March 2001

Report to IPART

The Incorporation of Service Quality in the Regulation of Utility Prices

A Discussion Paper

The Allen Consulting Group

INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES

FOREWORD

For many customers the quality of their electricity, water, gas and transport services is as important as the price of the services. However, the value individual customers place on a better quality of service varies substantially - as may the level of service received. The improved integration of quality of service into pricing and licensing is a priority issue for the Tribunal.

The Tribunal has commissioned the Allen Consulting Group to prepare a report on the integration of service standards and price. Rather than examining any one industry, the report seeks to promote discussion on the general interrelationship between quality of service and price in regulated markets, and considers relevant experience overseas and in other Australian jurisdictions.

The Tribunal is also looking at ways to better define the service qualities that customers may value; and where possible to enable the performance of NSW service suppliers to be compared with those in other jurisdictions.

As is clear from the report, there are considerable difficulties in integrating service quality and price so as to replicate the outcomes of competitive markets. However the Tribunal believes it is an important step for the efficiency and equity of regulated markets to ensure that as far as is practical the prices paid by consumers reflect the quality of service received.

The Tribunal is keen to receive public comment on this paper and the issues it seeks to address. Comments should be submitted by 18 May 2001. After considering comments the Tribunal will prepare reports addressing industry-specific options for the better integration of service quality and price in its regulatory activities.

The views expressed in this report are those of the authors and do not necessarily reflect the position of the Tribunal.

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1 INTRODUCTION AND CONTEXT

Quality and price are central dimensions in shaping the value that consumers place on goods and services in all markets. This paper discusses the reasons why and how quality and price dimensions should be looked at together when regulating the electricity, gas, water and transport industries in NSW.

1.1 Purpose of this discussion paper

The Allen Consulting Group has been engaged by IPART to prepare this discussion paper about *The Incorporation of Service Quality in the Regulation of Utility Prices*. The purpose of this paper is to:

- review the factors that drive the need for regulators to incorporate quality of service issues into the price regulation framework;
- outline relevant experience overseas and in other jurisdictions in Australia;
- identify specific issues in NSW, such as the current regulatory arrangements and structures, which are relevant; and
- set out a framework for the integration of Quality of Service (QoS) with price regulation given the diverse objectives of price regulation.

This discussion paper has been prepared to be brief and non-technical. The aim is to make the issues and options as accessible as possible to a wide range of stakeholders. Naturally, the paper has been written in an open–ended fashion, seeking to stimulate comment and feedback, rather than taking positions.

The views presented are for discussion. While IPART secretariat staff were consulted in preparing the paper, the paper does not represent the views of IPART or state a Tribunal position.

1.2 Background

In its economic regulation role the Tribunal regulates:

- access prices for electricity and gas distribution networks;
- franchise retail prices for electricity and gas;
- urban water prices;
- urban public transport fares; and
- bulk water prices.

The Tribunal is required to consider a range of issues when making determinations and recommendations.[1] The factors can be grouped as follows:

Consumer protection

- prices, pricing policies and standards of service
- general price inflation

[1] Refer to *Independent Pricing and Regulatory Tribunal Act 1992* Sect 15.

- social impact of decisions

Economic efficiency

- greater efficiency in the supply of services
- impact of exercise of functions by some other body
- the need to promote competition

Financial stability

- rate of return on public sector assets
- impact of borrowing, capital and dividend requirements

Environmental and other standards

- protection of environment by appropriate pricing policies
- considerations of demand management
- standards of quality, reliability and safety

From November 1 2000, the Tribunal has assumed responsibility for assessing compliance of water, gas and electricity utilities with their licence conditions (including those relating to quality of service) and advising the Minister on changes to the licence conditions. This provides the Tribunal with new opportunities to integrate more fully quality of service into pricing regulation. Both utilities and users have expressed support for such a venture.

1.3 The key issues and questions

This paper looks at the nexus between QoS and price regulation and considers how this can be best incorporated into future regulatory arrangements.

There is a long list of major issues to be raised and addressed. To look for a framework approach that applies across a range of industries it is necessary to dig deep and examine fundamental premises. Key questions are summarised below.

- What is QoS?
- Why regulate prices and QoS?
- Do we know what consumers need or want?
- What can utilities provide, what does it cost and how to be sure that it is delivered?
- How to manage the trade off between price and quality?
- How to ensure that benefits from regulatory approaches exceed costs?
- Is there a need for a uniform approach to all regulated industries, or is it more appropriate to adopt different approaches to different industries?
- What approaches are applied in other jurisdictions?
- What factors specific to NSW, if any, influence approaches to be taken?
- What options are there to incorporate QoS into price regulation?
- What, if any, approach is likely to be preferred?

The following sections of the discussion paper explore these questions in more detail and canvas views and possible approaches.

1.4 Industry focus

The focus of this paper is upon generic or cross industry issues impacting upon the industries regulated by IPART in NSW. Where specific industries are examined they include:

- Electricity;
- Gas;
- Urban water (ie, excluding bulk water) ; and
- Urban public transport.

2 KEY ISSUES

This section examines a wide range of the underlying issues. It starts from the fundamentals about QoS. It then reviews some broad issues about consumers' needs.

2.1 Why regulate prices and quality of service?

QoS is a pivotal dimension in the concept of value. Price and QoS trade-offs are an important consideration for most customers, although it may seem that it is when expectations are disappointed by a lack of quality that the issue comes into sharpest focus. Well managed businesses often have a clearly articulated view about the QoS they provide, generally encompassed within the concept of brand. QoS is a part of the marketing product mix and competition frequently turns more upon this dimension than price.[2]

In competitive markets consumers can choose between goods and services not only on price but also on QoS. Under these conditions markets can deliver an optimum quantity of goods and services of optimum quality at optimum prices.

Problems arise where markets fail, particularly where businesses have monopoly power to set prices too high and limit supply. Many public utilities are viewed as providing essential services where denial of access can have adverse social and equity impacts. Price regulation can be applied to address these problems, recovering efficient outcomes while also meeting a diverse range of intervention objectives. There is evidence that independent price regulation of utilities including electricity, gas, public transport and water in NSW has lessened price pressures for households and businesses.[3]

While the main focus to date of utility regulation in NSW has been upon controlling price pressures and enhancing affordability, there is less pressure upon utilities to ensure that they meet consumers' expectations about QoS. Economic theory predicts that where utilities are subject to a binding revenue ceiling it will be profitable for them to reduce quality.[4] That is, unless additional QoS constraints are placed upon them, they will have a strong incentive to increase profits by reducing operating costs and capital expenditures that would otherwise be used to produce, say, timely or reliable services.

Regulators have a number of options. Each entails different QoS targets, incentives, levels of certainty about the likely results, and costs. Some could be viewed as supplemental to the existing (price) regulation approach, while others involve building QoS into it. The choice about approach will need to have regard to a number of practical and industry specific issues. The most important of the practical issues is identifying what consumers' preferences are.

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2 There are many issues that are often linked to QoS that are not examined in this report. Public safety is an example. Most utilities involve management of systems that are potentially lethal on a large scale. In response there are often detailed, legally binding requirements about safe operation, generally supervised by a public authority. Safety and public health requirements are generally not subject to rapid change and changes can be factored in as special cases in price regulation when required. Similarly, treatment of issues such as protection of the environment and occupational safety, among others, are not examined further.

3 See IPART, *Annual Report 1999/2000.*

4 See Rovizzi L, and Thompson D, "The regulation of Product Quality in the Public Utilities" in Kay J, Mayer C.P, eds, *The Regulatory Challenge*, Oxford and New York, Oxford University Press, 1995, pp336-357. p338.

Discussion points. Is there a case for price and QoS regulation? Do stakeholders see a need for differing approaches to QoS and price regulation for different industries?

2.2 Background QoS drivers

Thinking about intervention approaches should not lose sight of background factors exerting some pressure for improved QoS. The threat of litigation from affected customers is one underlying influence. Utilities in NSW must generally abide by most Australian laws.[5] Previous reforms have had the effect of removing the 'shield of the crown' that once protected many government owned businesses from litigation.

The threat of litigation provides utilities with an incentive to provide services that are fit for purpose. It is not feasible to rely solely on this mechanism to ensure quality as consumers often have difficulty in being able to evaluate the quality of the service provided. In some cases the consumer may only have a very distant commercial relationship with the supplier, having a contract with a retailer rather than the network operator that may actually be at fault. Litigation also generally involves high transaction costs, and customers have unequal purchasing power for legal representation.

Consideration may be required so that additional regulatory intervention would not undermine or dilute general rights that consumers would have to litigation to recover damages from utilities that are at fault.

2.3 What do customers want?

While QoS is an element of the product mix managed by utilities, the ultimate judge of quality should be the consumer. It might be that the broad answer to the question 'what is QoS?' is 'whatever consumers want'. Consumer preferences should therefore play a guiding role shaping the intent and nature of regulatory intervention arrangements where feasible.

The literature does not provide comprehensive information about consumer wishes, although it does provide general insight. The material that is available from the US, Canada, the United Kingdom and Australia, among others, indicates that consumers want and expect QoS improvements from regulated utilities.[6]

A brief inventory of recent consumer preference studies is provided in Appendix A and this is drawn upon in the comments about consumer preferences that follow.

2.3.1 Different consumers have different needs

Consumers appear to have different needs and wants regarding QoS. There appear to be differences across products for the same consumer and differences between consumers for the same product.

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5 A number of regulated utilities in NSW are established under their own legislation or under the *State Owned Corporations Act 1989*. While not subject to the Corporations Law, company SOCs and statutory SOCs 'are not exempt from any rate, tax, duty or other impost imposed by or under any law of the State merely because it is a SOC' — see subs-ss. 9b and 20F(a) of the *State Owned Corporations Act 1989*.

6 See for example, State Rail Authority, *National Passenger Survey*, January 2000; Energy Australia, *Meeting Customer Requirements under a Regulatory Framework*, January 1999; Synapse Energy Economics, Resource Insight Inc. and National Consumer Law Centre, *Performance-Based Regulation in a Restructured Electric Industry* prepared for the National Association of Regulatory Utility Commissioners, NARUC, Washington, November 8, 1997; and Canadian Electricity Association, *1998 Public Attitudes Report*, *CEA* 1998.

Focusing firstly upon differences between products, electricity customers in general seem to exhibit a symmetrical preference set. They are prepared to pay more for quality improvements where the costs and benefits are demonstrated.[7] They also seem prepared to accept lower QoS (up to a point) if they pay less.

There is less data about what water and gas customers in already developed urban networks want. Recent events in the water industry in Sydney, however, give a strong indication that customers place emphasis on utilities meeting existing expectations about quality. It is not clear that these customers see that there are benefits from substantial additional investment in QoS. In any case there is much less emphasis by utilities in these industries upon major service improvements. Is it possible that some consumers in these industries have asymmetric preferences? (ie, have a preference to maintain QoS but don't value increases in QoS).

Turning to customer differences, it is clear that even within the same product different customers have different needs and preparedness to pay. Studies regularly find that household consumers with higher incomes are prepared to pay more for quality improvements. The converse also generally applies. The willingness of customers to trade off price and QoS varies with purpose of use. Broadly, for example, householders place less value on electricity reliability than business users who may face a loss in earnings from periods without electricity.[8]

Customers with similar needs are often clustered together. In electricity distribution, business customers in the CBD, for example, may place more emphasis on reliability and have the capacity to pay for additional reliability than households in the suburbs. Geography also often groups customers together where, for example, distance drives costs and QoS outputs such as reliability. Customers at the end of long electricity distribution feeders, for example, can face common problems of low reliability, with high costs to make an improvement and low customer density that raises cost per customer.

Consumers' wants and needs change over time. At least this is one interpretation of the steady escalation in more stringent QoS standards and targets seen in many utilities in many countries over several decades. While there is no specific evidence to hand, given sustained increases in real incomes and steady progress in technology, it seems reasonable to suggest that customers will continue to expect QoS to improve over time, or all else being equal, that the price paid for a given level of QoS would decline over time, or a combination of both.

2.3.2 Collecting data about consumers' preferences

Clearly identifying and assessing customer needs regarding QoS is a complicated task. In fact, looking at this task highlights the usefulness of being able to rely on an efficient market wherever possible.

Major concerns relate to obtaining an accurate picture and minimising scope for strategic behaviour. Complications often enter into consumer replies to surveys.[9] Economic theory also suggests that given an incentive, people can try to influence outcomes in their favour by being selective in their answers to surveys about their needs and preparedness to pay.

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7 Budiyani R, Coombs C, Electricity Tariffs and Security of Supply, Information Paper No 1, South Australian Independent Industry Regulator, June 2000.

8 See for example the analysis contained in ORG, *Electricity Distribution Price Determination: 2001-05*, *Volume 1: Statement of Purpose and Reasons*, September 2000.

9 Sunstein (ed), *Behavioural Law & Economics*,*Cambridge* University Press, Cambridge, 2000.

The task is made harder by the confusing list of techniques. Studies to estimate the value of electricity outages have been conducted using the technique of proxy methods, market based methods, or contingent valuation methods and many others. A recent South Australian Centre for Economic Studies (SACES) review conducted for the South Australian Independent Industry Regulator (SAIIR) found that contingent valuation is the most widely used because the method directly asks consumers what they are willing to pay and recommended it as the best method of determining local preferences in South Australia.[10]

A further challenge arises from the difficulty for regulators in assessing consumers' acceptance or preference for incremental versus major change. It is also difficult to interpret data that summarise system wide or network attributes in statistical averages as opposed to data about specific consumer groups (ie, in different regions or customer category).

Discussion points. Should incorporation of QoS be guided by data about customer preferences or should other approaches (such as allowing customers to reveal their preferences) be pursued?

How and when should the regulator seek to gauge customer preferences regarding QoS? What role should other expressions of, say, democratic will, have in shaping the regulatory framework?

2.4 How to measure quality?

How can customers and the regulator recognise quality when they see it? Industry customers and regulators often agree to base regulatory approaches on tested, reliable and verifiable performance measures, with independent scrutiny of the providers' measurement of their performance. This may work to limit the range of QoS factors included at first, but flexibility could be provided in order to factor in additional important dimensions of QoS as well as to accommodate changing preferences and technology over time.

The actual measures to apply generally depend on factors specific to each industry. Very often it appears that it is easier to measure system performance dimensions (particularly outputs) than it is to assess what value customers actually place upon them. Ideally, measures are explicitly linked to feedback obtained from customers.

There is a profusion of indicators that have been developed in differing industries. Some are summarised in a table in Appendix D according to their impact on four dimensions of quality — outputs, inputs, processes and outcomes.

When developing a set of performance measures exclusions for external events such as severe storms or load shedding that are outside of the control of providers are inevitably controversial. There are two broad approaches for managing issues in this area. The first is to set out detailed definitions about such events. This normally becomes quite complex with controversy, for example, about what constitutes a 'storm'. The other is to apply flexibility and judgement. This involves a decision making approach to take account of special circumstances on a case by case basis.

[10] Survey based data collection techniques about consumer preferences can be contrasted with outcomes that emerge as part of democratic processes. Local government can, for example, place certain restrictions or 'buy' quality on behalf of constituents. This underpins the need to take a whole of government approach in regulation, as in other spheres, and ensure that the approach taken does not close off such initiatives. SAIIR, Information Paper No.1 - Electricity Tariffs and Security of Supply, SAIIR, June 2000.

Obtaining data about previous QoS performance indicators can be a means of providing reliable benchmarks against which future performance will be assessed. It is notable that this information could potentially influence financial outcomes once QoS arrangements are incorporated into price regulation arrangements, although the incentive differs according to the regulatory approach that is adopted.

2.5 What approaches to intervention are there?

There are a number of regulatory tools available to address QoS issues. Approaches include:

- minimum service standards;
- comparative performance monitoring;
- customer empowerment;
- customer compensation;
- service fault penalties; and
- adjustments in the revenue cap.

Details about these approaches are provided in Appendix B.

The approaches differ in the extent to which they integrate price and QoS within the same framework. More importantly, they differ according to parameters such as the nature of their QoS target, their impact on incentives, the degree of certainty they offer, and their cost. Key points about the differing approaches are summarised in Table 2 on the following page. An additional row is included to facilitate comparison of the additional approaches with reliance upon the threat of litigation.

Table 2 Approaches to QoS Regulation

Instrument	Target	Incentive	Certainty	Cost
Minimum Service Standards	Can target a wide range of QoS dimensions.	Compliance mentality and no incentive to innovate.	Appears to guarantee at least a minimum QoS level.	Modest costs – mainly administrative.
Comparative performance monitoring	Utility averages in addition to data about black spots are normally targeted.	Can place pressure upon poor performers. No incentive to outperform.	No certainty.	May result in cost increases but as benchmarks are set on the basis of past performance this should not require any large scale capital investment.
Customer Empowerment	Targets poor performance.	Increases incentive for service providers to meet service obligations and customer expectations.	No certainty.	Increases the costs of service provision.
Customer Compensation	Sets minimum level of acceptable service standards	Mixed incentives. Service providers are given an incentive to deliver services within the defined parameters. Also provides incentive to alter parameters.[11]	High level of compliance (plus customer compensation if there are faults).	High costs to identify and verify faults and make payments to customers.
Service fault penalties	Many dimensions of QoS can be addressed.	Strong incentive to meet targets. No incentive to out perform.	High level of compliance if penalties are realistic.	Moderate regulatory costs.
Adjustments in revenue cap	Can target many aspects of QoS performance.	Strong incentives.	High certainty within targeted range of QoS.	Establishment costs, with low ongoing transaction costs.
Litigation	No specific targets set.	Modest to low level incentives.	Relatively low degree of certainty	Costs of litigation may be substantial and prohibitive.

Source: The Allen Consulting Group

Discussion points. Are there additional policy approaches to improving QoS that should also be considered? Are there attributes about the approaches discussed above that have not been included but should be?

2.6 Balancing costs and benefits

When framing regulation the NSW Government agreed with all of the other Governments in Australia that as a matter of principle 'the benefits of a particular policy or course of action (are) to be balanced against the costs of the policy or course of action'.[12] In addition, as part of the diverse goals of price regulation in NSW, it is notable that the regulator should take into account the continued viability of utilities and the rate of return of public sector assets as well as efficiency and other social goals.

11 For example, if water corporations are required to pay customers $50 if they do not re-connect them within a certain time frame, there will be increased incentives for water corporations to extend the planned outage time to ensure that they can re-connect the water and avoid service fault penalties.

12 Section 3(b), *Competition Principals Agreement — April 1995*.

The benefits of more explicit QoS regulation include the gains enjoyed by consumers, or achievement of one of the other diverse goals of the regulator. The costs to be taken into account could include:

- capital costs — improving reliability in networks often requires investment in new or upgraded equipment by utilities;
- operating costs — reliability dimensions of QoS can be influenced by changing expenditure on operations and maintenance. Notably, some network capital investments can improve reliability and reduce necessary operating and maintenance costs;
- data collection and management costs — these can be significant. Typically the main burden falls upon utilities. Different approaches can impose significant differences in data costs;
- regulatory costs — expanding the scope of regulation makes it more complex and implies the need for additional resources;
- compliance costs — utilities will often face additional costs when more explicit QoS arrangements are put into place. These are additional to capital, operating and data costs discussed above; and
- costs incurred by consumers — consumers can incur additional costs where they are involved in monitoring QoS and seeking remedies. The aim of many QoS interventions, however, is to minimise such costs, nevertheless it is notable that different approaches entail different costs.

Obtaining information about these costs, and evaluating the balance between costs and benefits is a challenging aspect of QoS regulatory intervention. Notably, it is ultimately the consumer (or taxpayer) that pays the costs of intervention. This places emphasis on seeking confidence that the benefits are commensurate.

Similarly to other aspects of price regulation, one important aim is to identify the efficient costs. While there are a wide range of techniques available to collect data about costs (and benefits), regulators very often have little option in practice other than to rely on information obtained from the regulated utilities. Verification of data obtained is an issue, but this is less of a problem where there are a reasonable number of comparable utilities. Regulators do, however, normally seek independent scrutiny of cost data where feasible.

Discussion point. How can regulation best manage uncertainties in the calculation of costs and benefits for utilities and customers?

2.7 What additional problems are faced in practice?

An emerging theme so far is that there is very little about incorporating quality within a price regulation framework that is easy in practice. It may be helpful to flag those additional challenges that apply fairly generally.

Very often it is desirable to pursue arrangements that seek to address the different circumstances of different groups of customers with different needs served by regulated businesses. A related issue is that there is pressure to address worst–case performance as well as average performance for a utility, to ensure that benefits flow through to all customers consistent with efficient and fair operations.

When looking at financial incentives (including penalties, compensation payments and adjustment of the revenue cap) determining the amount of funds that utilities stand to lose

or gain is a major issue. Economic optimality would be achieved where the costs of increased QoS equal the value consumers place upon it. Without full information optimality is impracticable. The regulator may in fact have little alternative than to apply judgement. In this context key parameters can include the amount of additional risk and uncertainty involved for utilities and customers, identifying the magnitude involved that is likely to influence the behaviour of utilities, and customers' willingness to pay. The amount could be greater than the costs to businesses of providing incremental QoS improvements, but less than the likely value that consumers place on that increment of QoS.

This is a complex area where the challenge is to apply a simple approach that is workable and fair. Key parameters include specification of incentives clearly and sufficiently in advance to maximise their effectiveness and be as simple as practicable to understand for providers and customers, without distorting incentives.

Incorporation of QoS within price regulation involves significant regulatory and commercial risks and uncertainty about actual QoS outcomes delivered. Regulators can take a variety of approaches to managing the risks. These can involve working out how to take a staged approach or focusing on areas with the best information or the best chances of success.

Discussion point. Are there other general practical factors that should be considered?

3 EXPERIENCE IN OTHER JURISDICTIONS

It is desirable that approaches to QoS issues build on the experience of others. This section discusses developments overseas and in jurisdictions within Australia.

3.1 Overseas jurisdictions

3.1.1 US Developments

Utility regulation in the United States (US) is beginning to place greater emphasis on preventing quality degradation and enhancing QoS.

Deregulation of the electricity and gas sectors began in 1992. The broad agenda has been to introduce competition into the generation sector, unbundle and regulate the monopoly distribution businesses and encourage the development of a competitive retail sector. QoS was not a focus of concern under initial rate of return regulatory approaches, but QoS is now an emerging issue. One theme is increasing interest in the application of 'Performance Based Regulation' (PBR) among State utility commissioners as well as the National Association of Regulatory Utility Commissioners (NARUC) and others to factor in quality and price concerns.[13]

PBR includes regulatory approaches that rely on financial incentives and disincentives to induce desired behaviour by a regulated firm. Indicators of performance are often aggregated into a performance index or a series of indices. The fundamental principle behind PBR is that good utility performance should lead to higher profits, and poor performance should lead to lower profits.[14]

In the short time that PBR has been applied to electricity utilities, commissions have developed service quality standards for issues including customer contract, customer satisfaction, outages, and employee health and safety.[15] Over a much longer period, commissions have regulated these elements of service (including power quality) as part of their plenary responsibility for electric utility rates and service.

While PBR mechanisms have been in place for relatively short periods of time, experience so far indicates that:[16]

- an incentive approach particularly where it involves scope for rewards as well as penalties (ie, it has a symmetrical form) is more popular with utilities and consumers than minimum standards and penalties;
- a few broad indices are favoured over many, detailed measures as they are easier to maintain and for customers and employees to understand;
- incentives should be carefully designed to avoid unintended consequences;
- indices should be set to provide an economic incentive to achieve satisfactory performance at a cost that is less than the value to the customer;

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13 see Synapse Energy Economics, Resource Insight Inc. and National Consumer Law Centre, *Performance-Based Regulation in a Restructured Electric Industry* prepared for the National Association of Regulatory Utility Commissioners, NARUC, Washington, November 8, 1997.

14 ibid, p9.

15 See Southern California Edison, *Advice 1373-E Performance Based Ratemaking (PBR) Performance Report*, March 1999.

16 see Synapse Energy Economics, op cit.

- measurements should be chosen that have reasonable data collection costs;
- a regular and comprehensive reporting process should be set up to provide sufficient data for PBR evaluation;
- incentives based on inter–utility comparisons should rely on data that will be available in a timely fashion; and
- there remains considerable debate over the appropriate quantum of penalties/incentives. There appears to be some judgement involved in setting these although the magnitude tends to be relatively modest. In the case of Boston Gas, a range spanning positive or minus 1.1 percent of the return on equity at risk has been applied as a penalty or incentive payment depending on QoS performance. (If applied to the NSW electricity industry this equates to a maximum penalty or incentive of $30 million).

QoS plays a less prominent role in the regulation of the water industry in the US, both in terms of regulatory attention and research effort. The focus of attention in water is upon the quality of drinking water that is regulated at the federal level. As the State utility commissioner's role is limited to rate–setting of the investor-owned water companies, it is complex to incorporate QoS issues in price regulation. Hence, QoS in water has been most commonly addressed through minimum standards.

3.1.2 UK Developments

In 1999 the regulator of gas and electricity, the Office of Gas and Electricity Markets (OFGEM) recognised that further work needed to be carried out to address the balance between cost reduction and service improvement in the public electricity supply (PES) distribution businesses. The result was the Information and Incentives Project (IIP).

The project consists of four workstreams:[17]

- defining the output of regulated businesses on a consistent basis;
- developing a consistent output based incentive regime;
- monitoring on a consistent basis service delivery between price reviews; and
- reviewing the incentives created by the regulatory framework.

The final proposals on the output measures to which direct financial incentives should apply were published in September 2000.[18] OFGEM considers that appropriate selection criteria should reflect what customers want, be attributable to PES distribution businesses and be capable of objective measurement over time and across companies.

Respondents also suggested a number of other criteria for output measures,[19] including that they should:

- be flexible to changes in the role of the distribution business;
- be simple and easily understood;
- not inhibit innovation;

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17 OFGEM, *Information and Incentives Project: defining output measures and incentive regimes for PES distribution businesses – Update*, OFGEM, London, March 2000, p.1.

18 OFGEM, *Information and Incentives Project: Output measures and monitoring delivery between reviews — Final Proposals*, OFGEM, London, September 2000.

19 OFGEM, *Information and Incentives Project: defining output measures and incentive regimes for PES distribution businesses – Update*, OFGEM, London, March 2000, p.14.

- reflect the service received by the customers rather than the performance of the network;
- be capable of being produced in time for the introduction of the incentive regime and at a reasonable cost; and
- encourage logical investment in the network to improve the level of service.

Distribution businesses will start producing the information required for the IIP from April 2001 and are required to have the necessary measurement systems in place by April 2002. The IIP project will be incorporated into the next distribution price control review – due at the end of 2004.[20]

OFGEM is also currently in the process of undertaking consultation on the future application of the Overall and Guaranteed Standards of Performance. This provides payments to customers where service is not of an appropriate quality. OFGEM anticipates that these will remain an important part of the regulatory framework.[21]

After public consultation the Director General of Water Services has introduced an approach where price limits are adjusted by 'notched' amounts (either ± 0.5 per cent or ± 1.0 per cent), for the years 2000-01 to 2004-05, for those companies offering particularly good or poor service to their customers.[22] This new price regime is intended to provide future incentives for companies to improve services and to refrain from cutting costs by reducing the standard of service provided. Where the standard of service is assessed as being significantly better than that provided by the industry generally, an increase in price limits in 2000-01 of 0.5 per cent has been made; where service is particularly poor relative to the industry, a reduction of 0.5 per cent has been imposed. No company's performance was considered so poor, or so good, as to warrant a movement of one per cent.[23]

The Office of Water Services (OFWAT) acknowledges that in the future, it may be desirable to develop the approach to enhance incentives, perhaps by moving to a rolling assessment or by making price adjustments on a sliding scale.

The Strategic Rail Authority (SRA) regulates UK rail operators' QoS performance through a mix of penalties and incentives. The measures used for rail transport include cleanliness, comfort, crowding, and customer contact issues, all of which are included in a Passengers' Charter. Passenger train operating companies (TOCs) are required to pay compensation to passengers in accordance with the provisions of the Passengers' Charter and include refunds for up to 50 per cent of the value of a journey on individual trains and season ticket discounts of 5 per cent for consistently poor performance.[24]

Generally, the SRA performance regimes apply regardless of cause, but operators have separate arrangements with Railtrack, the sole operator of the railway infrastructure, that

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20 OFGEM, *Information and Incentives Project: Incentive schemes — Initial thoughts*, OFGEM, London, January 2001, p.46.

21 OFGEM, *Guaranteed and Overall Standards of Performance: A Consultation Paper*, OFGEM, London, October 2000.

22 Two companies asked OFWAT to refer their price limits to the Competition Commission. One of them was successful in increasing the price limit set by OFWAT. In this instance the Competition Commission took a different view on a number of issues including the service performance adjustment.

23 OFWAT, *Final Determinations: Future Water and Sewerage Charges 2000-05*, OFWAT, Birmingham, November 1999, p.99-101.

24 Office of the Rail Regulator, *The Periodic Review of Railtrack's Access Chargers: Provisional Conclusions on the Incentive Framework*, Office of the Rail Regulator, London, April 2000, p.53.

provide compensation when Railtrack causes poor performance. Certain penalties are waived or capped for certain causes outside Railtrack's control.[25]

In addition, the access arrangements between Railtrack and the operator sets out a performance regime designed to produce incentives for both Railtrack and TOCs to strive for improved operational performance. Of the 25 franchised passenger operators, 19 operate under template regimes that are structured around a benchmark level of performance[26] and contain two thresholds that define high and low performances.[27]

The key measure by which operational performance is measured is a 'performance minute' that seeks to reflect the average lateness experienced by all passengers using a train service. As either Railtrack or a TOC can cause train delays, each party has a 'benchmark' for each service group, set out in the contract and reflecting historic performance levels. Incentive payments are calculated by reference to the 'benchmarks' and the payment rates for each service group.[28]

During 1999-2000 the SRA launched the National Passenger Survey that showed opinions on performance issues that matter the most.[29] Following extensive consultation with Rail Passenger Committees and research into passengers' requirements, the SRA devised the Public Performance Measure (PPM) to give a better indication of the actual performance of passenger rail services. The PPM combines figures for punctuality and reliability into a single performance measure, covering all scheduled services, seven days a week.

3.2 Jurisdictions in other states of Australia

3.2.1 Overview

The Australian regulators of electricity, gas, water and public transport are still in the process of bedding down price regulation arrangements following major structural reforms. Most regulators of these industries do not have specific responsibility for regulation of price and quality. Quality issues are often managed through licence requirements administered by other government bodies. A summary of the state of play regarding price and QoS regulation in the Australian states is provided in Appendix A.

Victoria has gone further than the other states in regulating QoS. This may be related to the fact that Victoria privatised many utilities over the 1990s. Experience suggests that consumers demand higher QoS and are less accommodating of service faults when utilities are privately owned than when they are owned by government. In any case, Government in Victoria has extended much more regulatory oversight over aspects of QoS in the electricity, gas and transport sectors than is apparent elsewhere.

South Australia also recently sold a franchise to operate the State's electricity distribution network business and it also has some specific QoS provisions and is examining additional measures to better integrate price and quality regulation.

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25 Strategic Rail Authority.

26 For most services this benchmark was set in 1995 based on historic levels of performance. Very little information is available on the process undertaken to set these historic performance levels.

27 Office of the Rail Regulator, *The Periodic Review of Railtrack's Access Charges: Provision Conclusions on the Incentive Framework*, Office of the Rail Regulator, April 2000, p,54.

28 Office of the Rail Regulator, *Service Delivery Agreement*, Office of the Rail Regulator, London, November 2000.

29 The National Passenger Survey highlighted that 76 per cent of passengers were satisfied with the day's journey and only 11 per cent were dissatisfied. Value for money remained the principal concern.

3.2.2 Approaches to Quality of Service in Victoria

The regulatory arrangements established for the electricity networks in 1996 set minimum standards for reliability. These standards differentiated between short and long feeders[30], but were generally seen to be too conservative and easy to achieve. The Office of the Regulator-General, Victoria (ORG) has prepared annual reports on QoS and financial performance of the electricity distribution businesses. These reports provide time series data on the reliability of supply and are considered to have put pressure on poor performers (eg United Energy at one time) which has been translated into improved performance in subsequent years.

In its 2001–2004 electricity determination, ORG has adopted a framework incorporating many features adopted by OFGEM and some US regulators. Two financial incentives for service reliability have been introduced:

- the addition of a new term 'S' to the CPI-X price controls[31] that will adjust the annual price caps for each distributor to reflect actual service performance outcomes relative to the targets. The targets cover total minutes off supply, interruption frequency and duration for both planned and unplanned outages defined separately for each distributor and for each of the four major feeder network types. To the extent that the distributors can achieve or exceed the set reliability targets at a lower cost than implied by the expenditure benchmarks, they can keep additional revenue within the regulatory period. If they under–perform the targets their revenue will be reduced over that period; and
- a requirement to make 'Guaranteed Service Level' payments to customers who experience reliability that is worse than specified performance thresholds.[33]

Standards have been set by consultation, monitoring and consumer liaison and will be measured against a year 2000 baseline. The impact of momentary interruptions has been excluded from the incentive schemes due to lack of reliable and comprehensive measurement. Distributors may seek exclusions from the schemes if an event occurred that was outside the control of the distributor (but not if interruptions were due to inadequate transmission connection capacity due to inadequate connection planning).

It should be noted that the financial value of the 'S ' factors is based on the estimated cost of meeting the targets, rather than the value that might be placed on improved service by customers. The marginal costs of reliability were found to be reasonably consistent across the distributors and significantly less than the most credible estimates of the value placed by customers on the loss of supply.

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30 A feeder is an electric line and associated equipment at a normal voltage level between 6.6kv and 22kv which a distributor uses to distribute electricity. In Victoria four types are identified: long rural, short rural, urban and CBD feeders.

31 The Office of the Regulator–General applies a regulation regime to utilities in Victoria that permits regulated prices or revenues to rise by no more than the aggregate change in prices (ie, the CPI) minus an adjustment for expected efficiency gains (the X factor). See Office of Regulator–General *Electricity Distribution Price Determination 2001–05*, *Volume I*, *Statement of Purpose and Reasons*, September 2000. A broadly similar arrangement is applied in many Jurisdictions, including NSW).

32 That is CBD, urban, rural short and rural long distribution lines.

33 Distributors are required to make specific payments of $80.00 to eligible customers for excess number of supply interruptions (9 annually for CBD and urban customers, and 15 annually for rural customers) and excess time (more than 12 hours) taken to restore supply following interruption.

The ORG also decided to no longer rely on previous minimum performance standards for electricity distributors. These were so low as to have little continuing relevance especially in light of stronger incentives for reliability improvements. The ORG foreshadows that it will instead consider enforcement action (ie, licence revocation) in the event of 'a substantial decline in reliability'.

The ORG recently published its first performance report on the Victorian Gas Businesses. The aim of the report is to stimulate improved service provision through "competition by comparison" and to inform customers about the level of service they receive. While similar to its earlier annual electricity reports it is less comprehensive. ORG stated that future reports would see greater analysis and comparison of trends and an improvement in the reliability of the data through the introduction of regulatory audits.

Following a review of water licences in Victoria including a rigorous examination of QoS standards there has been a considerable simplification of standards. Water companies now focus upon just three performance standards specified in their retail licence —drinking water quality, restoration of water supply and confinement of sewer spills.[34]

The regulatory regime for Water administered by the ORG includes the following non-pricing issues:

- the development of a Benchmark Customer Contract and a Customer Charter for the Melbourne metropolitan water industry;[35]
- the review of performance standards in Schedule 2 of the water and sewerage licences;
- the introduction of public reporting on the customer service performance of the water companies and a *competition by comparison* regime;
- the development of operational audits to assist the three Melbourne metropolitan water companies to identify and address areas of potential non-compliance with their licences obligations and to assist the Office to carry out its compliance, enforcement and comparative reporting roles; and
- participation in the development of a licensing regime to apply to the three major non-metropolitan water authorities.

Victorian Rail Transport is regulated under a regime similar to the UK regime. Each operator holds legally binding franchise agreements with the Victorian Director of Public Transport for between 10 and 15 years. These agreements set out overall levels of service

[34] In 1996 the ORG undertook a rigorous assessment of the then 17 standards to determine whether they were practical, of substance, a useful performance driver and capable of unambiguous and enforcement. Each standard was also assessed to determine whether quality assurance could be given in respect of data collection processes and whether there was historic data available upon which the standard might be evaluated. The ORG recommended to reduce the number of Schedule 2 standards to three. See the issues paper ORG, *Water Industry Performance Standards Review*, April 1996 and the concluding report ORG, *Water Industry Performance Standards Review: recommendations to the Minister for Agriculture and National Resources*, June 1996, available at www.reggen.vic.gov.au.

[35] An interesting feature of the regulatory framework is the concept of an implied customer contract. Each customer of a retail company is deemed to have entered into a contract with the company on the terms and conditions set out in the licence. It is a condition of the licences that the retail companies develop and implement procedures to consult with customers about contract content, including services standards and rights and obligations of both parties. To do this, each company has set up a customer advisory committee or a similar consultative forum to provide input from customers.

that each operator is required to provide, the tickets they must offer, the maximum fare they can charge for tickets and other performance standards.[36]

The Victorian Director of Public Transport publishes 'Track Record' each quarter which reports on the performance of the five passenger train and tram franchisees against their reliability and customer service targets and the resultant payments and penalties imposed by the Director. The resultant payments and penalties are not linked to fares and are calculated under the Operational Performance Regime which began on 29 August 1999. In addition, franchisees must provide passengers holding periodic tickets with a free ticket in the event they do not meet minimum customer standards.

3.2.3 South Australia

The regulatory arrangements established for the long-term lease of the SA electricity distribution network assets specified an index of QoS measures against which performance will be assessed. The index includes indicators of the time to restore supply, average minutes off supply and the average number of interruptions per customer. The utility annually reports its performance against these measures to the Office of the South Australian Independent Industry Regulator (SAIIR). Variations in performance result in modest financial penalties or rewards.[37]

The SAIIR has recently published a report on the comparative performance of the SA distributors against various QoS and cost measures. The SAIIR has also commissioned a consultant to examine the feasibility of setting, or modifying, the "X" factor at the next review based on relative performance against the QoS and cost performance indicators in the current period.[38]

3.3 Observations

While it is difficult to draw hard conclusions from developments in other jurisdictions some important points seem to emerge.

Regulators are applying a range of approaches to deal with different aspects of incorporating QoS into price regulatory frameworks. They also use different tools to deal with differing aspects of the problem.

- *Minimum service standards* have been reviewed and simplified (eg, in water in Victoria) providing utilities with more focused key desired outcomes.
- In Victoria *comparative performance monitoring* has served as a basis for progression to more sophisticated incentive structures.
- *Customer empowerment* has played a useful part in designing regulatory approaches (eg, customer committees in rail in the UK).
- *Service fault penalties* have also been employed to give stronger financial incentives to address worst–case performance as well as average performance (eg, Victoria), to ensure that benefits flow through to all customers consistent with efficient operations.

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36 Director of Public Transport, *Track Record Quarterly Performance Bulletin: July-September 2000*, Victorian Department of Infrastructure, December 2000. p.2.

37 SAIIR, *Performance of Regulated Electricity Businesses in South Australia — 1999/2000*, SAIIR, *November 2000.*

38 See SAIIR, Annual Report 1999/2000, September 2000, p.21 at www.saiir.sa.gov.au.

- Some arrangements incorporating *price/revenue cap* adjustments that impose penalties for underperformance as well as those that involve both penalties or rewards for superior performance (ie, out performance) have been used in the UK, the US and in Victoria. QoS has been factored into CPI–X price regulation approaches similar to those operating in NSW (eg, Victoria). In general, these arrangements have only placed relatively small amounts of the regulated revenue at risk, with arrangements involving penalties or incentives spanning a range of between 0.5 per cent and 3 per cent. Arrangements typically focus on a limited number of reliable and verifiable performance measures that are understandable by producers and consumers.

Discussion points. Are there other lessons to be drawn from other jurisdictions? Are there reasons why the experience of the other jurisdictions reviewed would not be applicable in NSW?

4 SPECIFIC ISSUES IN NSW

Are there any factors specific to NSW which would influence the decision to incorporate QoS into the price regulation framework? This section briefly reviews arrangements in NSW looking for potential gaps. It then reviews other issues including institutional factors and the availability of data.

4.1 Existing QoS arrangements and systems

A large number of QoS arrangements are already in use in NSW. The table below summarises the consultant's view about the range of instruments currently applied to protect and enhance the QoS provided by regulated utilities in NSW, drawing on the instruments available identified earlier in this paper.

Table 2 QoS Instruments in NSW

	Minimum Service Standards	Comparative Performance Monitoring	Customer Empowerment	Customer Payments	Other Financial Incentives#
Electricity	Some Guaranteed Customer Service Standards in regulations.	Annual reports detailing performance.	Customer contract arrangements with distributors being settled. Complaints subject to EWON.	Rebates given to customers for some QoS failures (ie, punctuality).	No specific QoS dimension in price determinations.
Water	Urban water standards are specified in operating licence.	Reporting against standards in operating licence. Also submitted to the licence regulator (IPART).	Customer contracts. Ombudsman for complaints (EWON for Sydney water). Consultative groups exist for a range of users	Nil	Price cap requires Sydney Water to achieve specific outcomes.
Gas	The regulations give guidance on the content of Customer Service Codes. Service contracts to include minimum standards under consideration.	No current performance monitoring.	Consultative groups. Utilities prepare a Customer Service Code. Ombudsman assistance for complaints. Agreements between service providers and their customers in progress.	Nil	No specific QoS dimensions in price regulation arrangements.
Transport	Minimum service levels in Minimum Service Policy. Quality and reliability standards are codified in City Rail's CSO.	City Rail reports on-time running on a regular basis.	Some customer consultative fora. Standards in DOT's Minimum Service Policy also replicated in service contracts. Complaints handled by the NSW Ombudsman.	Nil	No specific QoS dimension in price regulation arrangements.

Includes service fault penalties and adjustments in revenue cap.

Further details about regulatory arrangements that impact upon QoS are contained in Appendix C to this discussion paper.

In line with experience in other jurisdictions NSW tends to rely on multiple arrangements to encourage utilities to meet QoS expectations. In practice there is no single instrument that presents the definitive answer. Applying a range of measures may be a useful way of making decisions and providing helpful incentives and managing QoS risks without full information.

The main gap seems to be that NSW is not applying substantial financial QoS incentives — while some approaches involve financial penalties there are no financial incentives to encourage utilities to strive for improved QoS targets.

It is notable that the scope to change financial incentives through price regulation can be limited in some cases. For the SRA, the prices set by the Tribunal recover only a small amount of the costs. Hence the impact of QoS incentives in price regulation is diminished. A substantial portion of the SRA's funds is obtained through payments from the Government. Furthermore, and (possibly reflecting the funding arrangements) the policy objectives of the Government bind the operation of the Transport utilities more tightly than other utilities.

Discussion points. If it is the case that using a range of measures to achieve desired QoS levels in regulated industries is generally effective, it is not clear that it is desirable to continue with the gaps and inconsistencies in the approaches applied in NSW. Why should some approaches which appear to be generally effective not be applied more widely? Should customer payment arrangements, for example, apply more generally?

4.2 Regulatory agencies and responsibilities

Currently responsibility for QoS standard setting is allocated to different parties in each of the regulated industries.

The following table summarises the allocation of regulatory responsibilities for NSW utilities that have an impact upon QoS or pricing.

Table 3 Regulatory Responsibilities in NSW

	Electricity	Water#	Gas	Transport
Pricing	IPART	IPART	IPART	IPART
Safety	MoEU	Health	Code, MoEU	DoT
QoS setting	Measures set by Industry	IPART as Licence Regulator	MoEU	DoT/ORR
QoS monitoring	MoEU IPART	IPART	IPART	DoT/ORR
Other (eg environment, customer protection)	MIG/MoEU EPA	EPA Dept of Health DLWC	MoEU	

#: For Sydney Water, Hunter Water and Sydney Catchment Authority.

Abbreviations: Ministry of Energy and Utilities (MoEU), Department of Transport (DoT), Office of the Rail Regulator (ORR), Market Implementation Group (MIG), Environment Protection Authority (EPA), Department of Health (Health).

Inspection of the table suggests that notwithstanding the transfer of the licensing role to IPART the allocation of responsibilities is complex. Arrangements are probably more fragmentary than in other jurisdictions such as the UK, Victoria and SA.

- In electricity and gas the Tribunal regulates prices but not the QoS. In electricity QoS standards are set by the utilities themselves while in gas the MoEU regulates the QoS requirements. However, the Tribunal could recommend licence conditions to the Minister to set performance standards.
- The transfer of licensing functions to the Tribunal will enable the Tribunal to advise the Minister on licence conditions relating to the level and reporting of QoS.
- However, the MoEU has proposed that the QoS-related licence conditions in electricity be removed and placed in a regulation on safety and network planning and operation under the Electricity Supply Act. In this case the level of QoS and reporting of performance would be a matter for the MoEU. MoEU argues that this would bring together all the criteria relating to network planning into a single consistent framework.
- Regulatory responsibilities for water are particularly fragmented in NSW. There is a profusion of agencies with a role and arrangements differ between the major water utilities (Sydney Water, Hunter Water, and Gosford and Wyong Councils).
- The proposed ORR is likely to take on the responsibility for setting safety and operational standards in rail and report on performance against these standards. Arguably safety and operational standards are closely intertwined in the rail system.

While the division of responsibilities is complex in NSW this does not necessarily suggest that it is an environment where incorporation of QoS issues into price regulation is impracticable. Instead the complex framework underlines that it is desirable to ensure that that there is effective coordination between the regulatory agencies.

4.3 NSW data needs and availability

Steps to include QoS into price regulation in NSW suffer from a relatively poor starting position in terms of access to data. IPART indicated when considering whether to include a service reliability incentive in the regulatory framework for electricity distribution network service providers, that its main concern has been the 'lack of adequate, consistent and comparable data'.[39] There is no independent data about the QoS performance of the gas sector. There is data about some important QoS dimension in transport, but it is not verified. An initial view is that better data is available regarding QoS in the urban water utilities. If monetary rewards are to be linked with improved service quality then a starting point must be to ensure that verifiable data is available for comparison.

The main constraint for QoS regulation may be more about knowing what existing data to use more fully than establishing new data bases. In the context of other work the consultants have observed that utilities in NSW generally have access to substantial data resources, most often collected in the course of compiling their own business management information systems. This very often includes most of the key dimensions of importance when assessing QoS arrangements. This data also includes information about objectives and performance on a regional basis within the network.[40]

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39 IPART, *Regulation of New South Wales Electricity Distribution Networks: Determination and Rules Under the National Electricity Code*, IPART, December 1999.

40 See for example, *Energy Australia*, *ES2:Electricity Supply Standards*, December 1998, Sydney.

As highlighted earlier it is important that service providers and regulators in NSW become more familiar with the value that NSW residents place on changes in QoS. The consultants have only been able to identify one recent study that appears to be available to the public about customers' QoS needs, their willingness to pay for different QoS outcomes and views about QoS/price trade offs for other regulated utilities in NSW. This is a study undertaken by EnergyAustralia. Results from that survey showed that consumers were particularly interested in enhanced infrastructure (ie, cable undergrounding) and greater reliability. The level of benefit and strength of preference associated with these features differed by customer demographic segments with customers with higher incomes being prepared to pay for greater QoS. EnergyAustralia interpreted these results as revealing significant latent demand for a number of enhanced offers at prices commensurate with the cost of supply.[41]

The EnergyAustralia study drew conclusions largely upon a survey of 1000 residential and small business customers in mid 1998. While that may be helpful in adding understanding about urban electricity customers' QoS needs, it may not be representative of the needs of other customers in the state.

There are some indirect indications that may usefully provide some insight into the value of some QoS dimensions. In electricity there are various estimates of the value of lost load (VoLL) that can be a helpful, although far from precise guide of the value placed on interruptions to reliable service. Similarly, an estimate of the value of late running in public transport could be derived through widely used parameters about travel time. It may be feasible to obtain some estimate of the value that consumers place on QoS dimensions from other related parameters in the other utilities.

Discussion Points. Do stakeholders know of additional sources of information about consumer preferences in NSW?

Are there additional factors that are specific to NSW to those discussed above that might impact on the incorporation of QoS into price regulation?

41 EnergyAustralia, *Meeting Customer Requirements Under The Regulatory Framework*, EnergyAustralia discussion paper, January 1999, p4.

5 PRINCIPLES AND PRACTICE

This section proposes a framework that could be used to guide incorporation of QoS issues into price regulation within NSW. It sets out possible principles and draws together factors from the earlier analysis. The section also seeks to set out one view about how the principles and insights might be broadly applied in practice in NSW.

5.1 Principles

The aims of a framework that incorporates QoS into price regulation could be to:

- take a comprehensive view of service quality, drawing on customer needs and wants and the capacity of utilities to meet these;
- provide incentives for utilities to meet QoS expectations that are efficient and enhance consumer welfare, with costs that are commensurate with benefits to consumers;
- enhance equity, providing incentives to provide a suitable level of QoS for all customers as well as customers that may be experiencing particular QoS issues at present;
- incorporate a methodology that is robust, well understood, and balances the interests of stakeholders, preferably building on the experience of others where relevant;
- ensure that the incentives for the regulated business regarding QoS performance are consistent with incentives in other aspects of the regulatory regime and do not weaken or conflict with more general protection provided at law; and
- base approaches adopted upon support obtained from stakeholders, including consumers, industry and other regulators.

Discussion points. Do stakeholders support these possible principles? Are there other factors that should be included? Should greater emphasis be placed on one or another of these principles?

Do stakeholders have examples of similar or different principles that have been adopted elsewhere and how issues have been managed?

5.2 A process to adopt QoS in price regulation in NSW

It is not feasible or desirable at this stage to set out a concrete plan to incorporate QoS into price regulation in NSW. As discussed in sections 3 and 4 there are many specific factors that apply to particular industries that seem to prevent a 'one size fits all' approach.

It may be more helpful to think about factors and questions decision makers may address in consultation with stakeholders. Broadly, the process could be driven around five key questions:

- Is there a case for intervention (ie, regulatory involvement)?
- What ability do utilities have to provide QoS dimensions (and at what cost)?
- Do consumers exhibit a willingness to pay for QoS?
- Do the benefits exceed the costs?
- What approach is suitable?

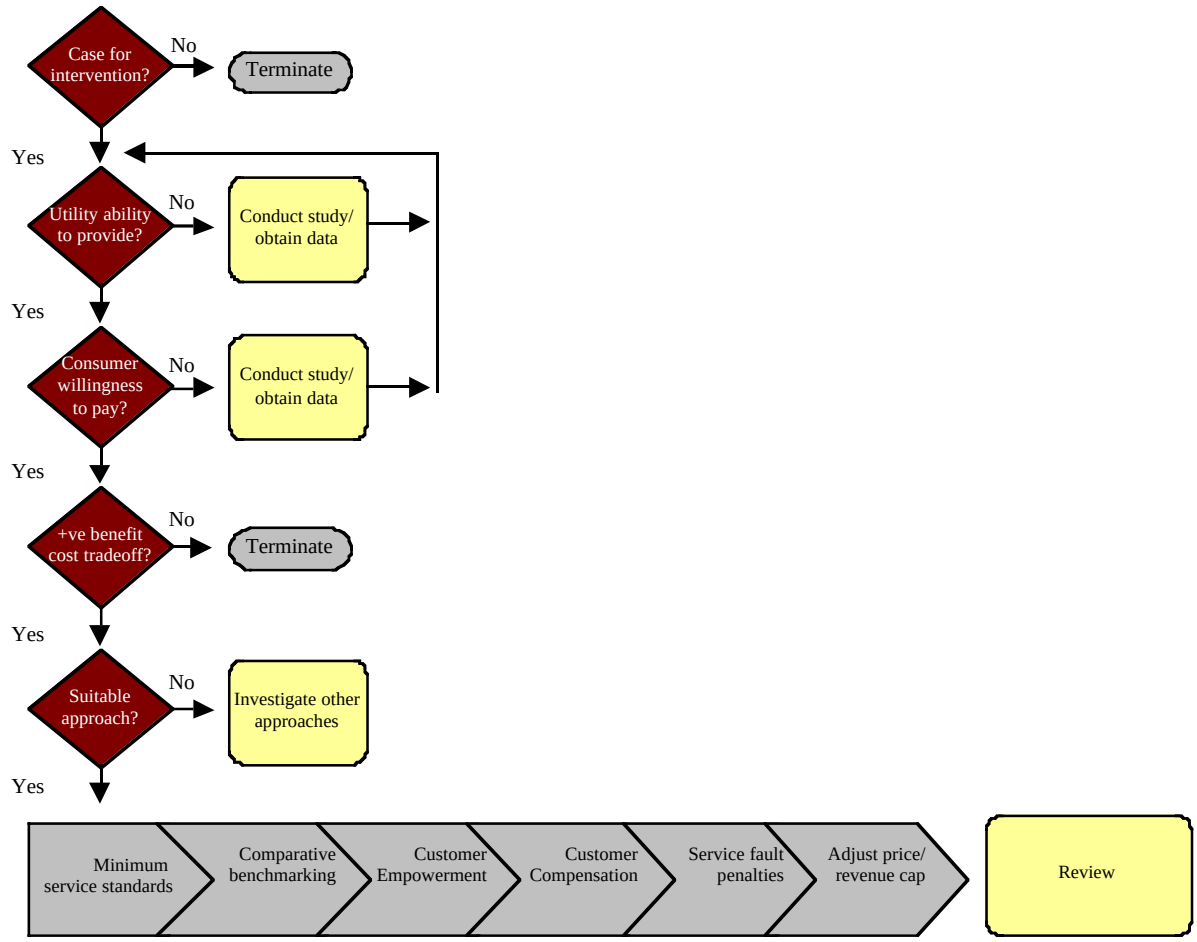
At various points in the process, it may be necessary to find out more information through consultations or other techniques, or it may be decided that it is inappropriate to proceed.

There are a number of options when considering which approach is suitable.

- Combination approaches may be more effective than single measures in isolation.
- A staged approach may be more feasible.

A flow chart setting out the broad process that could be employed when considering QoS changes for each industry is provided below.

Figure 1: Steps to incorporate QoS into Price regulation



The following discussion looks at issues relating to use of each of the approaches regarding how they might advance the QoS principles and how practical issues may be addressed in the case of NSW.

5.2.1 Minimum service standards

Even if more extensive financial incentives are used to encourage particular QoS outcomes it may still be useful to preserve the power of licence revocation to seek to ensure compliance

with a range of guaranteed standards. The challenge is in working out which QoS aspects should entail financial incentives (or other sanctions less than revocation for less severe breaches) and which are 'core' or non–negotiable (that would be outside of the financial incentive system and involve severe penalties). Would it also be worthwhile to review and refocus the list of minimum standards that apply to in different utilities' licence arrangements to 'core' aspects of service?

What changes, if any, would need to be made to licence arrangements to better accommodate other QoS arrangements? It may be helpful to ensure that licence requirements did not clash with other approaches (ie, that minimum requirements did not extend into the range of flexibility used under financial incentives).

Alternatively, the regulator could rely mainly on financial and other regulatory approaches for day-to-day QoS regulation and preserve regulatory flexibility through generally worded licence obligations? With flexibility, however, there is additional uncertainty for regulated utilities and less sense of guaranteed performance for consumers. It is notable that Victoria recently adopted the view that it was preferable to rely on a general formulation giving the licence authorities scope to take strong enforcement action where there is a substantial failure.

5.2.2 Comparative performance monitoring

Comparative performance monitoring was identified as a foundation of effective QoS regulation that is relatively inexpensive. Meanwhile, NSW suffers from data limitations in many regulated industries. Comparative benchmarking and monitoring is also not yet applied to all of the regulated industries.

Discussion point. In line with the principles set out above, should more demanding QoS benchmarking be adopted in NSW? If so, how should the regulator determine reliable and verifiable data requirements. How can the regulator also be sure that the information to be collected is related to dimensions of QoS valued by customers?

5.2.3 Customer empowerment

This already appears to be a fairly well developed area of QoS regulation in NSW, particularly in relation to retail activities.

Discussion point. Could some of these arrangements be utilised more in order to obtain more independent information about customer needs and willingness to pay for QoS?

5.2.4 Customer payments

These arrangements are used already in NSW and are a feature of many other jurisdictions' approaches to QoS. In particular, as in Victoria, this may be an effective means of providing a significant incentive for utilities to address service issues for the worst served customers in a utility's network. Is there support to consider application of similar arrangements to meet specific issues of minimum standards in other industries in NSW on a consistent basis?

Key issues involve setting appropriate charge levels, increasing complexity, and increased transaction costs. Victoria simplified many of these decisions by applying a single, yet quite high price for many aspects of inadequate service in its 2000 electricity distribution price determination.

Expanding the use of these arrangements has the effect of increasing commercial risk to utilities. If significant funds are placed at risk utilities could mount a compelling case that this should be taken into account in the broader context of price determinations (including, for example, adjustments in the weighted average cost of capital calculations). Would stakeholders consider this to be appropriate?

Discussion points. Do stakeholders view that this approach can or should be extended to regulated industries in NSW? Do they have views about how these charges should apply?

5.2.5 Introducing or expanding service fault penalties

Financial incentives may be incorporated within the price regulation framework through the use of service fault penalties. These can impose similar financial penalties upon utilities for failure to meet non–critical QoS targets, but involve much lower transaction costs than customer payments.

5.2.6 Building on incentive regulation

The discussion in Section 3 suggests that there are precedents to illustrate that it is feasible to fold QoS dimensions, particularly those relating to network reliability, into the incentive regulation approach similar to that now used by IPART.

A relatively straightforward approach is to adjust the CPI–X formula with an additional adjustment for QoS performance. The building block approach used by IPART sets a revenue cap derived from the sum of estimated efficient operating costs, depreciation, and a risk adjusted return on capital. A revised process including QoS issues, could involve the following stages:

- Establishing an opening position for the start of the review period — rolling forward regulatory asset values, calculating the rate of return implied by current operating revenues, operating and capital costs. This phase would be expanded by the need to obtain benchmark QoS information based on reliable and verifiable measures of performance (eg output measures relating to reliability).
- Defining network drivers — this phase looks at future service standards and other factors that may impact on the performance of regulated utilities. Data collected from utilities in this phase would be expanded to include 'base case' QoS targets with no additional expenditure for QoS outputs. The regulator would also obtain 'improvement cases' specifying more ambitious reliability targets with additional QoS expenditure.
- Establishing forward looking revenue components — this phase incorporates benchmarks for operating and capital expenditure for base and improvement cases. Naturally, this would involve an assessment of reasonable additional QoS costs by the regulator.
- Calculating an X factor[42] to reflect expected efficiency gains and glide path effects[43].
- Setting a QoS adjustment — this could involve a revenue penalty alone, or penalty or reward, depending on information about consumer preferences. The QoS factor used can be a composite of a measured performance gap against a range of indicators with differing weights for each.

[42] That is, calculation of the expected efficiency gains over the regulated period.

[43] Refer to IPART, *Regulation of Electricity Network Service Providers, Incentives and Principles For Regulation*, Discussion Paper DP-32, January 1999.

- Verifying revenue streams by using an X factor to deliver the annual revenue requirements. Notably, the QoS adjustment to revenue happens during the regulatory period with periodic data about actual performance against agreed targets.

Range of factors

At least initially, it may be better to limit the number of factors included in the QoS adjustment to concentrate attention on those aspects that are likely to be important to consumers and for which there is going to be reliable and useful data. It may be helpful to draw on the use of other instruments to shape QoS where incentives are not practicable.

Structure of incentive

It is feasible to build incentives that only involve penalties (ie, provide an asymmetric incentive to avoid underperformance), or rewards and penalties (ie, a symmetric incentive). The structure is normally selected on a case by case basis reflecting consumer preferences and industry factors.

The size of incentive

Determination of how much revenue should be placed at risk to different components of QoS is complex. In practice, the goal of achieving an optimum is not likely to be obtainable. Even with additional studies about consumer preferences, valuing changes at the margin in QoS is notoriously difficult. Experience regarding QoS in electricity in Victoria and current work underway in South Australia suggests that regulators may often need to be satisfied with an approach that meets two broad criteria:

- it involves an amount of funds that is viewed as being sufficient to provide reasonably strong incentives to perform appropriately (and covers the utility's efficient costs); and
- the targeted QoS improvements come at a cost that is at least below the likely value that consumers place on improvements.

Essentially, the regulator enters into an undertaking where they 'buy' QoS improvements in exchange for agreed incentives. Admittedly, this is a cost based approach, but that is also in line with the fact that current price regulation is essentially cost based.

Thus, in the short term at least the focus is on smaller, welfare improving steps.

Discussion points. While there appears to be scope to incorporate QoS dimensions within the existing price regulatory approach, is this in fact practical and desirable in NSW? It is likely that only a few key QoS dimensions could be captured within this system, at least at first. Is this appropriate? Some choices would need to be made on an industry by industry basis. What factors would stakeholders view as being important in shaping those choices?

Are there obstacles that are not identified above?

What matters do stakeholders view as being the major priorities for the Tribunal to consider?

APPENDIX A: CUSTOMER PREFERENCE STUDIES

A number of utilities and stakeholders have conducted customer surveys to provide guidance on customer preferences. Studies that the consultants have been able to identify that hold some relevance for NSW are summarised in the table below.

Table 4 Key Messages Arising from Customer Surveys and Interactions

	Key Features and Messages
Shires of Buloke, Hindmarsh, West Wimmera and Yarriambiak	Results from a questionnaire circulated at 4 public meetings indicated that the major issue is reliability of supply, both frequency and duration of interruptions. From the responses received, customers place a high priority on: • reducing the number of interruptions; • reducing the frequency of interruptions; • improved fault response times; • reduced durations of interruptions; • improved telephone service; • lower electricity prices; and • increased network capacity. There was a general consensus that customers would be prepared to forego some part of the planned price reduction to see greatly improved reliability. Further concerns were raised over the number and frequency of pole fires and the potential for these to destroy crops, buildings, and the livelihood of residents and the delivery of works program within specific time frames. It was suggested that the distributor should be held accountable for delivery of the works program as part of its Distribution Licence conditions.
Energy Australia	The results from a survey of 1000 customers in May and June 1998 found that the principal drivers of customer utility were: • network infrastructure — there was significant demand for undergrounding of electricity supply infrastructure, at cost reflective prices. Between 15% and 30% of all respondents favoured an undergrounding option at a price rise in the fixed quarterly charge of between $105 and $140 per quarter; • reliability of supply — there was significant demand for infrastructure with increased reliability levels. Over 50% of respondents were prepared to pay a higher variable charge to improve or maintain their level of reliability. Small business customers showed a stronger preference for a more reliable supply; and • price of supply.
Citipower	Customers place a strong emphasis on reliability of supply. Approximately 40 percent of residential and business customers preferred fewer interruptions of longer duration. 21 percent of residential customers and 26 percent of business customers preferred more interruptions of shorter duration.
Eastern Energy	Customers are looking for an improvement in the current levels of reliability performance and a reduction in the frequency of both short duration and long duration interruptions. Improvements in interruption duration are valued more than the frequency of flickers. More than 50 percent of respondents were prepared to pay a higher charge to improve or maintain their current level of supply reliability (some a significant premium.
Powercor	50 percent of respondents were prepared to pay more for enhanced reliability, with business customers and farmers more willing to pay a premium for improved reliability.

	Most customers were concerned about momentary interruptions, particularly dairy farmers. Majority would accept a higher incidence of momentary interruptions to reduce total minutes off supply.
United Energy	78 percent of respondents indicated that they are more concerned about supply reliability than saving $20 to $30 per year on their bill. 59 percent disagree that price reductions are more important than reducing the number of outages and times without electricity. Also referred to more specific questions addressing customer preferences for the various proposed price-service offering put forward by United Energy in its December 1999 proposals.
Energy and Water Ombudsman NSW	To date the enquiries received by EWON include: • bill enquiries; • disconnection and restriction of supply; • water pressure complaints; • mains leakages; • service disruptions; • sewerage surcharges; and • developer charges and access fees.
Lower Murray Water	Lower Murray Water established Customer Consultative Committee in 1997 to facilitate information flows between Lower Murray Water and its customers. With two large capital expenditures to be undertaken in order to maintain quality of supply the Committee recently undertook a survey of customers to determine consumer attitudes to a potential increase in price (tariffs are currently relatively low). Consumers confirmed that they would accept an increase in price to maintain current quality of service.
Infrastructure Victoria	The Victorian Government's quarterly publication of "Track Record" sets out the service delivery performance for the train and tram franchises. Service delivery (which includes the timeliness of services, frequency of service and number of cancellations) is the main driver of overall satisfaction with public transport. Other key drivers include: • value for money; • the standards of service information services, ticketing and stations/stops; • cleanliness of trains and trams; • passenger comfort (overcrowding); • value for money; • service by staff; and • personal safety.

APPENDIX B: APPROACHES TO INCORPORATING QOS REGULATION

This section reviews a range of approaches that can be used in QoS regulation.

Minimum service standards

Most regulated utilities in NSW have operated under licensing arrangements that require the utility to provide appropriate levels of service.[44] Requirements can take the form of standards, guidelines, targets or an industry code of practice. In some cases a general performance requirement is included in underlying legislation. NSW public transport authorities, for example, are required to offer an "efficient, safe and reliable" service.[45] Some times the linkage is less direct. The legislative regime that applies to electricity distributors does not impose standards, but requires licensees (DNSPs) to establish service standards and report performance against them. Basically, under this approach utilities are penalised for failure to comply through fines or through the loss of the licence to operate.

This approach has the disadvantage that if both the price/revenue cap and minimum QoS standards are binding then the utility has very little scope to make decisions (generating a compliance mentality and limiting innovation). In order to determine the efficient level of QoS the regulator must have information about the utility's production costs as well as detailed data about consumer preferences. Further problems arise in fixing the amount of fines. In the absence of redistribution this approach does not compensate those who have experienced poor service. The approach appears to be attractive where it gives a sense that it guarantees a particular level of quality.[46]

Licensing arrangements have been subject to criticism in practice where they are too complex with obligations set out in too many Acts, regulations, or guidelines.[47]

Removal of a licence to operate a regulated business that fails to comply with licence requirements has not provided particularly strong incentives to deliver high QoS levels. It is particularly problematic in the case of utilities that are owned by government. In its benchmarking study regarding water standards the Productivity Commission noted that 'it is questionable how much of a credible threat the imposition of fines or even the possibility of licence cancellation is where the water supplier is providing an essential service and is government–owned.'[48]

Comparative performance monitoring

An effective monitoring program involves among other things:[49]

- Monitoring and reporting of defined quality of service indicators which are comparable across service providers in the relevant industry and are verifiable.

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44 The electricity regime does not directly impose standards but requires DNSP's to establish service standards and report performance against these.

45 *Transport Administration Act*, *1988*.

46 Rovizzi L, and Thompson D, "The regulation of Product Quality in the Public Utilities" in Kay J, Mayer C.P, eds, *The Regulatory Challenge*, Oxford and New York, Oxford University Press, 1995, pp336-357.

47 See, for example, the annual reports of the Licence Compliance Advisory Board, that used to apply to the electricity distribution network service providers in NSW.

48 Productivity Commission, *Arrangements for Setting Drinking Water Standards*, International Benchmarking, AusInfo, Canberra, 2000, p121.

49 See Arblaster M., *Quality of Service Monitoring*, Utility Regulators Forum discussion paper, October 1999.

- Publication of performance reports, possibly together with a comparative assessment prepared by the regulator or another independent agency.
- Explanations and justifications by service providers of their performance.
- Measures selected should reflect aspects that customers view as important.

This approach is comparatively simple to apply since no decisions need to be made on quality standards. Depending upon what data is collected, costs may be relatively modest. Comparative performance monitoring can be effective in isolating under performers and can help in brow beating utilities to make improvements.[50] The mechanism provides no financial incentives for utilities that are not subject to competition. As a result, while this approach can produce gains in the early stages of QoS regulation, its effectiveness may be limited in the longer term where correcting the root cause of QoS faults involves major investment.

Performance monitoring is often seen as the foundation of effective QoS arrangements. The data collected can form a useful foundation if it is decided to move to higher levels of intervention.

Customer empowerment

Customer empowerment measures include approaches that aim to boost the position of consumers when dealing with large utilities. These approaches seem to be most effective when concentrating upon process issues, especially customer relations matters. These are matters that are relevant to almost every utility.

One approach seen in the US and the UK is to establish a bill of rights for consumers. In Australia it is more common for governments to set down standard contractual arrangements that form a template for individual utilities to follow in setting their own policies. Governments in Australia have also applied penalty schemes for specific non–performance, typically concentrating on customer service process issues. A further aspect is the use of customer education to make sure that customers have better information about the standards expected of utilities and what they are able to do to obtain a remedy.

Another important aspect of customer empowerment is the use of an industry funded ombudsman scheme. The role of an ombudsman is normally to investigate complaints about Government departments' and agencies' actions to see if they are unlawful, wrong, unjust or discriminatory. Ombudsmen have been introduced to investigate, and sometimes to arbitrate, customer complaints and disputes in industries where the customers confront large, complex and powerful businesses.

A further form of customer empowerment is the inclusion of customers in advisory boards or customer councils. These are normally formed from community leaders who are considered able to speak on behalf of a range of customer interests. Utilities' customer councils generally including residential and business customers, as well as representatives of other interests. They can provide utilities with valuable feedback about QoS issues from customer perspectives.

[50] Evidence of this effect can be found in improved performance of some of Melbourne's retail water and sewerage companies following public reports.

This approach can help guide utilities to achieve better QoS outcomes, but the incentive effect is modest and there is no certainty that utilities with substantial market power will in fact alter their behaviour.

Customer compensation

Under this approach, when a certain standard is not met the customer becomes entitled to obtain a specified amount in compensation. This ensures that the individual that experienced the QoS failure obtains something in return. The utility can gain where it develops a precise management information system about its own performance. The utility is also allowed to trade off changes in quality against the incremental cost of achieving these. While it is not clear that penalty systems are set with reference to the actual value that customers place upon the utility fault[51], this approaches may still be effective influencing and improving utility behaviour because the penalties can add up to substantial amounts. The approach only works where it is feasible to identify and verify failures for specific customers.[52] The approach also involves high costs in obtaining specific customer information and potentially providing many payments.

Similar incentives and results could be obtained through penalty arrangements factored into price/revenue cap arrangements. This would involve lower transaction costs while still making the utility face a similar overall penalty for poor performance although, under this approach, the penalty is essentially shared among the consumer base through lower prices.[53]

In general, customer empowerment is probably most useful when the issue is encouraging operation in compliance with clear–cut and stable expected performance. The approach would not generally be effective in providing an incentive to mobilise resources where a substantial investment is required to realise major QoS improvements.

Service fault penalties

This approach can be employed where it is considered that consumers are averse to QoS under–achievement, but there isn't a strong sense that they value or desire over–achievement. The main features of this approach are:

- Target levels of the QoS included in the scheme are determined and set. These need not be static.
- Penalties are set for under–achievement (with no financial incentive for over–achievement). These may involve a sliding scale or a series of progressively higher penalties as performance falls short of the target.

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51 It is often the case that penalty payments are set arbitrarily and at levels that seem significant to householders. It is also generally the case that some customers, particularly businesses, including small businesses and farmers, would find that the cost to them of disruptions are many times the value of the arbitrary penalty payment they may receive.

52 It is notable that this is a complicating factor for some network utilities that have a tenuous relationship with the customer. Electricity distributors in NSW can have a rather attenuated relationships with customers which does not, for example, include a billing relationship with non-franchise customers that use a retailer who is not also the distributor.

53 It is notable that public ownership complicates the net impact of penalty payments. Community wellbeing may not be increased with penalty payments where consumers (and taxpayers) are the ultimate owners of public utilities where they essentially fund their own penalty payments (through higher utility costs and lower utility dividends). This suggests that wellbeing is more likely to be improved where emphasis is placed upon setting an effective incentive structure for the utility to achieve desired QoS performance rather than dwelling on compensation.

- Full compliance of other aspects of performance may be required depending on consumers' preferences and practical considerations.
- Prices for penalties can be set according to the value on average of a fault to customers or the cost to achieve standards.

The aim of the measure is broadly to impose a cost of poor QoS performance upon the owners of utilities (ie, shareholders). The cost of penalties should not be able to be passed through to other consumers.[54] The approach gives utilities some flexibility and may not involve high costs if widely accepted performance measures are used. Of course, utilities have no incentive to innovate and try to outperform targets.

Adjusting the price or revenue cap

This approach can be employed where it is determined that customers are comfortable with a price/QoS trade off. This involves incorporating a quality sensitive factor in the existing revenue cap. Essentially the CPI–X formula becomes CPI–X+Q. This is frequently viewed as the most straightforward way to regulate quality in the absence of competition.[55]

This approach has many advantages. It allows utilities to select one of a range of quality/price trade offs enabling the regulator to take a light handed approach. A range of QoS dimensions can be targeted and factored in to the Q factor, although their relative importance declines as more are included. It is an automatic incentive mechanism. Once set up it should not need further intervention, reducing transaction costs for consumers and firms, at least in periods between regulatory determinations.

The approach has disadvantages. The actual QoS delivered is not certain, although it should be within a targeted range. A major disadvantage is in the regulatory costs in establishing the approach. This involves:

- Determination of a quality index which implies identifying quality dimensions that are important and their relative weight.
- A judgement about the appropriate relationship between price and quality in the regulatory formula.
- Identifying benchmark QoS outcomes and targets expected to be obtained drawing on services that customers value. The benchmarks and targets can be dynamic (ie, change over time). For convenience, a basket of measures is often employed, weighted according to consumer preferences.
- Independent monitoring of quality performance.
- Imposition of penalties for underperformance and/or rewards for outperformance drawing on the cost of providing targeted improvements and/or the value customers place on changes in QoS attributes measured.

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54 See earlier footnote about complex wellbeing implications under public ownership of utilities. The emphasis here, however, is upon making sure that the utility is accountable for the cost of any penalties incurred and cannot pass them on to others. This should be reflected in an underachievement of financial performance, which may in turn lead to action by shareholders (that is, the responsible Ministers in the case of public utilities).

55 See Vickers J. and Yarrow G., *Privatisation: An Economic Analysis*, Cambridge, MIT Press, 1988 and Forsyth P, "Environmental Externalities, Congestion and Quality Under Regulation", Mimeo, Monash University.

None of these requirements are straightforward to obtain or easily agreed by utilities, consumers the regulator and other stakeholders.

Broadly, the effect of this approach is to share benefits and costs of changes in QoS provision over the customer base and with owners of the utility (ie, shareholders). It may still be necessary to require full compliance with some aspects of performance depending upon consumer preferences.

APPENDIX C: NSW REGULATORY FRAMEWORKS WHICH IMPACT UPON QUALITY OF SERVICE

This Appendix provides background information about the regulatory framework that relates to quality of services (QoS) issues in NSW in the Electricity, Gas, Water and Transport Industries.

Overall, there is already a substantial regulatory framework in place to protect customers in terms of the level of both price and service. The Independent Pricing and Regulatory Tribunal (IPART) regulates pricing of NSW energy distributors and retailers, water suppliers and passenger transport services and is responsible for monitoring and reporting on licence compliance (a mechanism for ensuring quality of service) for the electricity, gas and water industries. The Australian Consumer and Competition Commission (ACCC) regulates consumer protection requirements of corporations, and the electricity retailers, Sydney Water and AGL have agreed to be bound by decisions of the Energy and Water Ombudsman NSW in cases of disputes with customers. Other disputes can be referred to the NSW Ombudsman.

This Appendix outlines the current context for industry — where private and publicly owned companies operate within a regulatory structure designed to ensure certain monopoly services are provided and the excesses of monopolistic aspects of the industry are mitigated.

Cross-Industry Developments

Expanded Role for IPART

IPART has recently become responsible for licensing and auditing functions for the NSW electricity, gas and water industries.

IPART will make recommendations to the relevant Minister about:

- granting, transferring or cancelling licences;
- imposing, varying or cancelling licence conditions;
- monitoring and reporting on licence compliance;
- proposing remedial action to provide redress for a contravention; and
- proposing possible sanctions to be applied following a contravention.

Section 24FD of the *IPART Act* establishes an independent Utilities Licence Auditing Advisory Committee whose primary function is to provide the Tribunal with any advice the Tribunal seeks on the scope and methodology of audits considered under the licence auditing functions of the Tribunal. The advice is to be furnished at the request of the Tribunal and the Tribunal is not bound by any of the advice of the Committee.

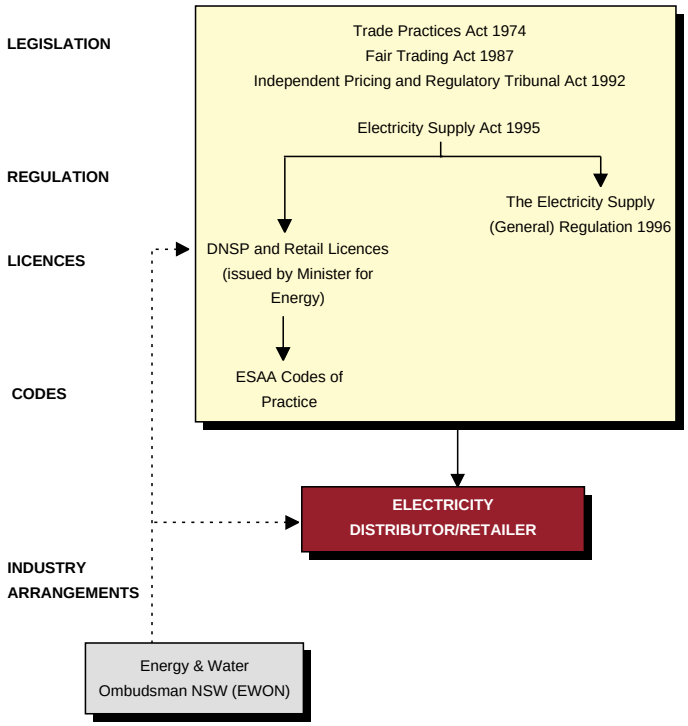
The Committee is to comprise six part-time members appointed by the Minister following nominations from a range of interest groups.

Regulatory Arrangements in the Electricity Industry

Figure 1 shows the authorities with which the electricity retailers must comply. The regulatory framework includes a range of key instruments that affect the quality of service in the electricity retail sector:

- consumer protection provisions of the Trade Practices Act 1974 and the Fair Trading Act 1987 (New South Wales);
- the Independent Pricing and Regulatory Tribunal Act 1992;
- the Electricity Supply Act 1995;
- regulations made under the Electricity Supply Act 1995, including:
  - the *Electricity Supply (General) Regulation 1996*;
- the National Electricity Code;
- the National Electricity (New South Wales) Act 1997;
- retail licences issued pursuant to section 33 of the Electricity Supply Act 1995;
- codes and market rules which the licences require licensees to observe; and
- investigations, reports and determinations made by the Tribunal under Part 3 of the IPART Act.

Figure 1 Hierarchy of Authorities: The Electricity Sector



Source: The Allen Consulting Group

In addition the previous licence conditions required licence holders to have strategies for contributing to and participating in the development of industry standards, guidelines and codes of practice, and for determining the extent to which it will adopt such standards, guidelines and codes. The Ministerial Guidelines and Requirements to the licence conditions

require codes of practice to be developed as nominated by the Director of the Ministry of Energy and Utilities. More specifically:

- section 4.2.1 of the Guidelines and Requirements Policy requires retail suppliers to prepare and implement plans addressing criteria for standards of service, enquiries and complaints management, licence compliance management and development of industry codes;
- section 4.2.13 of the Guidelines and Requirements Policy requires all licensees to develop and implement plans for setting, achieving and reviewing cost effective standards of service delivered to customers; and
- the retail suppliers' licence Clause 3.1 requires, amongst other things, the retailer to report annually on its performance in meeting the minimum standards of service required under its standard form customer supply contracts.

The Electricity Supply Act and Associated Regulations

The *Electricity Supply Act* is the principal statute governing electricity distribution and retailing in NSW. This Act deals with such matters as:

- enabling customers to choose a retail supplier or connection service provider;
- customer contracts (both negotiated and standard form);
- licensing electricity distribution network service providers and retail suppliers;
- licensees' powers and duties;
- licence compliance;
- electricity distribution network service providers' districts;
- obligations to supply;
- customer consultative groups; and
- resolving disputes.

The *Electricity Supply (General) Regulation 1996* sets out 'Guaranteed Customer Service Standards', in turn expanding upon a number of provisions in the Act with regard to:

- resupply of electricity;
- exemptions from licensing;
- accrediting providers of contestable connection services for customers;
- customers' rights in regard to connection services;
- preparing standard form customer contracts and the matters they must provide for (eg, consumer protection measures and guaranteed customer service standards); and
- ministerial approval for an electricity industry ombudsman scheme.

The *Electricity Supply Amendment Act 2000* amends the *Electricity Supply Act 1995* and other Acts in order to provide the necessary framework in the electricity industry for the introduction of full retail competition and other consequential amendments. In particular the Act:

- recognises small customers of retail suppliers and confers on them rights and protections;
- extends the operation and application of the electricity industry ombudsman scheme;

- contains transitional arrangements for the staged implementation of full retail competition and contains other provisions of a savings and transitional nature;
- makes other amendments of a consequential and ancillary nature;
- codes and pool rules which the licences require licensees to observe; and
- investigations, reports and determinations made by the Tribunal under Part 3 of the IPART Act.

The Energy and Water Ombudsman NSW

The Ombudsman scheme was originally established by the electricity industry in August 1997 (as the Energy Industry Ombudsman) to ensure an accessible and independent complaint handling mechanism for NSW energy consumers. In 1999 Sydney Water joined the scheme, resulting in a change of name to the Energy and Water Ombudsman NSW (EWON). AGL applied to join the EWON from July 1, 2000.

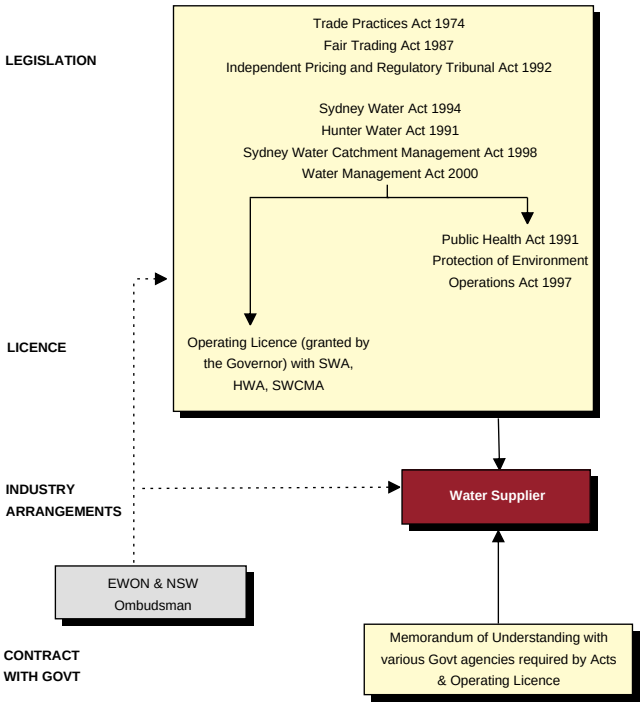
In the few cases where negotiation is not successful and a matter is escalated to a dispute, the Ombudsman has the power to direct the company to make restitution on a complaint, to provide an energy or water service, to amend or not impose a charge for a service, and direct a member to do, not do, or cease doing an act.

The Ombudsman can make determinations of up to a value of $20,000, or up to $50,000 with the consent of the member company.

Regulatory Arrangements in the Water Industry

Figure 2 shows the authorities with which the water suppliers must comply.

Figure 2 Hierarchy of Authorities: The Water Supply Sector



Source: The Allen Consulting Group

The regulatory framework includes a range of key instruments that directly affect the quality of service in the water supply sector:

- consumer protection provisions of the Trade Practices Act 1974 and the Fair Trading Act 1987 (New South Wales);
- the Independent Pricing and Regulatory Tribunal Act 1992 (as amended);
- Water authorities legislation such as:
  - the *Sydney Water Act 1994;*
  - the *Hunter Water Act 1991;* and
  - the *Sydney Water Catchment Management Act 1998.*
- the Water Management Act 2000;
- the Water Act 1912 (as amended);
- the Public Health Act 1991;
- the Protection of the Environment Operations Act 1997;
- regulations and Orders in council made pursuant to those Acts, including:
  - the Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997; and
  - the Independent Pricing and Regulatory Tribunal (Water Supply Services) Order 2000;
- investigations, reports and determinations made by the Tribunal under Part 3 of the IPART Act.

Operating Licences

The Governor grants operating licences to water suppliers for terms of five years.

- Sydney Water's first licence commenced in 1995 and was renewed in 2000, allowing it to continue to provide water, wastewater and stormwater services until the end of 2004;
- Hunter Water's first licence commenced in 1995 and is to be reviewed for commencement on 1 July 2002;
- Sydney Catchment Authority's licence commenced in April 2000 and will expire 31 December 2004.

The operating licence is the major consumer protection instrument within the regulatory regime. It prescribes standards of service which the Corporations must meet in relation to the following:

- drinking water quality — the requirement to meet the health related aspects of the National Health and Medical Research Council (NHMRC) and Agricultural and Resource Management council of Australia and New Zealand (ARMCANZ) Australian Drinking Water Guidelines 1996;
- water continuity and pressure — the Operating Licences requires that system performance standards, standards for water pressure and discontinuity of water services, and reliability are reviewed in 2001. IPART has commenced this review.
- water pressure — the Operating Licence requires that system performance standards and water suppliers to develop a minimum level of water pressure for their low pressure geographic areas;

- wastewater treatment — effective treatment of wastewater with environmentally acceptable effluent discharge; and
- wastewater transport — reliable transport of sewerage.

Memorandum of Understanding

Sydney Water, Hunter Water and the Sydney Catchment Authority are required maintain a Memorandum of Understanding with the relevant regulators for the term of the licence — the Water Administration Ministerial Corporation, NSW Health and the Environmental Protection Authority (EPA). The Sydney Catchment Authority must also maintain a Memorandum of Understanding with NSW Agriculture, National Parks and Wildlife, councils and any persons, bodies or agencies nominated by the Minister.

The Memorandum with NSW Health is to recognise the role of NSW Health in providing advice to the Government of NSW in relation to drinking water quality standards and the supply of water which is safe to drink. The Department of Health's roles and responsibilities as outlined in Sydney Water's, Hunter Water's and the Sydney Catchment Authority's Memorandums are in addition to any functions conferred upon the Department, the Director-General of the Department or the Minister for Health under the *Public Health Act 1991*.

The memorandum with the EPA is to recognise the EPA as the NSW environmental regulator and to commit to environmental improvements.

The Energy and Water Ombudsman NSW and the NSW Ombudsman

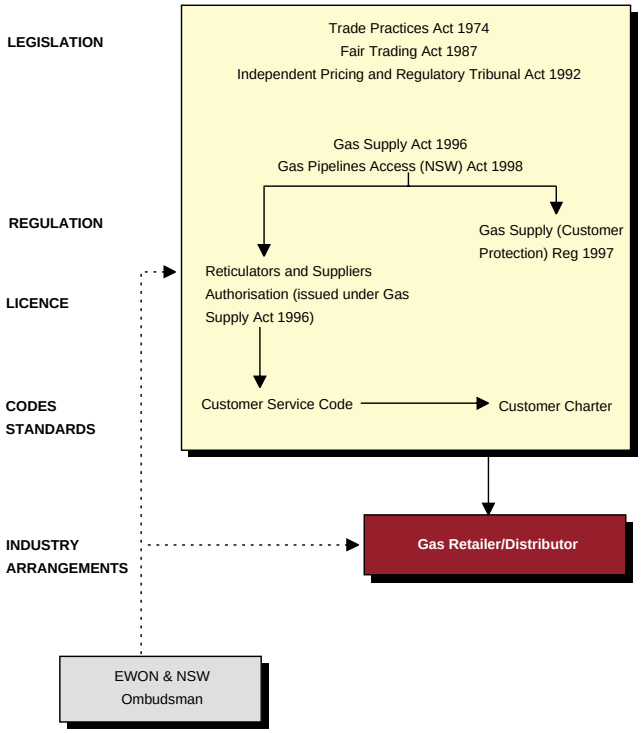
With Sydney Water joining the Energy Industry Ombudsman scheme in 1999 EWON now has responsibility for investigating complaints from customers about Sydney Water.

At the present time the NSW Ombudsman handles customer complaints about other water suppliers. The NSW Ombudsman's principal role is to handle complaints about NSW public authorities and officials, including government departments, statutory authorities, public servants, policy, correctional services, and local councils.

Regulatory Arrangements in the Gas Industry

Figure 3 shows the authorities with which the gas retailers must comply:

Figure 3 Hierarchy of Authorities: The Gas Sector



Source: The Allen Consulting Group

The regulatory framework includes a range of key instruments that directly affect the quality of service in the gas retail sector:

- consumer protection provisions of the *Trade Practices Act 1974* and the *Fair Trading Act 1987* (New South Wales);
- the *Independent Pricing and Regulatory Tribunal Act 1992* (as amended);
- the *Gas Supply Act 1996* and associated regulations including:
  - the Gas Supply (Customer Protection) Regulation 1997; and
  - the Gas Supply (General) Regulation 1997.
- the *Gas Pipelines Access (NSW) Act 1998* and associated regulations;
- codes and pool rules which the licences require licensees to observe; and
- investigations, reports and determinations made by the Tribunal under Part 3 of the *IPART Act*.

Customer Service Standards

Part 3 of the *Gas Supply (Customer Protection) Regulation 1997* requires all suppliers and distributors to prepare a Customer Service Code which sets out the standards of service to be provided to customers. The Customer Service Code must provide for:

- the form and content of standard form contracts;
- standards of service;
- the form and content of bills, receipts and statements rendered to customers;
- procedures for calculating charges, reading meters and adjustment of bills;

- debt collection procedures;
- dispute resolution procedures; and
- any other matter that is appropriate.

In order to protect customers who do not have a choice of retailer, or who do not consciously exercise a choice of retailer, from a potential deterioration in service standards, the Government, under its Policy Framework to Support Full Retail Competition, will require retailers to include certain core contract provisions in all customer supply contracts for residential and small business customers. For a transitional period, the Government will ensure that residential and business customers, using less than 1 TJ annually and whose premises are already physically connected, will be able to be supplied with gas under a default contract. This will also promote competition by giving customers confidence to "test the water." Customers will be able to purchase a non-default service from the incumbent or a new retailer in the knowledge that, subject to the terms of the non-default contract, they could return to a default contract.

The default contract will specify customer service standards in relation to the following matters:

- gas quality,
- the level of reliability of supply to be provided by the retailer's network operator,
- the response to customer enquiries (including the time taken to respond to such enquiries),
- punctuality in keeping appointments,
- the period within which services will be commenced in response to a customer enquiry,
- the standards set by the retailer's network operator for the period within which services or work will be commenced to remedy a disruption to supply,
- the standards set by the retailer's network operator for the period or notice required to be given when the network operator carries out work (other than emergency work) that will disrupt supply, and
- the remedy available to a customer if the retailer fails to meet standards of service.

The Ministry of Energy and Utilities is currently in the process of reforming customer service regulation. Proposed measures include amending the *Gas Supply Act 1995* and regulations such as the *Gas Supply (Customer Protection) Regulation 1997* to:

- impose specific licence conditions;
- impose various standards of customer service; and
- develop legally binding agreements between the retail and network businesses and their customers.

The Energy and Water Ombudsman NSW and the NSW Ombudsman

With AGL joining the Energy Industry Ombudsman scheme from 1 July 2000, EWON now has responsibility for investigating complaints from gas customers about AGL and Great Southern Energy.

At the present time customer complaints about other gas retailers are handled by the NSW Ombudsman. The NSW Ombudsman's principal role is to handle complaints about NSW

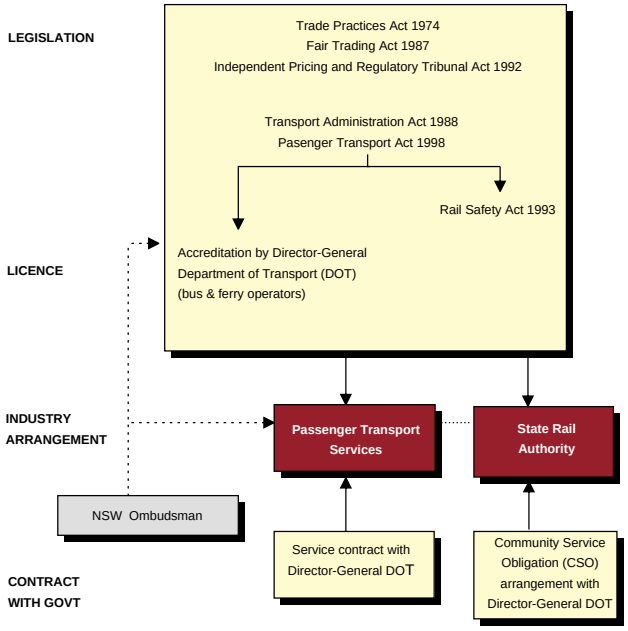
public authorities and officials, including government departments, statutory authorities, public servants, policy, correctional services, and local councils.

Regulatory Arrangements in the Transport Industry

According to the *Independent Pricing and Regulatory Tribunal (Passenger Transport Services) Order 1998* the following services are declared to be government monopoly services under section 4 of the Act:

- regular passenger services supplied by the State Transit Authority (including Sydney Buses, Sydney Ferries and Newcastle bus and ferry services); and
- City Rail services supplied by the State Rail Authority.

Figure 4 Hierarchy of Authorities: The Transport Sector



Source: The Allen Consulting Group

Figure 4 shows the authorities with which government monopoly passenger transport services must comply. The regulatory framework includes a range of key instruments that directly affect the quality of service in the transport sector:

- consumer protection provisions of the *Trade Practices Act 1974* and the *Fair Trading Act 1987* (New South Wales);
- the *Independent Pricing and Regulatory Tribunal Act 1992* (as amended);
- the *Transport Administration Act 1988* (as amended) and associated regulations;
- the *Passenger Transport Act 1990* (as amended) and associated regulations;

Regular Passenger Services

The act of accrediting regular passenger service operators under the *Passenger Transport Act* is more of a form of quality assurance rather than a form of licensing. It is generally used as a checking mechanism to ensure that potential operators have the appropriate expertise and knowledge to become accredited suppliers of the services.

The terms and conditions for the supply of regular passenger services are set out in a service contract[56] between the accredited operator and the Director General, Department of Transport. This service contract must fix a scale of minimum service levels. These minimum service levels are contained in the Department of Transport's Minimum Service Level Policy.

City Rail Services

The State Rail Authority operates City Rail services subject to a range of quality and reliability standards codified in its community service obligation (CSO) funding contract with the Department of Transport. The contract specifies minimum and target performance levels which must be maintained to ensure community service obligation funding.

[56] Under the Savings and Transitional Provisions of the *Passenger Transport Act 1990* exemptions are made for some accredited regular passenger service operators. These operators are not required to enter into a service contract.

APPENDIX D: COMMON QOS PERFORMANCE MEASURES

Instrument	Electricity	Gas	Urban Water	Urban Public Transport
Outputs	*Reliability:* - Outage Frequency (eg, SAIFI) - Outage Duration (eg, SAIDI) - Outage Time (eg, CAIDI) - Momentary Outages (eg, MAIFI) *Supply Voltage* - Range of supply voltage - Voltage fluctuations - Voltage dips - Switching transients *Customer Satisfaction* - Affordability - Range of products available - Meter reading performance	*Reliability:* - No of unplanned interruptions per 1000 customers -Average no of seconds per customer interruptions *Gas Pressure* *Customer Satisfaction* - Meter reading performance - Affordability - Timely response to gas emergencies - Availability of alternative heating and cooking facilities for customers who are disabled, chronically sick, etc)	*Standards:* - Water Quality - Sewerage Quality - Water Main Breaks (per 100 kms) - Sewer Chokes (per 100 kms) *Water Supply* - Unplanned Interruptions - Water Continuity - Water Pressure *Incidents* - Sewer flooding incidents due to overloaded sewers - Sewer flooding incidents with causes other than capacity - Properties at risk of sewer flooding	*Reliability:* - On-time running - Service cancellations - Skipped stops *Passenger Satisfaction* - Up-Keep and repair of trains/buses/trams - Comfort - Frequency - Journey Times - Personal safety/security - Passenger Information (eg, timetables, stops and operations) - Helpfulness of staff - Incidents involving safety (eg, collisions, derailments, falls, strikes, and fires and explosions) - Availability of Ticketing - Services (eg, disabled facilities, toilets, car parking, payphones etc) - Overall value for money
Inputs	- Supply Voltage - Operators must be appropriately qualified (eg, assured through licensing)	- Gas Pressure - Operators must be appropriately qualified (eg, assured through licensing)	- Water Quality - Water Pressure - Operators must be appropriately qualified (eg, assured through licensing)	- Infrastructure (ie, vehicles) is in a safe operating condition - Operators must be appropriately qualified
Processes	- Notification of planned interruptions to supply - Punctuality in keeping appointments - Meter reading performance - Appropriate facilities for customer communication (eg, multi-lingual, flexible hours etc) - Timely response to customer complaints, inquiries and calls - Timely connections, disconnections and fault repair - Compensation for Poor Service - For customers experiencing payment difficulties (eg, extensions, instalment options etc)	- Notification of planned interruptions to supply - Meter reading performance - Timely response to telephone calls, written enquiries and customer appointments - Timely connections, disconnections and fault repair - Appropriate facilities for customer communication (eg, multi-lingual, flexible hours etc) - Compensation for Poor Service - For customers experiencing payment difficulties (eg, extensions, instalment options etc)	- Timely response to customer complaints, inquiries and calls - Meter reading performance - Appropriate facilities for customer communication (eg, multi-lingual, flexible hours etc) - Payment options available to customers - Compensation for Poor Service - Notification of planned interruptions to supply - Timely connections, disconnections and fault repair - For customers experiencing payment difficulties (eg, extensions, instalment options etc)	- Timely response to customer complaints, inquiries and calls - Customer information systems - Appropriate facilities for customer communication (eg, multi-lingual, flexible hours etc)

Outcomes	- Increase in customer satisfaction	- Increase in customer satisfaction	- Reduction in levels discharged to rivers and waterways. - Reduced demand for water - Reduced water-borne health disorders. - Compliance with Operating and EPA Licences	- Increase in customer satisfaction resulting in an increase in patronage