
# An alternative model for Victorian water businesses

Final Report

June 2015

Synergies Economic Consulting Pty Ltd
www.synergies.com.au

Synergies
ECONOMIC CONSULTING

# Contents

# 1 Introduction

Over the past 11 years the Essential Services Commission ('ESC') has conducted three water price reviews, completing the most recent in 2013. Each of these reviews has adopted a building block method, which was prescribed in a Water Industry Regulatory Order (the WIRO) and given legal effect under the *Water Industry Act 1994*.

In 2014, the Victorian government reviewed and revised the WIRO, removing the prescriptive approach to water pricing. This allows the ESC significant discretion to decide on the manner, approach and methodology (the pricing approach) used to deliver efficient pricing and service outcomes for Victorian water and sewerage customers.

This paper presents an alternative, lighter handed approach to regulating Victoria's 19 water businesses.[1] The search for an alternative approach is being driven by the desire to ensure businesses reflect customer preferences in the products and services they provide, and to promote the right incentives for water businesses to operate efficiently and innovatively whilst minimising the regulatory burden.

This paper is organised as follows:

- Section 2 examines ESC's regulatory objectives associated with any future regulatory approach.
- Section 3 examines the limitations under the current approach and presents insights to the experiences of other jurisdictions that have adopted a lighter handed regulation.
- Section 4 sets out a proposed, alternative model that could be applied to the Victorian water industry.
- Section 5 contains a discussion of the benefits and risks of the proposed approach
- Section 6 concludes the paper with a summary of the main steps to implement the new approach, including any issues needing further exploration.

ESC has commissioned this paper as a public discussion primer and to get exposure around different approaches to regulation that are potentially superior to the existing model. The ESC is aiming to apply the preferred method in the next price review, which is scheduled for 2018.

[1] In this paper, references to 'water businesses' and 'water services' is inclusive of wastewater unless otherwise stated.

# 2 Objectives

The ESC's overarching objective is to devise a regulatory approach that produces the best outcomes for Victorian water and sewerage customers. In practice, this involves the delivery of services that are valued by customers in terms of quality and reliability, at the lowest sustainable price. This is consistent with the ESC's statutory obligation under the *Essential Services Commission Act 2001* ('*ESC Act*'), which requires the ESC to "promote the long term interests of Victorian consumers."[2] Other objectives are as follows:

- the ESC has a statutory obligation to ensure that the expected costs of the proposed regulation do not exceed the expected benefits.[3] Thus, the regulatory regime should minimise the regulatory burden on water businesses, wherever possible, while not compromising outcomes for customers. It should also aim to maximise the efficiency with which ESC allocates its regulatory effort across businesses, focussing on those businesses that need greater pricing oversight;
- the *ESC Act* also requires ESC to regulate the industry in a way that provides strong incentives for efficiency and that promotes long term financial viability of the water industry;[4] and
- the regulatory regime should provide incentives for water businesses to engage meaningfully with customers so as to understand their preferences and expectations. The aim is to encourage businesses to select service levels, based on evaluations of customer preferences, and tailor services and/or price offerings to meet customer preferences). This mimics what a firm would do in a competitive environment.

In addition to the above, the selected approach needs to be transparent, predictable and easily understood by stakeholders.

[2] Section 8(1) *ESC Act*

[3] Sections 8A(e) and 33(4) *ESC Act*

[4] Sections 8A(1)(a) and 8A(1)(b) *ESC Act*

# 3 A case for change

The case for changing the current approach rests on the apparent costs (both direct and indirect) of the current model, which are discussed below.

## 3.1 Limitations of the current regulatory approach

The building blocks approach is the most common technique used by economic regulators in Australia to regulate the water sector and, indeed, most other regulated utility infrastructure businesses. It involves establishing cost benchmarks for each regulated entity by 'building up' from each of the individual cost elements, which are:

- a rate of return on the value of the assets used to provide the service;
- return of the value of those assets (depreciation);
- operating costs; and
- tax.

Together, these 'blocks' sum to the business's overall revenue requirement for the forthcoming regulatory period. Prices are set to generate this revenue over the period.

Victorian water businesses have been required to submit to the ESC their proposed revenue requirements built up from each building block as well as their preferred price path. The ESC has then assessed the degree to which the proposed operating and capital expenditures meet the ESC's efficiency criteria. The ESC used a variety of assessment tools and techniques to determine whether the proposed revenues reflected efficient costs.

The building blocks approach can result in a disproportionate amount of attention on the costs and efficiencies of inputs used to produce services, with less specific emphasis placed on the value of outcomes delivered to customers or potential value improvements to customers through more innovative service offerings.[5]

Another limitation of the current approach is the relatively high information burden placed on businesses. While the information should be prepared regardless in the normal course of good business management, the current building blocks model does not formally differentiate between those businesses that are performing efficiently and those that have a weaker performance record. All 19 businesses must submit a full proposal to the ESC every five years. All entities are subject to the same assessment

[5] Littlechild, S. (2011) Regulation, customer protection and customer engagement, EPRG Working Paper, 23 June 2011

process, irrespective of past performance or the extent of price change being proposed. While the ESC has discretion to allocate its assessment effort according to the quality of proposals it receives and scale of changes submitted, there is currently no formal mechanism of fast-tracking the assessment of proposals that seek price or revenue paths that lies within acceptable ranges. Nor is there a formal mechanism for rewarding those entities that take a more active approach to customer engagement to ensure their proposed services are in the best interests of customers.

An alternative regulatory approach, which could, in principle, overcome these limitations is an 'earned autonomy' model. This is a form of regulation that rewards those businesses that have appropriate management systems and procedures in place, follow best-practice customer engagement processes, and have a proven track record of performance. The rewards may be in the form of lower information disclosure requirements, a 'less intrusive' form of regulation or possibly the avoidance of specific penalties for poor regulatory compliance practice.

## 3.2 Experiences with light-handed models

There are a number of international examples of alternative regimes where , particular businesses can enjoy lighter-handed regulation. These are profiled below.

### 3.2.1 Ofwat, United Kingdom

The Office of Water Services (Ofwat) regulates 32 privately-owned companies operating in England and Wales that provide water, sanitation, and drainage services.

Since its formation in 1989, Ofwat has modified its regulatory regime, and now adopts a light-handed, risk-based approach which aims to focus regulatory interventions to where they are needed.

For the 2014 Price Review (PR14), Ofwat moved away from a prescriptive approach to place the onus on the water business to be accountable for their business plans. Ofwat encourages detailed, customer focused, innovative, and high quality business plans through structured incentives.

The business plans submitted by water companies in 2014 were subjected to a risk-based review, which is used by Ofwat as a means of assigning each plan to one of three categories: enhanced, standard, or resubmission. Those companies with plans that are assigned to the 'enhanced' category are subject to less regulatory oversight, and also receive financial incentives through access to greater shares of cost outperformance. Standard businesses receive, as the name implies, standard regulatory oversight, while those categorised as 'resubmission' must resubmit their business plans. This represents

a type of regulation similar to the 'earned autonomy' regulation used in UK hospitals and schools, where organisations with appropriate management systems and procedures in place are given greater flexibility in delivering regulated outcomes.[6]

PR14 was also designed to further increase the focus on customer engagement in the day-to-day operation of water businesses. Business plans are required to be assessed by Customer Challenge Groups (CCGs), which look at whether the plans are in line with customers' views and expectations.[7] These groups are set up and run by each water business, are independently chaired, and consist of a cross-section of customers or their representatives. The CCGs have a key role in helping Ofwat direct their scrutiny of company business plans by:

- challenging the quality of the customer engagement process;
- challenging how well the business's proposed outcomes and outcome delivery incentives reflect its customer engagement, and customers' views and priorities;
- providing an independent report to Ofwat at the same time as business's submit their business plans.[8]

Ofwat has identified a number of benefits from the approach it has adopted in PR14. [9] Early evidence suggests that the earned autonomy model has encouraged companies to focus more on listening to their customers and delivering the things that really matter to them. It has given the water sector space to innovate in products and customer service. The model has also allowed Ofwat to focus its regulatory interventions on where they are really needed and allowed it to step back where it is assured that companies' business plans meet expected standards in respect to quality of the evidence base, quality of customer engagement and quality of Board input.

### 3.2.2 The RIIO process under Ofgem

Ofgem is the UK economic regulator for gas and electricity markets. It has adopted a regulatory approach referred to as RIIO (Regulation = Incentives + Innovation + Outputs). While retaining a building block foundation, the model places the onus on

---

6 Stevens et al (2015 Earned Autonomy – Innovative Environmental Regulation http://www.ozwater.org/sites/all/files/ozwater/146%20MStevens.pdf [accessed 20 May 2015]

7 Ofwat (2013) Understanding customer challenge groups' role in price setting http://www.ofwat.gov.uk/pricereview/pr14/prs_web1306ccgrole [accessed 11 Nov 2014]

8 Ofwat (2013) Customer Challenge Groups http://www.ofwat.gov.uk/pricereview/pr14/customer/prs_201305ccg [accessed 11 Nov 2014]

9 Catherine Ross, CEO, Ofwat (2014) 'Annual Report 2013-14: Chief Executive's report' http://www.ofwat.gov.uk/publications/annualreports/rpt_ar2013-14chiefexec [accessed 19 May 2015]

businesses to engage with customers to define outcomes in terms of customer values. RIIO is designed to encourage energy businesses to:[10]

- put customers at the heart of their decision-making process;
- invest efficiently to ensure continued safe and reliable services;
- innovate to reduce network costs for current and future consumers; and
- play a full role in delivering a low carbon economy and wider environmental objectives.

The RIIO framework sets eight-year price controls and offers incentives to businesses focused on achieving particular outcomes including customer satisfaction, reliability and availability, safe networks services, connection terms, environmental impact, and certain social obligations.

Ofgem determines the level of review required for a particular business based on the quality of the business plan, past performance and benchmarking of the forecast spending to others, with well performing and cost effective networks rewarded by being 'fast tracked'.[11] This fast tracking process can result in significant savings for the business. Firms that do not perform well will face more intrusive regulation and lower returns.

Another feature of the Ofgem regulatory model is its use of a menu-based approach. It is referred to by Ofgem as the Information Quality Incentive (IQI). Under this approach, the regulator offers a range of options including various combinations of a cost allowance, a sharing ratio (the percentage of underspend or overspend against the allowed expenditure levels that the firm is allowed to retain) and an additional income component (an additional amount added to the firm's cost allowance), where the regulated firm is given freedom to commit to one of the options.

The menu is designed to be incentive compatible—the choice that maximises the firm's expected profit coincides with the choice that best reflects its beliefs about its future costs. In other words, the menu incentivises truth-telling (or revelation of costs) by the firm.[12]

---

[10] Ofgem (2014) RIIO Model https://www.ofgem.gov.uk/network-regulation-%E2%80%93-riio-model [accessed 12 Nov 2014]

[11] Ontario Energy Board (2010) OFGEM RIIO http://www.ontarioenergyboard.ca/oeb/_Documents/EB-2010-0379/Presentation_on_RIIO.PDF at p7 [accessed 12 Nov 2014]

[12] Queensland Competition Authority (2014) Incentive Regulation: Theory and practice http://www.qca.org.au/getattachment/739ec863-a226-4c4a-a97d-c972c6f5899b/Incentive-Regulation-Discussion-Paper.aspx [accessed 9 June 2015]

The menu approach also provides an incentive for management to attempt to reduce costs and promote efficiency, by allowing a firm a share of the benefits gained if it outperforms its own expectations. This provides some exposure to the firm's costs, and as such provides an incentive that counteracts moral hazard issues (see Box 1 for details on the incentive problems created by conventional price-cap regulation).

**Box 1 Incentive problems and regulatory design**

The regulator faces a *moral hazard* problem if a firm has no incentive to reduce costs. Where a firm is guaranteed reimbursement of costs, and the benefits of efficiency are instead passed on to consumers in lower prices, there is no incentive to improving efficiency, and prices remain high. Only if the firm is highly exposed to the consequences of its own actions will it have an incentive to reduce discretionary costs. Exposing a firm to the impacts of its cost performance also provides some perverse incentives, such as to reduce the quality of service, or underinvest in infrastructure. It also allows firms to capture undeserved, windfall rents because these cannot be distinguished from deserved rents by regulators.[13]

The regulator faces an *adverse selection* problem where a firm has an incentive to overstate its own costs. Due to information asymmetry, a regulator is unable to determine whether the costs of service delivery are high or low for any particular firm. As such, the price set by the regulator must be high enough to ensure the viability of actual high-cost firms. A low cost firm has no incentives to reveal that it is low cost, because doing so would encourage the regulator to set lower prices, and instead has an incentive to overstate costs to extract rents.

The principal problem the regulator faces is information asymmetry. The regulator knows less, potentially much less, about the costs of the firm and the amount of effort the firm exerts in becoming more efficient than the firm itself. It is costly to address that asymmetry. A regulator that sets a fixed price gives strong incentives for the firm to exert effort to improve (because the firm profits from the improvements) at the expense of prices deviating from efficient levels. In contrast, the regulator can require the firm to always set prices equal to cost, so called rate of return regulation, which ensures cost reflective prices but does not encourage the firm to expend any effort to become productively efficient (i.e. to minimise costs). The former gives rise to an adverse selection problem, the latter to moral hazard. Regulatory design can be seen as seeking to strike an effective compromise between these extremes, in the context of the costs involved in reducing information asymmetry.

### 3.2.3 New Zealand's approach to regulation of electricity distributors

Electricity distribution businesses in New Zealand are regulated by the New Zealand Commerce Commission (the 'Commission'). Prior to 2009, the Commission used a price threshold approach (based on CPI-X). This approach set a standard price benchmark that applied to all 29 businesses. While this model was relatively low cost and simple to apply, in practice it was a blunt instrument because the thresholds did not take into account the individual circumstances of different businesses. There were many breaches of the threshold and penalties were not applied. Due to the recognised weaknesses of this model, the regulatory system was reformed and new regulatory arrangements came into force on 1 April 2009.

[13] J Tirole (2015) *Market Failures and Public Policy*, American Economic Review 2015, 105(6): 1665–1682

Under the current model businesses have the choice of operating under a default price path ('DPP') or a customised price path ('CPP'), each with accompanying quality standards. The DPP is determined using a building blocks framework. Allowances for operating and capital expenditures are determined using relatively low-cost, top-down forecasting approaches that reflect industry-wide factors . The DPP applies to all businesses for a regulatory period that lasts between four and five years. The Commission may impose penalties on businesses for breaches of the price-quality path.

If a business is unwilling to commit to the DPP it can apply to be regulated under a CPP. A CPP is also determined using a building blocks approach but the Commission takes into account the specific circumstances of the applicant, which may involve more detailed assessments of the applicant's cost requirements. Once a CPP expires, the business will transition back onto the DPP, but can make another CPP proposal at a later date.

The CPP route enables a business to access a potentially more favourable price path than it would otherwise receive under the DPP. However, it requires the business to invest time and resources in preparing a detailed submission and open its books to scrutiny by the Commission. At present, only one business is regulated under a CPP. The remaining 16 businesses are regulated using the DPP.[14]

### 3.2.4 Insights

The models described above have emerged from different regulatory imperatives. In the UK examples, Ofwat and Ofgem have developed similar models that reward those businesses that prepare high-quality business plans. The rewards are in the form of fast-tracking the price determination process and allowing companies to get access to greater shares of cost outperformance.

New Zealand has introduced a system that sought to find an appropriate balance between implementation cost, robustness and transparency in setting prices, and flexibility to cater for the individual circumstances of particular businesses. While the New Zealand approach appears to meet these objectives, compared to the UK models it does not have a mechanism for incentivising businesses to outperform the price caps set out in the DPP. Most businesses have opted to be regulated under a DPP, possibly because this is the cheapest or least risk option for the business. The DPP may not necessarily offer the most efficient economic outcome in terms of servicing customers needs at least cost. In fact, because the DPP is standardised based on 'average' cost

[14] Of the 29 businesses in New Zealand, 12 are exempt from default/customised price-quality regulation as they meet the 'consumer-owned' exemption criteria under the Commerce Amendment Act 2008.

factors for the whole sector, it is likely to deliver higher revenues to some businesses than actually required and lower revenues than required to others.

The above examples show there are alternative regimes to the traditional building block approach and provides a starting point to consider modifications to the model used in Victoria to regulate water and wastewater businesses. The challenge is to design a regulatory approach that is appropriately robust, practicable, and offers sufficiently strong incentives to businesses to make efficiency improvements over time.

# 4 An alternative approach

In this section we set out a proposed, alternative regulatory model that could be applied to the Victorian water industry.

### 4.1.1 Concept

The aim of the new approach is broadly twofold:

- to streamline the regulatory process with the aim of substantially reducing costs while not raising the risk of regulatory failure; and
- to enhance the degree of customer engagement by businesses.

These two objectives are discussed further below.

### 4.1.2 Streamlining regulation

The challenge for streamlining regulation is essentially one of information asymmetry. The ESC is less informed about the water businesses than the businesses themselves, and therefore faces the challenge of determining whether businesses are operating and investing efficiently, pricing efficiently, and putting sufficient effort into important business aspects such as innovation, quality of service, demand management etc.

To date, most Australian economic regulators have adopted relatively intrusive approaches to managing the consequences of this information asymmetry. In effect, they have constructed building block models of the businesses' costs that aim to determine in detail the revenue that each business needs if it were operating efficiently. While the principles of the building block approach are sound and the approach has been applied cost effectively to Victorian water businesses, experience elsewhere highlights that risks remain, including:

- if not applied with regard to the regulatory burden, it can become costly for both businesses and regulators;
- it can be overly intrusive and heavy handed in the sense that the regulated business is forced to operate and price in accord with the underlying building blocks model;
- it can encourage businesses (to the extent that they are profit maximising) to present distorted estimates of their likely future costs and likely future demand in order to maximise allowable revenue; and

- its effectiveness is critically dependent of parameters that are difficult to estimate or predict, such as depreciation rates and cost of capital.

The aim of the alternative approach is to provide strong incentives for the regulated business to provide accurate and reliable information to the regulator, without the measures needed to support the classical 'building blocks' model, and to incorporate into the process a genuine appraisal of a business' proposed services to ensure that they meet customer preferences at prices they are willing to pay. In order to do this, the revised regulatory approach needs to ensure:

- thorough customer consultation takes place that accurately reveals customer preferences contingent on estimated service costs;
- the businesses have incentives to develop accurate, robust and unbiased business plans which demonstrate that they are run efficiently in order to meet their customers' needs;
- the ESC can rely upon these business models to accurately indicate the businesses *modus operandi*, and therefore offer an expedited and minimalist regulatory process; and
- businesses that must necessarily raise prices in order to meet their customers' needs, perhaps for exceptional reasons, can be sure of a fair but much more detailed regulatory process whereby they can substantiate their needs.

This could be achieved by:

- providing an expedited, simplified and low cost 'light handed' regulatory option to businesses that voluntarily produce robust proposals which meet reasonable expectations of the regulator and the businesses' customers in terms of efficiency improvements, customer engagement, prices and quality of service;
- implementing a more intrusive, 'heavy handed' regulatory option akin to the current regime for businesses that do not submit voluntary regulatory proposals of a sufficient standard,[15] or who claim that they cannot meet the requisite efficiency improvements and quality of service standards without increasing prices;
- at each review date, assessing whether businesses are eligible for the 'light handed' or 'heavy handed' regime based on their current regulatory proposals, and whether their performance in the prior period, in terms of efficiency,

[15] Noting that the ESC could require the business to resubmit a compliant regulatory proposal.

forecasting, prices and service quality, was consistent with their prior regulatory proposal;

- potentially penalise business operating under the light handed model (i.e. those that have previously earned their autonomy) should they fail to meet the obligations and terms of their business plans; and
- place the onus on the businesses to gather and present in their regulatory proposals (with some guidance from the ESC) data that allows the ESC to assess their robustness.

*The compromise inherent in the approach*

Over the course of time, the objective would be to ensure that businesses are appropriately rewarded from accurate, complete and reliable regulatory proposals that require limited review. There should be disincentives for businesses to submit poor quality proposals, particularly where the proposals are directed at securing the light handed model, including the ability to require that they resubmit their regulatory proposal in a compliant form.

Water and wastewater services often involve lumpy expenditure which means that the financial needs of businesses can fluctuate. Businesses should, therefore, have an opportunity to secure higher than typical prices, provided they can substantiate the circumstances and conditions that necessitate those prices.

Inevitably, this approach involves some compromises. Businesses that can achieve efficiency improvements that are larger and more rapid than the acceptable target level may be able to profit over the short term by submitting regulatory proposals that admit only to that target level. The result over the first review period will be higher profits to the business at the expense of higher prices to the customers than might otherwise be the case. That is, the benefits of the productive efficiency gains made by the lightly regulated business would not immediately be passed on.

In mitigation of this risk, the prospect of a higher price or revenue reduction (or X factor) in the next review period reflecting the gains achievable across the industry will provide for those gains to be returned to customers over time.

### 4.1.3 Customer consultation and engagement

A critical part of the approach is to require businesses to consult with customers in the process of developing their pricing proposals and to demonstrate how they are responding to customers' preferences. We propose that the model directly incentivises businesses to engage more effectively with customers by making this a key

determinant of whether a business is successful in obtaining a 'light handed' regulatory regime.

## 4.2 Overview of the model

Under the alternative model, there would be two types of regulation, Type 1 and Type 2. The form selected for application to a water entity would depend on the capacity and willingness of the entity to maintain prices[16] within a specified CPI-X requirement. Under this approach, two types of entities would emerge:

1. Those that could be regulated under a Type 1 regime: These are businesses that would be able to operate with very limited regulatory oversight, provided they keep price increases within the CPI-X constraint (discussed below). These businesses would also be able to obtain fast-track approval of pricing proposals above CPI-X under certain circumstances (discussed further below).

2. Those that should be regulated under a Type 2 regime: These businesses would be characterised as being unable or unwilling to commit to a CPI-X price path. They would therefore be subjected to greater regulatory scrutiny and be given far less pricing discretion than businesses regulated under Type 1.

A feature of the model would be to incorporate mechanisms for the businesses to have incentives to comprehensively and rigorously comply with the ESC's requirements. Accordingly, in some instances, it may be necessary for the ESC to require re-submission of a proposal that the ESC considers is sub-standard or deficit in one or more material respects.

At the start of each regulatory period, the ESC would determine a benchmark productivity improvement reflected in annual price increases (for example, CPI-X where X is the price or revenue reduction reflecting the required efficiency gain to be achieved by the water business). It would be based on relative productivity and input price movements in the Victorian water industry relative to the economy as a whole, but the X factor might be specific for different classes of water businesses – for example, the metropolitan retailers would be expected to have a different rate of productivity improvement to the rural water authorities. Similarly, wholesale would be different to retail.

Businesses that commit to meet the specified CPI-X benchmark would be required to only submit short-form regulatory proposals that demonstrate their financial viability

[16] In this report, frequent reference is made to prices and price caps and it should be noted that it is intended that this term can be used interchangeably with revenue cap for the purposes of this report.

under this price constraint and their proposed customer engagement activities. Firms would also need to satisfy the ESC about their business practices. Those that meet all the necessary criteria would be eligible to be regulated under a 'light handed', Type 1 regime.

Businesses that claim that they are unable to comply with the CPI-X benchmark or who apply, but fail the criteria for Type 1, would be regulated under a Type 2 regime. This would involve a detailed review by the ESC (akin to a conventional building blocks review). The onus would be on the regulated business to substantiate that it cannot achieve CPI-X over the period. Reasons that would give rise to a business being regulated under a Type 2 regime would be:

- those seeking a higher pricing outcome due to an inability to remain viable under the Type 1 CPI-X regime;
- those whose prior compliance was inadequate; or
- those whose regulatory proposals are inadequate, for example incomplete information or deficient customer engagement.

The proposed model would also need to ensure businesses (and in turn the ESC) were informed about customers' preferences in setting service levels. Here, the ESC would set out requirements for the consultation process and review it against the specified requirements.

## 4.3 Model application

Each of the elements of the above model are discussed in more detail below, explaining how the elements would be put into practice, with particular reference to the criteria that could be used to assign a business to a Type 1 or Type 2 regulatory regime, the framework for setting the X factors and potential customer engagement models.

### 4.3.1 The Type 1 regime

A business granted a Type 1 classification would have the autonomy to set its own prices and manage its relationship with customers. However, the Type 1 business would be required to set out the scope of the freedoms sought in regulatory proposal. That regulatory proposal would, in effect, represent the Type 1 regulatory bargain between the business and regulator. This status would continue until (or if) the business no longer demonstrated its capacity to carry on as a Type 1 business. This would be evaluated through periodic reviews or following any sufficiently severe breach of the agreed Type 1 obligations.

The approach has features in common with information disclosure regimes, but with failure to comply or unsatisfactory performance carrying the sanction of loss of Type 1 status.

In order to obtain Type 1 status, a business would need to demonstrate it was well managed, customer focussed and intended to manage within the CPI-X limit. The regulatory proposal in combination with the past compliance record of the regulated business would be instrumental in determining these factors. The eligibility criteria would focus on business capability and performance using both quantitative and qualitative measures.

The regulator would at the outset need to set out the features of a business' regulatory proposals necessary for, but not necessarily guaranteeing, Type 1 status.

Table 1 sets out the type of eligibility criteria that could be applied.

**Table 1 Eligibility criteria for Type 1**

| Criterion | Requirement / Standard |
|---|---|
| CPI-X | A commitment to complying with the CPI-X limit.<br>A business may apply for an exemption under certain conditions – for example if it faced significant, uncontrollable cost increases that present a material risk to financial viability. |
| Service outcomes | A history of meeting or exceeding customer service standards. |
| Customer engagement | High quality processes for customer engagement and feedback to business practices (e.g. responding by altering service levels or quality, improved handling of enquiries, and so on).<br>Evidence of positive customer perceptions and experiences (e.g. through survey) |
| Business processes | Best practice for key processes including asset management, customer enquiries, complaints and disputes, business planning, cost recording and management, procurement, project delivery etc.<br>The business would also have to have a model and accompanying systems and processes to support production of regulatory accounts.<br>The business would need to submit an appropriate business plan that takes a long-term, strategic view of future operating environment, which may call for prudent increases in capital and operating expenditures. |
| Regulatory track record | A favourable history from recent regulatory reviews or a history of continuous improvement e.g.:<br>• limited findings of inefficiency or poor practice<br>• proposed MAR approximates the approved MAR;<br>• absence of ambit claims or poorly justified proposals |
| Transparency | Track record of providing information to customers that is easily understood and readily available.<br>Systems are in place to gather comprehensive and relevant information about costs and service performance.<br>Independent review and validation of systems and processes. |

### *Obligations once granted Type 1 status*

The business would be obliged to maintain regulatory accounts as the basis for determining performance against the CPI-X threshold. The ESC would set minimum

standards for regulatory accounting, and would have the discretion to audit the business for compliance against these standards at any time (and/or the ESC could implement a rolling audit program which was published to the businesses). The business would be expected to produce a business plan and past compliance record at each review date.

Each year, the business would be required self-report its compliance with the CPI-X threshold for the preceding and next year. The business would not be obliged to lodge detailed information to the ESC, although the ESC would have discretion to undertake an audit of performance against the CPI-X threshold, at any time.

The business would be obliged to provide certain information to the ESC and customers periodically, to ensure those businesses continue to capture cost and other information and to provide transparency about costs and performance. The type of information that would be required is set out in Table 2 below.

**Table 2 Sample information schedule for businesses regulated under Type 1 regime**

| Item | To | Indicative Frequency | Detail and rationale |
|---|---|---|---|
| CPI-X threshold | ESC | Annually | Self-report to the ESC about performance against the CPI-X threshold (previous year) and forecast (next 1 to 3 years) |
| Actual prices for coming year and reasons for price variance between years | Public (e.g. website) | Annually | Ensure all price information is published for customers. |
| Forecast prices (3 – 5 years) | Public (e.g. website) | Annually | Provide customers with information about expected changes in price and alert the ESC to any potential CPI-X issues. |
| Tariff rationale | Public (e.g. website) | Initially, and then as tariff structure or groupings change | Provide customers and the ESC with the rationale for setting tariffs, including tariff groupings and structure and reasons for price differentiation. |
| Customer engagement and/or survey undertaken by an Independent party appointed by ESC | Public (e.g. website) of summary results.<br>Provide ESC with detailed results* | Twice during a review period | Provide public information about the business' performance as perceived by customers. |
| Service standards performance | ESC, as per existing performance reporting regime** | As per existing performance reporting regime | Provide public information about performance and comparative information among water businesses |
| Audit results for accredited quality systems | ESC* | As per business' quality audit program | Provide early indications of deterioration in business practices |
| Regulatory accounts | ESC* | 5 yearly | Provide up-to-date information about whether prices could be excessive, measured over a number of years to flatten out variations. |
| Forecast demand-supply balance | Public (e.g. website) | 3 – 5 yearly | Provide information about the future demand and capacity of the system, and present the response strategies.<br>Provide information supporting response strategies, including option identification and selection (including demand management).<br>Present cost profile over a defined timeframe (e.g. 10 -20 years).<br>Demonstrate customer engagement in the planning process and highlight linkages to need identification and options analysis. |

Notes:

* The ESC would then publish information as appropriate via its website.

** The ESC currently publishes this data on its website.

### *Review triggers*

The Type 1 regime would involve a regular audit to confirm Type 1 status against the eligibility criteria. Triggers would be established that would cause a review of a business' Type 1 status. Triggers may include:

- a request by the business to exceed the CPI-X threshold;
- failure to maintain consistency with other eligibility criteria;
- a material breach of service standards; and

- failure to submit a conforming business plan at each fixed review date.

ESC would have discretion to conduct an investigation into the reasons for any departures (or requests for changes) made by a business in its commitments under the Type 1 classification. Also, a business should have the opportunity to request an increase to prices beyond the CPI-X limit, while retaining Type 1 status, on the basis that it is facing significant financial risk due to an unforseen impact on costs or demand for services.[17] Depending on the outcome of the review, the ESC could decide to maintain the entity's Type 1 status (possibly with conditions) or decide to downgrade its status to Type 2, accompanied by a price re-set.

### 4.3.2 The Type 2 regime

The Type 2 regime would operate in a similar way to the current regulatory regime, with the ESC periodically reviewing and setting prices for the business (e.g. every 5 years). Businesses would be regulated under a Type 2 regime if they are unable or unwilling to commit to CPI-X and the other eligibility criteria for Type 1 status.

Type 2 businesses would belong to one of three broad categories:

- Efficiency concerns: those that are operating below the efficiency benchmark and thus struggling to maintain prices at levels assessed to be efficient;
- Other concerns: businesses that are unable to meet the other eligibility criteria for Type 1, such as sub-standard business practices; or
- Service improvement: those that are operating efficiently but are requesting higher prices to meet the cost of providing new or improved services.

For those entities that cannot (or are unwilling to) meet entry requirements into the Type 1 regime due to efficiency concerns (in contrast to capex requirements for example), ESC would be faced with a number of options. The ESC could set a price path that disallows businesses from passing on higher prices to customers – which would potentially force the business to become more efficient or result in the business paying lower (or zero) dividends to owners. Alternatively, the ESC could undertake a detailed efficiency review, which would aim to make findings about the underlying cause of the inefficiency.

[17] We note that most external factors that could give rise to changes in costs or demand and would already be taken into account when setting the X factor. Furthermore, businesses would be required to take a long-term, strategic view of their operating environment, thus minimising the risk of unforeseen, lumpy capital costs being incurred over the regulatory period.

Those businesses that submit a proposal for a revenue requirement above CPI-X on the basis of a service improvement would be fast-tracked under the Type 1 regime if it was is underpinned by clear customer support based on good information and consultation processes (as prescribed by ESC). Otherwise, then the pricing proposal would need to be assessed under a detailed building-block review process.

Finally, businesses that make a sub-standard or non-compliant proposal to the ESC may be required to resubmit its regulatory proposal in a form that meets the ESC's requirements.

### 4.3.3 Framework for determining the efficiency benchmark

The above model requires a reasonable target or X factor for efficiency improvements to be set.

It is important to set an X factor at a level that:

- is reasonably achievable by the majority of regulated businesses, absent unusual circumstances;
- passes on an appropriate share of efficiency gains to customers; and
- provides an incentive for businesses that excel.

If the X factor is too large (i.e. the year on year price increases are too large), then few if any of the businesses will be able to achieve Type 1 status, and the ESC will have to continue with its current prescriptive model. If the X factor is too small, then the businesses will be able to achieve Type 1 status easily, and will have scope to profit from easily achieved efficiency gains in excess of the target level to the detriment of consumers. As noted by the federal Treasury:

> In practice, it can be difficult to choose the correct value of X. If X is set too high, the firm will not be able to cover its costs, but if X is set too low then the firm will earn supernormal profits and prices will remain excessive. Ideally, the value of X will be based on expected future productivity improvements, however, this determination involves a degree of subjectivity.[18]

The objective therefore is to ensure that prices move towards the efficient level with the businesses themselves being empowered to be the voluntary identifiers of the socially efficient outcome without the need for significant costs of adjudication being incurred.

[18] Australian Government, Department of Treasury (2002) 'Price Regulation of Utilities' http://archive.treasury.gov.au/documents/194/PDF/round5.pdf [accessed 22 May 2015]

This is not an outcome that is likely to be achieved immediately and definitively the first time of its application, but will emerge over the first or second review period. Nor is it likely to be an outcome that will be achieved if X factors are set at a level equal to the best estimates of inefficiency.

In the first instance, if the X factors are set at a broadly achievable level, sufficiently non-exacting that it allows most of the businesses to avoid a Type 2 submission, most of the businesses will have an opportunity to secure Type 1 status. Hence in the early operation of the regime, there may be modest productive inefficiency as a result of adopting a relatively relaxed X factor. That productive inefficiency would, over the course of time, be reduced as the businesses become more willing and better able to submit high quality Type 1 regulatory proposals, and offset by the transition to a regime that has lower direct costs, is less prone to error, and less likely to frustrate innovation.

In so far as there is a perceived high risk of productive inefficiency and/or a high risk that the businesses will not evolve quickly to develop high quality Type 1 submissions, a shorter initial review period could be adopted.

Notwithstanding this, the ESC would need to develop appropriate X factors. We suggest that a 'base' X factor be determined based on productivity and input price movements in the Victorian water industry relative to the economy as a whole. This factor would then be adjusted to align to particular business types in the Victorian water sector, based on standard characteristics (for example, the metropolitan retailers would be expected to have a different rate of productivity improvement to the rural water authorities. Similarly, wholesale would be different to retail).

Typically, X factors can be set by reference to expected changes in total factor productivity ('TFP'). TFP refers to increases in output that are not be explained by known increases in inputs to the production process.[19] It is not necessary for a TFP assessment to deterministically set the X factor – indeed, an element of judgement is involved as the regulator should seek an X factor that the majority of the industry regards as sufficiently likely to be achievable to seek Type 1 status. Nevertheless, to the extent that TFP informs this assessment, a number of different techniques can be used to generate a value of X. Those that attempt to estimate TFP typically include either an index number approach or an econometrics approach. These are discussed below.

[19] Domar E, On the measurement of technological change, *Economic Journal*, 71, December 709-29.

*Index number approach*

In the index number approach, a regulator would use industry-level data to construct an approximate measure of industry-wide TFP, and use this to set the X value. The TFP rate would be the difference between the rate of output growth and the rate of input growth, based on aggregates of inputs and outputs from industry data. Index number theory is used to combine changes in diverse outputs and inputs into measures of change in total outputs and total inputs. In order to achieve this, the price and quantity of each input and output is required.[20] All functional outputs should be included regardless of whether they are explicitly charged for, though such outputs are treated in a different manner to billed outputs:

> For non–billed functional outputs, market prices would be treated as zero in deriving the X factor but the input costs associated with those outputs would be captured. This is because the weight is the difference between marginal cost and market prices, which in this case is simply marginal cost. For billed outputs, changes would be weighted by the differences between marginal costs and market prices.[21]

One method that can be used to determine TFP is to use a Tornqvist index as a measure of historical productivity growth of the sector or entire economy, and then set the efficiency factor as X. In practice, such a simple approach would ignore the differences between firms, allowing less efficient firms to outperform more efficient ones, as they are better placed to achieve larger efficiency improvements.[22]

In the UK, X factors are set by measuring industry-level annual productivity growth from historic data, as well as estimating firm-level efficiency using various benchmarking techniques. Specifically, Ofwat uses econometric and unit cost analysis to measure the relative efficiency of firms.

*Econometric approaches*

Econometric approaches require the creation of an econometric model using equations that describe the production process and behaviour of regulated firms (such as a desire to minimise costs). Econometric models must adopt a number of assumption about the regulated industry and the relationship between different variables. However, in order

---

20 Lawrence, Denis, Erwin Diewert, and John Fallon. "Total Factor Productivity Index Specification Issues." (2009).

21 ibid.

22 Jamasb, T., & Pollitt, M. (2000). Benchmarking and regulation: international electricity experience. Utilities Policy, 9(3), 107-130.

to reduce the complexity of the model, the number of inputs and outputs that can be modelled is limited in practice. [23]

There are numerous econometric models that can be used to determine a value of X. For example, parametric cost frontier models can be applied to a set of panel data of regulated firms. Such a cost frontier would define minimum costs given output level, input prices and the existing production technology, whilst still allowing for unobserved heterogeneity between different firms.[24]

One benefit of the econometric approach is that econometric models can be used to determine not only TFP growth rates, but also scale and scope economies. One issue this can cause is that it is often difficult to disentangle the effects of scale economies from the effects of technological change when interpreting the results of the model. Another issue with the econometric approach is that the results can be highly sensitive to the specification of the model, which may meant that the results generated by the model are either not robust, or not reproducible.[25]

*Partial Indicators*

Not all approaches use a robust underlying methodology to determine an X factor. In some cases, various imprecise, indicative, or 'rule of thumb' indicators are used to give an impression as to the relative efficiency of a firm. Partial factor productivity (PFP) measures one or more outputs relative to one particular input (e.g. labour productivity is the ratio of output to labour input).[26] Generally, these are used to support rather than to determine an X factor.

*Ad hoc approaches*

It is also possible to determine an X factor based on judgement or estimation rather than a robust underlying methodology. Early UK regulation is a good example, as a lack of data and academic study meant truly robust determinations were impossible.

---

[23] http://www.aemc.gov.au/getattachment/c224d54a-20c2-417b-87b6-b232c6f0d7a2/Brattle-Group-Report-on-use-of-TFP-in-network-regu.aspx [accessed 25 May 2015]

[24] Farsi M, Filippini M (2004) 'Regulation and Measuring Cost Efficiency with panel Data Models' Review of industrial Organization

[25] http://www.aemc.gov.au/getattachment/c224d54a-20c2-417b-87b6-b232c6f0d7a2/Brattle-Group-Report-on-use-of-TFP-in-network-regu.aspx [accessed 25 May 2015]

[26] Lawrence, Denis, Erwin Diewert, and John Fallon. "Total Factor Productivity Index Specification Issues." (2009).

### 4.3.4 Customer consultation models

Competition is a process of discovery – if the regulatory regime is to deliver similar outcomes for customers to those in competitive markets, businesses must identify and respond to customer preferences.

Accordingly, one of the eligibility criteria for a water business to attain Type 1 status and be regulated under a light handed, 'fast-track' regime is for the business to demonstrate that it has engaged meaningfully with its customers in developing its proposal. This could involve the ESC setting out a relatively prescriptive method (or menu of methods) for businesses to use. The goal should be to require businesses to move beyond collecting data on customer satisfaction with existing service levels. Engagement with customers should be considerably deeper, ideally incorporating their views and preferences into business plans, including the setting of services levels and tariff options.

By definition, the services delivered to customers by monopoly water businesses are supplied in the absence of a competitive market. Therefore, customer satisfaction, preferences and willingness to trade off price and quality attributes of service delivery are not directly observable through market prices.

In the past, water quality, reliability, environmental attributes (associated with water supply, for example) and other service attributes have been set to minimum standards based on advice from public health agencies and assessments of what is practically feasible at 'reasonable cost' with currently available technologies. Minimum standards will continue to form the foundation of service delivery but there is scope for the water and wastewater sector to evaluate consumer preferences for different levels of service, different tariff and billing options, and possibly a wider choice of retail water products. As these different offerings may result in higher operating and capital costs for water businesses, it is important that customer willingness to pay is evaluated adequately. Similarly, the welfare impact on customers of any proposed reductions in existing services (possibly as a means of meeting financial constraints) should be assessed.

A number of consultation approaches are available for eliciting consumer preferences. The main models are:

- Customer surveys and conventional market research
- Public consultation
- Consumer panels or consultative groups
- Focus groups and pilot testing

- Deliberative techniques

Appendix A contains further details of the various customer engagement models and examines the strengths and limitations of each for the purpose of evaluating customer preferences.

A combination of the methods is likely to be better than selecting a single approach. For example, Ofwat requires water businesses to engage with customers at the local level in the formative stages of plan development, and also requires businesses to establish Customer Challenge panels to evaluate the acceptability of their proposed plans (see Box 2 in Appendix A for details).

The ESC could consider a requirement whereby businesses must select from a mix of deliberative forums, focus groups (or customer panels) and surveys that require customers to indicate individual preferences (as opposed to the preferences of an 'interest group'). Choice experiments represent 'state of the art' techniques for estimating preferences and would form a good basis for understanding willingness to pay of specific customer cohorts. The cost of additional customer engagement, relative to the benefits generated, will be an important consideration for any prescribed approach.

# 5 Benefits and risks

In this section the benefits of the proposed 'two track' model are examined relative to the current building block regime. We also examine the potential risks of adopting a dual model and how these risks could be mitigated through good design.

## 5.1 Benefits

The proposed model has a number of benefits:

*Reduced regulatory burden on businesses and the regulator*

Water entities that attain Type 1 status would enjoy a less burdensome regulatory regime, which would reduce cost of preparing pricing proposals, complying with information requests and so on. Similarly, the burden on ESC would be reduced, thus allowing resources to be freed up to focus on Type 2 businesses that require more intensive regulatory oversight.

It is beyond scope in this paper to conduct a detailed benefit-cost analysis (BCA) of the proposed model relative to ESC's existing building blocks approach. A comprehensive BCA would need to take into account the fact that Type 1 status would impose some additional, new reporting obligations to businesses (which would need to be outweighed by the benefit of having a less onerous proposal and assessment process).

*Incentives for improving efficiency*

The implementation of a two-track model would introduce healthy competition between businesses to reach and maintain Type 1 status. Where a similar model has been adopted in the UK (by Ofwat), there has been notable behavioural changes among water companies, with an increased focus on moving from a "standard" classification to an "enhanced" classification.[27]

The proposed approach is consistent with the objectives of reducing moral hazard (the situation where businesses are insufficiently incentivised to reduce costs) and the incidence of adverse selection (the incentive for businesses to overstate costs in an effort to receive a more favourable price determination). Provided the value of X is set correctly, firms that are low-cost have an incentive to self-identify as such by choosing the less burdensome CPI-X regulation. This acts to counter adverse selection, as the firm does not benefit if it overstates its own costs. The remaining firms that cannot commit to CPI-X pricing identify as high-cost firms, and the increased regulatory

[27] Ofwat (2015) Introduction to Water 2020, Cathryn Ross, 2 June 2015, http://www.ofwat.gov.uk/pricereview/water2020/prs_pre20150602wukwater2020.pdf

attention provides an incentive to reduce costs. This acts as a counter to moral hazard problems.

*Greater focus on the customer*

The current regulatory regime requires the ESC to gather significant information about water businesses' costs and customer needs. In doing so, it is largely reliant on information provided by the businesses it regulates. The ESC is then put in a position to make judgements about the efficient costs of service and translate these into revenue allowances and user prices. This information asymmetry means that the ESC never has full information about how efficient a business can be, and is not always best placed to assess customer preferences.

Furthermore, whether intentionally or not, success for the regulated business is largely measured by the proximity of the ESC's allowable revenue to the business' proposal. The end game is the regulatory decision, rather than the customer.

The proposed model provides businesses with an opportunity to opt-in for a light-handed model, which allows businesses greater latitude to determine services and prices. By reducing regulatory intervention, the Type 1 regime creates opportunities and incentives for businesses to innovate to meet customer needs. There is also a requirement on water businesses to consult meaningfully with customers as a prerequisite for attaining (and maintaining) Type 1 status.

*Greater incentive for innovation*

Under the current regulatory model, there are perverse incentives for businesses to avoid taking risks and innovating because the costs of 'failure' may go unrecovered. Where innovation is successful, the business only benefits until prices are re-set using the innovation as the new baseline of efficient costs.[28] The business is therefore less inclined to innovate, as it would probably bear the downside and the upside is limited.

In the alternative model set out in this paper, the Type 1 regime allows businesses considerable latitude to innovate without detailed regulatory oversight of activities. Provided businesses adhere to their business plan, and remain within the CPI-X threshold, the business can, and will have an incentive to, pursue efficiency enhancing initiatives because its regulatory risk associated with the treatment of those gains will be significantly reduced.

[28] Efficiency carry over mechanisms can extend the financial benefit to the business.

## 5.2 Risks

The alternative approach proposed in this paper is not without its risks. Potential areas that need to be considered are summarised below.

*Unintended consequences of a light handed regime*

A business that qualifies for regulation under a Type 1 regime remains a monopoly, and less regulatory oversight could enable undesirable behaviours and pricing practices to emerge. However, the obligations for Type 1 businesses go some way to mitigate this risk. Examples include the following:

- Business misreports its performance against CPI-X in pursuit of monopoly profit. This risk could be mitigated by:
  - applying screening criteria for Type 1 that exclude businesses with a track record of seeking inappropriately high prices (e.g. ambit claims);
  - monitoring change in price between years;
  - setting review triggers that give ESC the right to review compliance with Type 1 status at any time; and
  - periodic submission of regulatory accounts and audit rights.
- The light-handed (Type 1) regime proves unworkable or does not deliver intended benefits. This risk could be mitigated by:
  - requiring businesses to maintain regulatory accounts means the regime can revert back to the building block approach, if required. That is, the move to a two-track, CPI-X regime is reversible.
  - requiring businesses to undertake effective customer engagement using prescribed methods and the right for ESC to commission an independent survey of customers; and
  - establishing an effective monitoring framework, which would be administered by ESC.
- CPI-X is set incorrectly due to imperfect information. This risk could be mitigated by reviewing the X factors periodically.

The above list is not intended to be exhaustive. Rather, it presents a number of examples of risks and how they could be addressed through design features of the regulatory system.

*Getting the incentives right*

The regulatory regime should be designed so as to incentivise inefficient businesses to strive for Type 1 status. Otherwise, businesses may have the incentive to simply remain at Type 2 and seek price increases above CPI-X through conventional regulatory processes, rather than pursue opportunities to reduce prices in real terms.

One incentive is the reduced regulatory burden enjoyed by firms that achieve Type 1 status. However, this may not be a sufficiently strong incentive to motivate change. An added incentive would be to apply more onerous tests and requirements upon Type 2 businesses seeking price increases above CPI-X at periodic price re-sets. These could include:

- a starting presumption that prices at the next price review should be at or lower than the CPI-X limit set for Type 1 businesses. Type 2 businesses would then need to justify beyond doubt that price increases above this level were required;
- withdrawing favourable aspects of the existing regime or not implementing new incentives that reward staying in Type 2 (e.g. efficiency carry over mechanisms, risk allocation to customers etc);
- impose pre-determined cost-efficiency targets (e.g. from benchmarking of Type 1 businesses) across all Type 2 businesses; or
- not allowing Type 2 businesses to pass on the costs of economic regulation (including ESC's costs) to consumers, on the basis that Type 2 prices should recover the costs of remaining in the less preferred regulatory regime.

*Switching behaviour*

An additional risk is that a regulated business will run down its assets or defer capex under a Type 1 regime and then in the subsequent regulatory period seek to be classified as a Type 2 business, with the aim of recovering the infrastructure maintenance deficit by taking advantage of a more generous X allowance under the Type 2 regime. The presumption is that once a business accepts a Type 1 classification, it will continue to be classified in this way, unless the business can demonstrate:

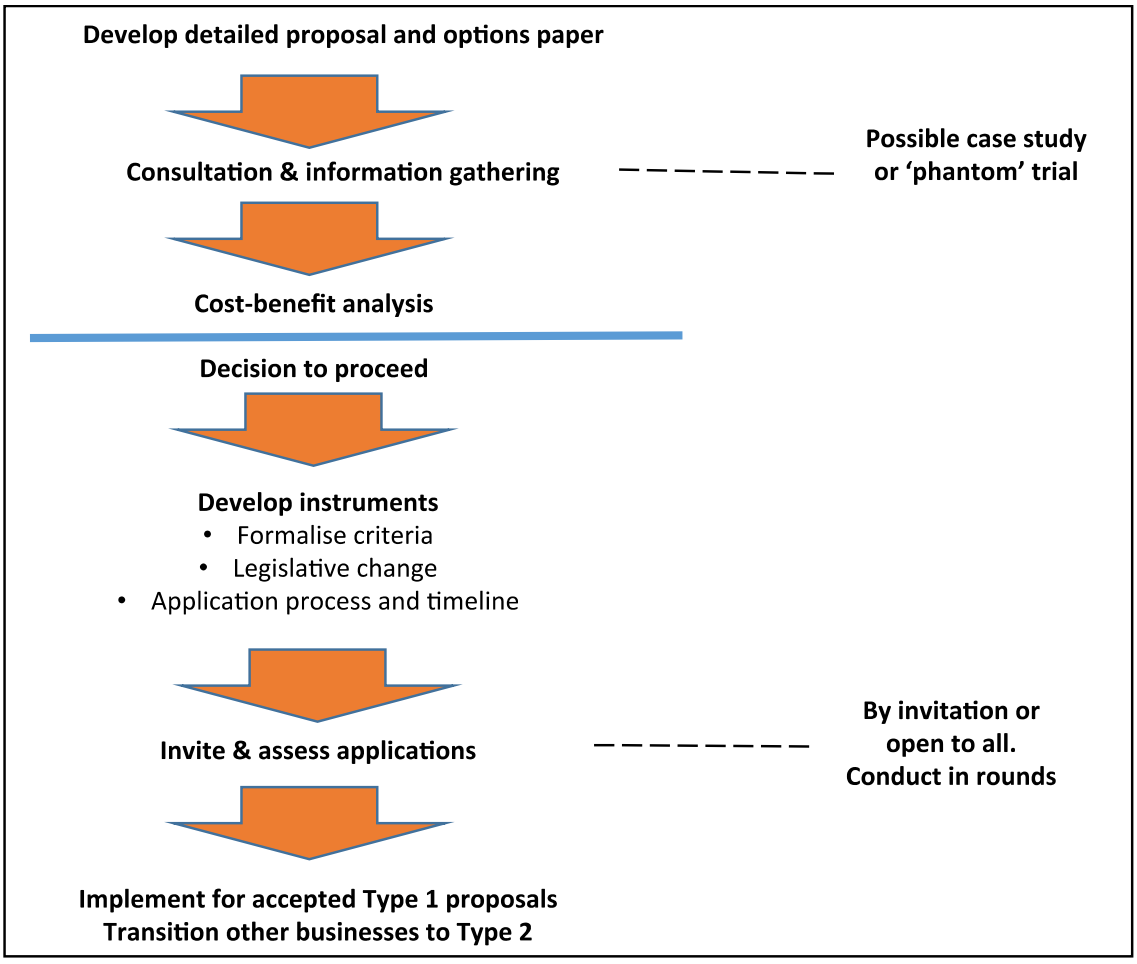
- the financial need to depart from the ongoing CPI-X arrangements in Type 1; and
- the financial need did not arise from non-compliance with the businesses' prior business plan and proposal to the ESC.

Including a criterion that requires businesses to take a long-term, strategic view of their operating environment (and ensuring that their plans accommodate potential changes in foreseeable operating conditions) should assist to minimise switching behaviour.

# 6 Implementation

Moving to an alternative regulatory model is not a trivial task, particularly given the number of water businesses currently regulated by the ESC. The figure below provides an illustration of the key implementation steps.

**Figure 1 High level implementation steps**




As discussed above, a new model should be subject to cost benefit analysis with consideration of the full impacts of the new approach, relative to the current model (that is, a regulatory impact statement).

The ESC would need to first develop a detailed proposal and consult with stakeholders. There may also be merit in running a case study or selecting a business to perform a 'phantom' trial, in parallel with the current regime. The purpose of these trials would be to identify unforseen problems, road-test the obligations and reporting requirements, and obtain better information about the likely benefits and cost.

If a decision is taken to proceed with the two-track model, then the ESC would need to consider its capacity to implement the new regime. The eligibility criteria for Type 1 would need to be formalised, along with the detailed regulatory obligations for Type 1 businesses. A decision should also be made about rights of appeal to a decision to not grant Type 1 status.

Legislative change may also be required to support the new arrangements and provide the ESC with the necessary rights to implement, and provide for any appeal mechanism.

The ESC would also need to establish an application process and timeline for dealing with applications for Type 1. This would include guidance on the information expected from businesses to inform their applications.

Once the necessary instruments were in place, a process for transitioning to the new arrangements would need to be applied. It might be prudent for the ESC to stagger the assessment process, with perhaps the ESC initially inviting two or three business to apply for Type 1 status, based on a preliminary assessment of which businesses are most likely to satisfy the criteria. Following this assessment, further businesses could be considered.

The new arrangements should be subject to review by an independent party within 3 years of commencement, and again at the five-year mark.

# A Appendix A

## Customer engagement models

A number of consultation approaches are available for eliciting consumer preferences. The main models are:

- customer surveys and conventional market research
- public consultation
- consumer panels or consultative groups
- focus groups and pilot testing
- deliberative techniques

This appendix summarises each of these models and examines the strengths and limitations of each for the purpose of evaluating customer preferences.

*Customer surveys and conventional market research*

Customer surveys involve posing a set of carefully constructed questions to a group of individuals randomly selected from the customer base. They are a popular method for collecting qualitative and quantitative information regarding customer attitudes, satisfaction levels, and preferences. Surveys can be conducted through face-to-face interviews, self-completion written forms, over the telephone, or electronically via the internet or email.[29]

Quantitative information about consumer's preferences can be obtained by asking consumers directly about the dollar value they place on a service level out of a range of mutually exclusive service alternatives, or by conducting choice experiments. These studies are commonly referred to as Willingness to Pay or Willingness to Accept studies. There are various approaches to determine these values, and most lie within the Stated Preference (SP) elicitation framework. Examples include conjoint analysis, choice modelling and contingent evaluation.

Choice modelling is commonly used as a tool in commercial market settings to evaluate consumer preferences for new product lines, which are offered at different (hypothetical) price points. However, the technique is increasingly being used in the regulated utilities sector to assess customer willingness to pay for service attributes. In electricity networks, for example, choice modelling is used to assess the value of

[29] Queensland Government. Engaging Queenslanders: a guide to community engagement methods and techniques.

customer reliability (or reciprocally, what costs are imposed on households when there are disruptions to electricity supply).[30] In water sector the technique has been used extensively in Australia to evaluate household willingness to pay to avoid water restrictions of varying severity.[31]

The strengths of surveys are as follows:

- can be used to gather individual 'blind ballot' feedback (unaffected by the views of others) from a large and diverse customer base;
- can often be produced and distributed in large quantities relatively cheaply (the exception being choice experiments, which require careful design and can involve significant preparation costs); and
- can provide large amounts of qualitative and quantitative data from which a representative assessment of the customer base can be made.

The shortcomings of surveys are:

- the robustness of most stated preference approaches are dependent upon the quality of the questionnaire design; and
- surveys that seek customer input on complex and potentially unfamiliar services (and concepts) may fail to deliver robust and valid preference information.

Market research using choice experiments can be costly because it involves considerable resources to develop an effective questionnaire (usually designed with the input of focus groups) and data analysis is expensive because it calls for the skills of an experienced statistician to correctly estimate the data relationships in the choice model and interpret the survey results.

*Public consultation*

Public consultation is a most common approach to customer engagement and involves a two-way dialogue between the public and the regulator/government. [32] Consultation

[30] Scarpa, R., 2013 'Methodology for the estimation of the value of customer reliability for AEMO', May 2013

[31] See for example: Hensher, Shore and Train, 2006 'Water supply security and willingnessto pay to avoid drought restrictions', The Economic Record, vol. 82, no. 256, pp. 56–66; CIE (Centre for International Economics) 2008, Technical Documents: Updated Estimates of the Cost of Water Restrictions in the ACT Region, Prepared forActewAGL, September; and Brennan, D. Tapsuwan, S. and Ingram, G. 2007, 'The welfare costs of urban outdoor water restrictions', The Australian Journal of Agricultural and Resource Economics, vol. 51, no. 3, pp. 243–61

[32] Decker, D. (2013). The consumer knows best: involving consumers in regulatory process and decision-making. Network, 49, December 2013, pp. 1-8. (2) Queensland Government. Engaging Queenslanders: a guide to community engagement methods and techniques.

processes are easy to run and can be supported by a range of other techniques, including: roadshows, forums/workshops and surveys. Regulators and government agencies across different industries typically facilitate public consultation processes by first publishing a consultation paper to collect stakeholder views and encourage stakeholders to respond.

The strengths of public consultation are:

- targeted group consultations;
- flexibility (consultations can be structured in different ways to support the regulatory question on hand);
- can be an indicative gauge of customer perspectives and strength of opinion about different proposals and service offerings;
- build relationships; and
- can evolve in scope over the course of a project as required.

The shortcomings of public consultation are:

- it does not typically bring consumer concerns into policy discussion or decisions and generally do not encourage consumers to deliberate on, or discuss, the key issues involved.
- participants may not be representative of the broader community (consumer representative groups are likely to present self-interested views. Expressed views may therefore not be truly representative of a utility's customer base. And it is often difficult to establish a representative group because reference groups often self-select for those individuals that have an elevated level of interest in the subject material and/or have sufficient time to dedicate to participating in the group);
- produce qualitative not quantitative information, which cannot be easily consolidated or used to determine customer values or preferences for alternatives;
- the views provided by stakeholders on the consultation paper are not uniformly taken into consideration (differential weights placed by regulator); and
- there is a risk that public consultation, done poorly and without proper interpretation of qualitative data can produce misleading findings.

*Consumer panels or consultative groups*

Regulators and government agencies often use consumer panels to discuss service quality issues and policy priorities. Panel members can include representatives of

different consumer/industry groups or a sample of individual consumers selected from the population. Product/service testing through the use of consumer panels has been used extensively in the food and beverage industry. In the water sector, Ofwat requires water businesses to engage with customers at the local level in the formative stages of plan development, and also requires businesses to establish Customer Challenge panels to evaluate the acceptability of their proposed plans (see Box 2 for details).

**Box 2 Customer engagement arrangements prescribed by Ofwat**

The most elaborate system for engagement with interested parties in retail price-setting in water and wastewater is in England and Wales, where the involvement of consumers has been a particular focus post-privatisation. For the forthcoming price review from 2015, measures for consumer involvement included the following:

First, there were requirements that each business undertake 'local engagement' to understand its customers' views and to inform the development, and test the acceptability, of its business plan. 'Local engagement' obliges businesses to test consumers' views on the acceptability of their overall business plan through the collection of quantitative evidence. Such evidence needs to include consumer views in relation to: billing; complaints handling; tariffs; metering; and local-service level issues (such as reliability of supply and sewer flooding).

Second, the water businesses are responsible for establishing their own "Customer-Challenge" panel. These panels are charged with ensuring that the overall package is acceptable to consumers. The panels consider the evidence on the extent of direct customer engagement, and how the business has responded in its business plan to any issues raised. The membership of the customer-challenge group is intended to be diverse and to include: consumer representatives (such as the Consumer Council for Water); customer and community stakeholders (including local authorities and businesses); and representatives of particular segments of society (such as the elderly, through Age UK). The regulator (Ofwat) will not be a full-time member of the customer-challenge group, but may attend meetings occasionally, and will 'take account' of the panel's advice when considering the companies' business plans. Ofwat expects that the customer-challenge panels will be able to tell it how effective a company's engagement with consumers has been, and how the priorities identified by customers have been taken into account in its final business plan.

Third, an industry-wide customer advisory panel was created by Ofwat.

Source: Summary presented in ACCC (2015) International Insights for Better Economic Regulation of Infrastructure, Rob Albon and Chris Decker, Working Paper No. 10, March 2015.

The strengths of consumer panels/consultative groups are:

- provides an opportunity for in-depth engagement and promote regular contacts;
- provides regulators with an understanding of a range of perspectives in order to develop informed, agreed and integrated solutions;
- can support a range of other engagement processes; and
- enables information and decisions to be distributed to members of the industry or community sectors represented on the panel.

The shortcomings of consumer panels/consultative groups are:

- panel members can be become less representative of the wider community's interests the longer they remain on the panel and therefore periodic staggered appointments to panel members are required;
- can only explore a limited number of consumer or policy issues over a brief period of time; and
- it can be difficult to manage the diversity of opinion, data, frameworks and other information provided via panel members.

*Focus groups and pilot testing*

Focus groups are commonly used in a number of industries and by government as a means of pilot testing policy proposals. It is a useful tool for testing key elements of a questionnaire or regulatory proposal. Participants 'piggy-back' on the comments of others and this enriches the discussion, which would otherwise not have been possible to achieve under a one-to-one interview setting.[33] Establishing more than one focus groups is also beneficial. In 2013, the Australian Energy Market Operator (AEMO) established a number of regional focus groups to take into consideration different geographic and demographic dimensions in understanding customers' willingness to accept compensation for different types of power outages or their willingness to pay to avoid outages.[34]

The strengths of a focus group are:[35]

- a large amount of material can be obtained in a short period; and
- different concepts and new ideas can be explored and evaluated.

The shortcomings of a focus group are:[36]

- discussion requires careful planning and needs an experienced facilitator to avoid bias;
- data generated on user perceptions and expectations are purely qualitative and therefore difficult to value and infer;
- needs significant coordination and preparation efforts; and

[33] Rennekamp, R. A. (200). Using focus groups in program development and evaluation. University of Kentucky – College of Agriculture. Available online: http://www2.ca.uky.edu/agpsd/focus.pdf.

[34] AEMO. (2013). Value of customer reliability review – update.

[35] Australian Government Information Management Office. User profiling and testing toolkit.

[36] ibid.

- discussions can be extensive and resource intensive especially of group members are located in different geographical areas.

*Deliberative techniques*

Customer juries (also referred to as 'Citizen Juries' or 'Consensus Conferences') are sophisticated forms of engagement that aim to produce a consensus view or outcome around complex policy issues through the use of deliberative techniques. It is an intensive consumer engagement exercise to which a group of randomly selected individuals from the population (or customer base) are informed about a specific complex question or policy issue using a process that resembles a court of law, in which lawyers prosecute their arguments to the 'jurors' drawing on available information.

Essential elements of a deliberative process include:[37]

- *Deliberation*: The process should provide open dialogue, access to information, respect, space to understand and reframe issues, and movement towards consensus.
- *Influence*: The process should have the ability to influence policy and decision making.
- *Inclusion*: The process should be representative of the population and inclusive of diverse viewpoints and values, providing equal opportunity for all to participate.

From each round of deliberation, individual respondents are given the opportunity to gather insights into the issue and formulate and deliberate on their policy options over the course of several sessions, which can last up to three days. This type of engagement overcomes the problem of unfamiliarity with subject matter, which can impact on the reasonableness of preferences derived using other techniques.

Deliberative techniques are an increasing feature of public health policy, environmental and bio-technology regulation.[38] Deliberative processes have also been used in monopoly utility service settings. In 2012, Yarra Valley Water undertook an extensive program of research and engagement, including some deliberative processes to guide the development of their five year water plan (see Box 3).

[37] L. Carson & J. Hartz-Karp, 2005 'Adapting and combining deliberative designs: Juries, Polls and Forums', in Gastil, J. & Levine, P. (eds) The Deliberative Democracy Handbook, Jossey-Bass, San Francisco, p.122

[38] Details on the citizens' juries approach can be found from the Jefferson Centre, which is a key advocate for this process in the United States.

Citizen juries and similar deliberative techniques have a number of potential strengths. Compared to focus groups and public forums, a deliberative decision-making process can foster greater customer involvement in crafting service offerings, tariff arrangements and possible solutions to emerging issues. As indicated in the following quote, deliberative techniques aim to canvas the 'informed' views of stakeholder and channel this information in a constructive way towards agreed positions on various issues of debate:

> "Citizen Juries offer a way of seeking informed public views using a democratic, deliberative process, while avoiding the problem of demands from large populations by limiting participation to a small number of people … There is evidence that jurors in these settings become more actively engaged in debates, express their views, are able to recall fine details about the information presented and, subsequently, develop a greater sense of coherence."[39]

Main shortcomings relate to the methodological application of the citizen juries approach, which includes: the optimal number of people to participate in a citizen Jury, how to select and recruit witnesses, and the extent to which the recommendations of the jury are affected by the jury selection and deliberation process.

**Box 3 Deliberative engagement case study – Yarra Valley Water**

| |
|---|
| In 2012, Yarra Valley Water held a deliberative forum with residential customers. This process sought to discuss proposed service levels and prices contained within the five year Water Plan. A deliberative forum was chosen due to the wide range of topics and complexity of concepts to be considered. The forum was held on a Saturday for six hours with 39 residential customers, comprising a cross-section of different customer segments. The timeframe allowed for a mix of different techniques including individual voting, open forum and table-based discussions. This process was also supported by a roundtable forum and online survey. It was found that customer perspectives altered as a result of the information presented and the ensuing discussions. Issues discussed included proposed investments in relation to service levels, standard tariff structures and perspectives on optional tariffs and options for different pricing paths over the five-year Water Plan period. Reporting of the process outlined the issues discussed, the information provided and the customer response. It also outlined how deliberation and feedback was then used in decision-making. |

Source: Based on information contained in Yarra Valley Water (2012), Yarra Valley Future Water: Water Plan 2013/14 to 2017/18, October 2012 and a case study presented in Uniting Care Australia (2014) A deliberative approach to consumer engagement in the energy sector, Discussion Paper, December 2014

[39] Whitty JA, Burton P, Kendall E, Ratcliffe J, Wilson A, Littlejohns P, et al. Harnessing the potential to quantify public preferences for healthcare priorities through citizens' juries. Int J Health Policy Manag 2014; 3: 57–62.