specific topics (e.g. where service quality is variable) to the full package of prices, investment and service. The regulator needs to specify which topics it expects businesses to consult customers on. For example, customers are unlikely to provide strong views on the cost of capital but may be more inclined to provide useful views on the target levels of performance.

## 5.4 Processes and timeline

Any form of regulatory change requires businesses, the regulator and customers to adapt. In our experience, it is therefore important to set out clearly the timeline and processes at the start together with the regulator's methodology and expectations for business plans. The water regulator in Scotland (WICS) provides a good example of process management as it clearly indicated the sequencing and timelines for decisions by different parties at the start of the process. In contrast, the most recent price control in England and Wales was characterised by less clarity on the process and timelines. This is partly due to the regulator having to maintain a flexible approach but nevertheless greater clarity would have helped businesses and customers to manage their inputs.

In addition, it is important to allow sufficient time for the regulator to develop the methodology, consult with the industry and finalise the methodology. In the UK, Ofwat and Ofgem generally allow two years for this process from initial ideas to final methodology.

## 6 Conclusions and recommendations

Our review of the options for reform of the regulatory approach for the water industry in Victoria has reached a number of recommendations on the way forward.

We are particularly mindful of the current priority to drive efficiency in the utilities, in an effort to contain future bill increases and ensure better outcomes for customers that are sustainable in the long term. We are also mindful of the need to ensure a regulatory system that is fit for purpose, neither too complex nor over simplified, and that may take account of the different size, operating environments and activities of the 19 different businesses that comprise the sector.

We conclude that some form of ‘ex ante’, or preventative, economic regulation remains the most appropriate option for the sector at this time, given the monopoly nature of the businesses. Methods based on monitoring and enforcement (‘ex post’ methods) would provide little protection for customers from inefficiency or overpricing.

Simple methods of price control may be based on rate of return or pegging of prices to external benchmarks but these perform poorly in terms of present objectives. Rate of return, even enhanced with ‘earnings sharing’ is likely to offer weak incentives for efficiency, and would therefore fail to meet a key objective of reform, with few benefits for customers. Price benchmarks, while potentially good at incentivising efficiency, may fail to ensure the businesses can recover their efficient costs over time, and would therefore fail on sustainability grounds and allocative efficiency. While more extensive customer engagement could enhance these approaches in terms of better prioritising the services customers want, it would not resolve their fundamental drawbacks.

We consider a primary objective in the short to medium term, to meet the efficiency imperative, needs to be a better understanding of costs and the use of benchmarking within a framework that is also effective in ensuring cost recovery and creating incentives for efficiency. This means approaches that are based on price caps, and use the building block methodology. There are many lessons to learn from regulation elsewhere where those approaches have been adapted to introduce a greater role for and responsiveness to customers, to counter destructive regulatory ‘gaming’, and to enhance incentives for efficiency and better outcomes.

We recommend that these enhanced price cap approaches are pursued in Victoria. We consider that these incentive based approaches can work and are worth pursuing even in a public ownership context. This has been demonstrated to good effect in the water industry in Scotland. Attention may need to be given in parallel to improving governance and managerial incentives in the sector, in

order to extract the maximum benefit from incentives, but these matters are outside the scope of this report.

The challenge in implementation will be to ensure that in design, information requirements and process, the approach can be ‘fit for purpose’, recognising the diversity in the sector. Having said this, the burden of regulation can be overstated: the regulatory information requirements that are necessary to ensure recovery of efficient costs, and effective benchmarks, should be similar to those that it might reasonably be expected that a business would want to collect to drive its performance internally. The regulator should simply be tapping into and adding a spur to this beneficial focus.

Our assessment in this report leads us to the following recommendations.

Recommendations 1 to 5 describe our recommendations for the basic form of regulation in Victoria. Recommendations 6 to 7 establish particular recommendations in respect of specific businesses. Recommendations 8 to 9 concern aspects of implementation. Recommendation 10 addresses innovation specifically.

**Recommendation 1:** the ESC should consider developing an enhanced price cap approach (based on the ‘building block’ methodology) to regulation. This will best deliver the objectives of greater efficiency and long term sustainability, while it can be tailored to ensure proportionality.

**Recommendation 2:** the ESC should explore the scope for it to develop more enhanced cost transparency and benchmarking. This will enable the identification of challenging and transparent targets on which public sector managers can focus and be held to account formally or by reputation. Benchmarking and efficiency setting is a task that needs to be done independently of government and the businesses, and is typically a role for an economic regulator. This will help to drive efficiency.

**Recommendation 3:** Further development of and formalisation of a clear framework for enhancing local customer engagement should be considered. This should clarify the role of any customer ‘forum’ in the price setting framework, which may be on a spectrum from an advisory/consultative role in business planning, a remit for determining outcomes to a formal role in agreeing the business plan. Models of engagement in Scotland, England and Wales are worth further consideration. In the Melbourne area, a formal process to agree the wholesale price, between Melbourne Water and the three separate retail businesses, could be a consideration, perhaps as a longer term objective. These approaches could help to secure better outcomes for customers, and local acceptability and legitimacy of water businesses’ activities.

**Recommendation 4:** The ESC and the water businesses should consider, in consultation with customers, what additional outcome incentives may be

## Conclusions and recommendations



appropriate, paying attention to reputational as well as financial incentives. This together with Recommendation 3, will enhance outcomes for customers.

**Recommendation 5:** Consideration should be given to the development of a transparent framework for the sharing of outperformance between customers and the shareholder. The Scottish Water model provides a useful example to consider. This could contribute to enhancing incentives to outperform on cost efficiency and service performance.

In terms of the range of businesses, some possible permutations on the general form of price cap regulation can be identified.

**Recommendation 6:** Separate price caps could be considered for different parts of the value chain in the metropolitan area.

**Recommendation 6a:** For Melbourne Water, consideration could be given to whether, in the longer term, LRIC based pricing in the resource or bulk water part of the value chain could provide better long term incentives than a price cap.

**Recommendation 6b:** For the 3 dedicated retailers, and possibly for the 1 integrated retail/wholesale business in the metropolitan area, consideration could be given to the merits of and scope for developing a separate price cap for the purely retail (customer facing) activities (billing, meter reading, collection etc.). This could drive clearer cost and service performance focus in those businesses.

**Recommendation 7:** For the smaller regional urban businesses, careful attention in particular should be made to a proportionate implementation of the adapted price cap approach. While there remains a strong efficiency driver, benchmarking between the businesses (and possible external comparators) could help secure significant benefits to customers in terms of value for money. Therefore appropriate levels of cost information and benchmarking should be considered. The aim should be to provide the 'lighter' touch that smaller businesses might warrant, while retaining the powerful benefits of cost recovery and efficiency. Over time, once solid benchmarking has been established, and improved efficiency performance sustained, it may be possible to consider lighter touch approaches. In addition, separate retail caps for the regional urban businesses could also be an option, again subject to consideration of proportionality.

**Recommendation 8:** Consideration should be given to the scope for developing a 'risk based review' approach to the price setting process. The reputational incentives are likely to be of some relevance in a public sector context. This would help to drive better business planning and outcomes for customers; it would also help to move price setting towards a lighter touch approach for high performing businesses. A business that put forward a plan that showed strong customer engagement and sector leading performance on quality measures and cost efficiency would be subject to minimal regulatory scrutiny.

**Recommendation 9:** The regulator should aim to secure a package of reforms that works well together to deliver the objectives.

**Recommendation 10:** Consideration could be given to the introduction of specific innovation funding. To avoid wasteful expenditure this may be more appropriate once any new incentives have bedded in and the industry has established a track record in productivity improvement. It may also be considered in terms of potential rewards in a ‘risk based review’ framework.

## Annexe 1: Matters that water businesses and the Commission must have regard to

| Economic efficiency and viability matters  | Industry/business specific matters   | Customer matters   |
|--|--|--|
| <ul style="list-style-type: none"> <li>• promotion of efficient use of prescribed services by customers [cl 8(b)(i), WIRO]</li> <li>• promotion of efficiency in regulated entities as well as efficiency in, and the financial viability of, the regulated water industry [cl 8(b)(ii), WIRO]</li> <li>• provision to regulated entities of incentives to pursue efficiency improvements [cl 8(b)(iii), WIRO]</li> <li>• efficiency in the industry and incentives for long term investment [s 8A(1)(a), ESC Act]</li> <li>• efficient costs of producing or supplying regulated goods or services and of complying with relevant legislation and relevant health, safety, environmental and social legislation applying to the regulated industry [s 33(3)(b), ESC Act]</li> <li>• financial viability of the industry [s 8A(b), ESC Act]</li> </ul> | <ul style="list-style-type: none"> <li>• particular circumstances of the regulated industry and the prescribed goods and services for which the determination is being made [s 33(3)(a), ESC Act]</li> <li>• return on assets in the regulated industry [s 33(3)(c), ESC Act]</li> <li>• ensure that regulatory decision making and regulatory processes have regard to any differences between the operating environments of regulated entities [s 4C(b), WIA]</li> </ul> | <ul style="list-style-type: none"> <li>• in performing its functions and exercising its powers, the objective of the Commission is to promote the long term interests of Victorian consumers [s 8(1), ESC Act] without derogating from that objective. The Commission must in seeking to achieve the objective have regard to the price, quality and reliability of essential services [s 8(2), ESC Act]</li> <li>• enable customers or potential customers of the regulated entity to easily understand the prices charged by the regulated entity for prescribed services or the manner in which such prices are calculated, determined or otherwise regulated [cl 11(d)(i), WIRO]</li> <li>• provide signals about the efficient costs of providing prescribed services to customers (either collectively or to an individual customer or class of customers) while avoiding price shocks where possible [cl 11(d)(ii), WIRO]</li> <li>• take into account the interests of customers of the regulated entity, including low income and vulnerable customers [cl 11(d)(iii), WIRO]</li> </ul> |

Annexe 1: Matters that water businesses and the Commission must have regard to

| Benchmarking   | Health, safety and social obligations   | Other   |
|--|---|---|
| <ul style="list-style-type: none"> <li>any relevant interstate and international benchmarks for prices, costs and return on assets in comparable industries [s 33(3)(d), ESC Act]</li> </ul> | <ul style="list-style-type: none"> <li>the relevant health, safety, environmental and social legislation applying to the industry [s 8A(1)(d), ESC Act]</li> <li>to ensure that regulatory decision making has regard to the health, safety, environmental sustainability (including water conservation) and social obligations of regulated entities [s 4C(c), WIA Act]</li> </ul> | <ul style="list-style-type: none"> <li>the degree of, and scope for, competition within the industry, including countervailing market power and information asymmetries [s 8A(1)(c), ESC Act ]</li> <li>consistency in regulation between States and on a national basis [s 8A(1)(f), ESC Act]</li> <li>the benefits and costs of regulation (including externalities and the gains from competition and efficiency) for— <ul style="list-style-type: none"> <li>(i) consumers and users of products or services (including low income and vulnerable consumers)</li> <li>(ii) regulated entities [s 8A(1)(e), ESC Act]</li> </ul> </li> <li>wherever possible, to ensure that the costs of regulation do not exceed the benefits [s 4C(a), WIA Act]</li> </ul> |

Source: ESC <http://www.esc.vic.gov.au/getattachment/b2e1820f-8db1-40d5-801f-ddf717c2315d/Consultation-Paper-Review-of-water-pricing-approac.pdf>

## Annexe 1: Matters that water businesses and the Commission must have regard to

## Annexe 2: Assessment framework criteria

### Core criteria

#### *Economic efficiency:*

The pursuit of economic efficiency is at the heart of economic regulation. Efficiency is an important overarching concept because it represents the maximisation of value to society from economic activity, by maximising the output obtained from input resources in an improving trend over time. In a water sector context this means the most efficient use of capital, labour and other inputs to deliver the greatest benefits in terms of the range and quality of services delivered for customers and the environment. There are three distinctly different categorisations of efficiency:

- Productive efficiency means delivering water and sewerage services for the least cost – it means achieving the most output for the least input cost overall, i.e. productivity. This will be driven by effective incentives to reduce costs.
- Allocative efficiency means ensuring the sector delivers the right balance of services and outcomes to meet customers' and society's values and preferences, and that in doing so, inputs are allocated to different activities to reflect their relative value. For instance, in water, allocative efficiency is achieved when investment is made in improving supply security, or reducing interruptions or reducing flood risk in a combination that reflects society's preferences. Water businesses may attempt to understand the value placed on different outcomes by customers, by undertaking detailed customer research. Equally, water prices should reflect costs so that customers have incentives to use water wisely, recognising its value.
- Dynamic efficiency means pushing out the boundaries of what can be achieved with given resources, through innovation, as well as taking account of changing preferences and scarcities over time. It is about introducing new ways of doing things, to reduce costs and deliver new services. Dynamic efficiency can be incentivised by remunerating innovators for taking risk where the return is uncertain. Dynamic efficiency may be encouraged in the water sector, for instance through the implementation of the new technology of smart meters, and intelligent networks, that, in identifying the costs and demands on the system in real time, can drive more efficient use and investment, as well as reducing meter reading and billing costs.

### *Proportionate and Transparent*

Regulation is designed to deliver benefits to customers and society in terms of greater efficiency, but it is not costless. The benefits should outweigh the cost and the approach should be ‘fit for purpose’. It should be neither excessively heavy handed nor over simplified. For example, a resource and information intensive approach is more justified where an organisation wields significant market power and serves a large customer base. Here a ‘simple’ approach could leave customers insufficiently protected from inefficiency and excessive pricing.

Transparency is a desirable feature in regulation with several benefits. Transparency about costs reduces the information asymmetry between the regulator and the regulated businesses and underpins efficiency. Transparency overall, in costs, business plans and regulatory process enhances accountability – both of the businesses and the regulator, again driving more efficient outcomes. Further, clear and well set out regulatory processes will drive an efficient regulatory system.

Transparency is key to driving confidence in the system.

### *Sustainability and resilience*

First, sustainability and resilience mean that solutions are future-proof. Water and sewerage businesses generally have a long-term focus as assets are generally long lived, so decisions have lasting impacts on the future environment and customers’ welfare. Regulatory reforms therefore need to ensure that the businesses are incentivised to make decisions that take into account long-term impacts. This includes enabling the businesses to be equipped to manage and/or respond to the unpredictability of droughts and floods for example – so that services to customers can be sustained and impacts on the environment managed and contained.

Regulation should also facilitate the flexibility that is required to meet new challenges and deal with uncertainties. Regimes will generally need mechanisms to allow for changes in circumstances during a price control period. So as not to disturb long term investment incentives, or undermine efficiency incentives, these need to be tightly and clearly defined.

Second, financial sustainability means that capital can be provided over time to fund the sector’s significant and ongoing capital investment needs. In general this means that investors should perceive that they can secure a fair return for their capital commensurate with the risk, in order that they should wish to keep investing. In the context of public sector ownership, this has some direct relevance where the businesses undertake external borrowing. But it is appropriate more fundamentally to value the capital provided at its opportunity cost, i.e. what it should expect to earn if the business was a private water company. In this way, customers face the true cost of what they are consuming,

## **Annexe 2: Assessment framework criteria**

and funds for investment are allocated efficiently. It is therefore important that the regulated price incorporates an economic return on the substantial capital invested in the sector. In the public sector, this dividend can then be used to reinvest, return to customers or be applied to alternative investment.

## Supplementary criteria

### *Incentive based*

The most effective regulatory approach will create incentives for desirable behaviour by the business e.g. cost efficiency, service improvement etc. Incentives that are based on comparative performance, at industry level or better still, external to the sector will provide the strongest incentives, especially when there is transparent reporting to enhance accountability.

We explore the scope for making more of these tools. We also consider that in a public sector context, such tools can make for clearer targets to which managerial incentives can be aligned.

### *Better outcomes for customers*

A key area in regulatory developments in the UK and elsewhere, where there has been a desire to combat a concern about increasingly burdensome and intrusive regulation, has been to attempt to shift the regulatory debate from ‘what the regulator wants’ to ‘what customers want’ – involving customers more in determining the outcomes they wish to see delivered.

At the same time, a focus on higher level outcomes, rather than detailed assessment and monitoring of outputs and inputs by the businesses, has been encouraged, in order to give more scope to managements to innovate and identify the best ways of delivering the outcome. In focussing on outcomes, attention is more directly given to identifying and delivering what outcomes customers and society value. An outcomes based approach will generally involve a much greater need for customer engagement in business planning and performance monitoring. We consider this direction to be entirely appropriate for the water sector in Victoria.

### *Avoiding strategic behaviour*

In many regulatory contexts the regulated business will put forward a business plan that the regulator will scrutinise and then make a determination. The process is largely effective in providing a transparent forum for regulatory challenge, encouraging regulators to set out their approach clearly and businesses to provide robust information. However, it is prone to ‘gaming’ on both sides and much effort has gone into designing mechanisms to neutralise this behaviour. The issue with gaming is that customers are at risk of overpaying (through the padding of

business plans) or getting insufficient investment (through regulators' scepticism leading to cuts to reasonable demands).

In the context of Victoria, and public sector organisations, incentives to 'game' are unlikely to be absent, but they may take a different form from those arising under private ownership. As this tendency can undermine benefits from regulation, this criterion ensures that we consider potential mitigating approaches. We will also consider whether the greater involvement of customers in the decision making process will help reduce these incentives.



## Annexe 3: Primary methods of regulation

Table 2 below provides a description of the primary methods, how they are used to control prices and highlights where they have been applied in other countries and sectors.

Table 2. Description of primary methods

| Method                          | Description  |
|---------------------------------|--|
| <b>Rate of return</b>           | <p>Rate of return regulatory regimes, also known as 'cost-plus' regimes, allow the regulated firm to recover operating and maintenance costs and to earn a specified rate of return on the asset base.</p> <p>Rate of return regulation has been applied to utility networks in many jurisdictions in the USA and too many public sector network firms in Europe.</p>  |
| <b>Earnings sharing regimes</b> | <p>Earnings sharing regimes are an extension of rate of return regulation. These approaches allow the operator to keep only a portion of the earnings it receives in excess of (and in some cases below) a given level. The remainder must go back to customers, through future price reductions, refunds, or increased investment in facilities or services.</p> <p>Regulators in the US have used earningsfocussed sharing controls. For example earnings sharing mechanisms were used to regulate intra-state telecommunications revenues.</p>  |
| <b>Building block</b>           | <p>Building block (or price cap) regulation has emerged as one of the most common regulatory frameworks over the past 30 years.</p> <p>Under the building block approach the regulator calculates the revenue requirement based on an assessment of, the services and quantities to be provided, and of the individual cost components. The individual cost components are: <b>operating costs</b> (opex) – often separated into opex associated with existing services and opex associated with new services; <b>depreciation</b> charge – this is the regulator's view on the capital consumption in the period; and, <b>return on capital</b> – this is the regulator's estimate of the return that investors require, multiplied by the Regulatory Asset Base (RAB).</p> |
| <b>LRIC</b>                     | <p>LRIC models attempt to estimate the costs that an efficient operator would incur to supply a forecast of demand for the service. There are numerous methods for estimating LRIC but they revolve around modelling the operating and capital costs associated with a hypothetical network/operator supplying an incremental increase in demand for the service. A price is then calculated that recovers these costs.</p> <p>LRIC based approaches to determining regulated charges are used mainly in the telecoms and postal sectors.</p>  |
| <b>Benchmarking / yardstick</b> | <p>Benchmark tariffs are based on the prices set in other markets or by other suppliers. Therefore, it requires related markets or other firms providing similar products or services to exist. If used with an efficiency objective in mind the regulator must be sure that the benchmark markets/suppliers are sufficiently related to the regulated services/firm and that the benchmark tariffs are efficient.</p> <p>Benchmark regulation is used by Ofgem in the UK to regulate the prices paid for Independent Gas Transporters (IGT) services. IGTs operate</p>  |

|                                    |   |
|------------------------------------|---|
|                                    | <p>local gas transportation networks, connected to the gas distribution network. Ofgem ensures that customers connected to the IGT network pay a tariff close to that paid by the customers connected to the gas distribution network.</p>  |
| <b>Access pricing</b>              | <p>This method involves using an <i>ex ante</i> control for determining the price paid by rivals for the incumbent's wholesale products or for its network distribution services (the 'network access price'). Such a control would prevent an incumbent limiting rivals' access to these products or services by charging an excessive price. Therefore it would facilitate the development of efficient competition. Access pricing methods could be applied using bottom-up approaches (building block or LRIC) or top-down approaches (retail-minus).</p>   |
| <b>Pegged tariffs</b>              | <p>A regulator can use pegged tariff pricing rules to control pricing in a non-competitive segment of the market. It does this by expressly pegging the price charged in a non-competitive segment to a related price in the competitive segment using an explicit legislative rule. In other words, a firm can only raise or lower its price in the non-competitive segment if it does so in the competitive segment.</p> <p>These pegged tariffs also work to control the level of price differentiation in the market. Therefore, regulatory intervention of this form may also be associated with a public policy motive of encouraging equality — in terms of the price and service offering provided to customers buying similar products.</p>  |
| <b>Default / safeguard tariffs</b> | <p>A default tariff is a price limit applied to a single specific product or service within a market. It would usually apply to the basic service demanded by the majority of customers. By imposing a price limit on this product the regulator is able to leave other products unregulated, on the basis that the default tariff will constrain exploitative behaviour in these other segments.</p> <p>Safeguard tariffs are very similar. The key difference is that default tariffs are more likely to be cost based even though they may apply to only a limited set of the available products and services.</p>   |
| <b>Non-discrimination</b>          | <p>Non-discrimination obligations (NDOs) do not regulate the level of a utility's charges. Instead they are concerned with the extent to which operators can discriminate across customers in terms of the prices or services offered. They state that the firm must not discriminate: between the services they provide and the prices they charge; or in the way in which they determine prices between customers, or groups of customers.</p> <p>Obligations of this form have been used in the UK postal and rail sector. NDOs can also be used where a firm has market power but where a segment of its customer base has significant countervailing power. In this circumstance these customers may be able to negotiate efficient pricing outcomes. While the firm may still be able to generate monopoly profits from consumers with less ability to negotiate, the regulator can use the deals negotiated by the 'powerful' customers to control the offering made to the 'powerless' customers.</p> |
| <b>Disclosure requirements</b>     | <p>Disclosure requirements can be used to: make consumers more aware of how to exercise choice, improve the information on price and quality, and / or make them more able to raise issues around anti-competitive conduct.</p> <p>These approaches are typically employed by competition regulators in markets where there are consumer side market failures — for example</p>   |

### Annexe 3: Primary methods of regulation

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problems of incomplete, asymmetric information or behavioural biases — to prevent consumers from making uninformed decisions. For example, in the UK Ofgem began publishing fact-sheets with tariff comparisons for all electricity and gas suppliers.

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**Price monitoring** A price monitoring regime is a method often used in combination with other regulatory approaches as part of a compliance strategy. However, it can also be used in its own right, particularly when considering a transition away from or towards a more stringent *ex ante* regime.

Price monitoring can increase efficiency where there is no substantial market power, or where this power is constrained.

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Source: Frontier Economics

## Annexe 4: Secondary tools

Table 3 below sets out a summary description of 11 possible secondary tools.

Table 3. Description of secondary tools

| Method  | Description   |
|---|---|
| <b>Separate price controls for different segments of the value chain or sectors</b> | <p>Separate price controls can be applied for different segments of the value chain (e.g. wholesale or retail) or different sectors (e.g. water and sewerage). This tool first requires accounting separation, i.e. a clear definition of each of the segments of the value chain that will have a separate price control. This often raises questions around common costs so it is important for the definitions to be as clear as possible.</p> <p>The regulator can then apply different price controls to different segments, depending on the type of separation this could involve different methodologies. For example, in the most recent price control in the water sector in the UK, the regulator applied four price controls: wholesale water, wholesale wastewater, household retail, non-household retail.</p> <p>The benefit of separate price controls is that they create greater transparency on the efficiency of different segments or sectors as the benchmarking is separated. They can also lead to re-structuring of the ownership arrangements as they may encourage horizontal mergers in specific segments. However, regulatory burden is increased as a vertically and horizontally integrated company needs to develop a coherent business plan that covers all price controls instead of one integrated plan.</p> |
| <b>Price cap/ revenue control</b>   | <p>Under price caps, the regulated company generally bears the risk of demand volumes being higher or lower than projected in the business plan. This provides strong incentives to increase volume and is therefore used in sectors where it is important for companies to have this incentive such as airports. However, the strength of the volume risk also depends on the extent to which total costs vary with volume. The higher the proportion of fixed costs the greater the sensitivity of profitability to changes in volume under a price cap.</p> <p>Therefore in sectors where costs are largely fixed and volumes movements are driven by external factors (such as the weather) it is common to apply a revenue cap. This reduces the risk exposure of the utility.</p>   |
| <b>Length of price control</b>  | <p>The length of the price control is another secondary tool that has an impact on the strength of the incentives faced by regulated companies and the regulatory burden. Price controls generally vary in length from 3 to 8 years. Shorter price controls are applied in the telecoms sector as technological progress is fast. Longer price controls are used in relatively stable sectors such as electricity distribution. Depending on the type of cost efficiency incentive and sharing rates, longer price controls provide greater incentives to reduce costs as companies can usually keep a proportion of the cost saving for the duration of the price control. This can be counter-acted by introducing</p>  |

## Annexe 4: Secondary tools

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rolling incentive mechanisms that apply for a fixed number of years regardless of the price control length.

The frequency of price controls also affects regulatory risk as more frequent changes in the methodology could lead to less stability. Shorter price controls are also associated with greater regulatory burden as companies are constantly engaging in the price control process.

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**Depreciation – FCM/OCM**

Different methods for depreciation can be considered which include financial capital maintenance (FCM) and operating capital maintenance (OCM). Under OCM, the depreciation charge for the year is calculated on the basis of the new asset valuations. This ensures that valuation of the asset base reflects the current economic value of the assets. Under FCM, financial capital of the company is maintained in current price terms. The depreciation of the asset base matches the depreciation allowance in revenue and there is no scope for re-valuation on existing assets in the asset base, except to allow for general inflation.

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**Risk based review**

Risk based review is the concept of creating a process where the regulator does not necessarily check all components of the business plans in detail but instead first comes to a view of the overall quality of the plan based on a high level summary and then decides on which areas to review in more detail. This is often combined with a two-step process where the regulator rewards the plans with the best quality by assigning a label such as “fast-tracked” or “enhanced” and these plans are then subject to less scrutiny and/or financial rewards. The rationale for the risk based review is to encourage companies to view the business plans to “own” the business plans. In the water sector in England and Wales this was combined with a specific role for customer groups to sign off parts of the plan which provided useful information to the regulator on the quality of plans.

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**Totex**

The concept of totex arose in response to separate treatment of capex and opex in price controls in the energy and water sectors in the UK that led to a perceived capex bias. Capex was assessed on a case by case basis and entered the RAB so capex generated a rate of return whereas opex was benchmarked using econometric techniques. So greater opex would make companies look less efficient whereas greater capex could provide a potential for higher returns. To ensure that companies use the lowest net present costs solutions, regulators have introduced the concept of totex. This implies that total expenditure is regulated without any regard for capex and opex so they are perfectly substitutable from a regulatory point of view.

To determine the level of depreciation, companies can choose a ratio of costs that enters the RAB, leading to so-called “fast money” and “slow money”, i.e. costs that are recovered straight away and therefore similar to opex and costs that are recovered as part of the RAB over time. This ratio (sometimes called pay-as-you-go ratio) provides an additional lever to influence bill levels, for example, if macroeconomic circumstances call for bill reductions.

If a totex approach is adopted, it is important that any benchmarking is undertaken on this basis. This raises a number of challenges as capital investment is often lumpy so ideally the regulator has access to a dataset that covers a sufficiently long period of time.

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| <b>Menu regulation and sharing mechanisms</b> | <p>One of the concerns that regulators have had in the last few decades is the asymmetric information problem that occurs when companies have more information on their actual costs than the regulator. As a result, companies may have an incentive to over-forecast or over-report their future costs and the regulator may not have sufficient information to detect this. This could result in companies receiving higher opex limits than their actual expected opex, and making excess profits as a consequence.</p> <p>In response to this issue, menu regulation has been developed initially by Laffont and Tirole (1993) from a low efficiency-high efficiency model to a broader sliding scale of efficiencies as a means to encourage accurate forecasting and reporting by regulated companies. It is considered a much cheaper and more practical method than a full scale audit which still may not actually be a much more effective method given the difficulty of benchmarking unit costs. In theory this method allows the regulator to use a company's own expertise and knowledge in assessing its own costs and forecasted costs.</p> <p>Overall, menu regulation is intended to balance (i) the incentive to over-report forecasted costs (in order to increase the difference between allowed costs and actual costs and therefore the potential scope for outperformance) with incentives to reveal a lower ex ante forecast with rewards of a higher incentive rate and additional income.</p> <p>While the sharing rate is contingent on the menu choice, the alternative is to agree a proportion of out- or under-performance that is shared immediately with customers. While this lowers the incentives for outperformance, it ensures that customers benefit from outperformance immediately. This approach can be combined with rolling incentive mechanisms or different lengths of price control to calibrate the incentives in the most appropriate way.</p> |
| <b>Benchmarking</b>                           | <p>Benchmarking includes any form of comparing costs between companies and ranges from simple unit cost comparisons to sophisticated econometric approaches such as stochastic frontier analysis or data envelope analysis. The basic idea is to determine cost efficiency targets for each company based on a defined upper level of performance (this can be based on the most efficient company or an upper percentile). Most methods try to control for factors that influence costs that cannot be influenced by management decision such as the geography, topography, etc. Regulators in the UK generally use panel data (across companies and over time) to develop econometric benchmarking models but these can sometimes be supplemented with simple unit cost comparisons.</p>  |
| <b>Outcome Delivery Incentives</b>            | <p>Outcome delivery incentives are penalties and rewards that apply to customer outcomes. This means that companies are flexible in terms of how they achieve these outcomes as opposed to incentives on inputs or outputs. For example, a penalty and reward system on the km of mains laid would be an output incentive so the company would have to undertake a specific activity in the most efficient way. In contrast, an outcome delivery incentive may be a penalty and reward system on the number of minutes of supply interruptions each year. In this case the company can choose how it wants to achieve the target.</p> <p>In the UK water sector, the targets, incentive rates and the incentive</p>   |

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structure are heavily based on customer valuations so that rewards and penalties reflect willingness to pay. Targets are based on cost benefit analysis and the incentive structure is determined by a range of factors such as the controllability of the performance measure and the level of certainty.

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**Customer engagement/  
negotiation**

Customer engagement is a tool that can be used to encourage companies to be more customer-focussed and agree aspects of the business plans with customers instead of the regulator. The rationale is that that customers know best what they want and the regulator is second-guessing customer views. This approach has been used in airports where customers are represented by the airlines and the regulator has allowed the airport and airlines to agree specific elements of the price control. This approach can be used in different ways, with intervention by the regulator or with a hands-off regulator and the scope of engagement can be tailored to the sector. The most extreme form is to let the company agree a settlement with customers (for example, in the water sector in Scotland). In this case the regulator still has a role in accepting or modifying the agreement. Issues around information asymmetry often arise as customers are not as well informed as the company as may also not have sufficient resources to assess aspects such as cost efficiency or the appropriate cost of capital.

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Source: Frontier Economics

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