QUEENSLAND COMPETITION AUTHORITY

URBAN WATER PRICING PRINCIPLES

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TABLE OF CONTENTS

Page

1. INTRODUCTION

The Queensland Government is currently considering a proposal to extend the prices oversight responsibilities of the Queensland Competition Authority (QCA) to the water sector, including local government water business activities. In order to facilitate effective implementation of these new duties, the QCA has been directed by the Queensland Government to prepare a report on water pricing principles and, in particular, on pricing issues for local governments.

Marsden Jacob Associates (MJA), specialist utility economists, have been retained by the QCA to assist in preparing this report on regulatory principles for urban water pricing.

1.1. OBJECTIVES OF STUDY

The objectives of the study are to provide the QCA with:

- a critical appraisal of relevant overseas and Australian economic regulatory arrangements for the urban water industry, with a particular focus on pricing frameworks for monopoly prices oversight and third party access; and
- an associated discussion of the relative advantages and disadvantages of these different models as they might be applied in Queensland, given the current structure of the urban water sector, and the existing and proposed regulatory framework.

2. REVIEW OF REGULATORY REGIMES

To review and assess regulatory pricing regimes for urban water requires a clear framework including:

- **clarity in the objectives of price regulation** in the context of the water industry – this implies an appreciation of how the water industry differs from other utilities ie. electricity, gas and telecommunications;
- **specific criteria** that an effective and efficient regulatory framework for urban water prices should meet;
- **a clear outline of methods, tools and techniques** available to provide and test price/revenue estimates; and
- **an understanding of the choices, options and design parameters** for price regulatory systems and how these are influenced by the characteristics of the industry and the relevant jurisdiction.

2.1. OBJECTIVES OF PRICE REGULATION

Price/revenue regulation is a surrogate for competition. In the absence of competition, customers are exposed to the risks of monopoly supply. Regulation is required to provide protection for the customer to, in particular:

- ensure the provision of adequate standards of services; and
- prevent over or under-pricing.

Over-pricing will mean that total available resources in the community are not allocated efficiently. Over-pricing may arise from charges being set to extract monopoly rents or from levels of expenditure being inefficient – due to the absence of competition.

Under-pricing will send misleading signals to customers about the real costs of supply and tend to encourage over-use of the resource. It is also likely to result in the business recovering insufficient revenue to ensure continued asset serviceability or sustainable business viability. Steep price rises at some later date can restore asset condition and provide for commercial viability, but may place the cost burden unfairly on subsequent generations.

An objective, therefore, of any regulatory framework and associated principles for urban water pricing is to ensure that price/revenue levels are efficient in terms of preventing monopoly exploitation of customers while ensuring that the monopoly business is sustainable.

However, regulators often have wider responsibilities than simply mimicking the competitive market. For instance, where quality and security of supply are absolute

priorities, driven by environmental and health requirements, regulators may need to follow a more lenient path to ensure they do not weaken the business leading to financial crisis and, if a private utility, bankruptcy.

Indeed, in the UK, the water regulatory body, Ofwat, is legally required to ensure that businesses can finance their functions.[1] This legislative requirement is unique to the water sector and reflects the fact that:

> *"…water and sewerage provision is the most obvious sector where protection of the public is likely to override simple efficiency based considerations."*[2]

In the Australian context, the same differences between electricity, gas and telecommunications on the one hand, and water on the other, are implicitly recognised in the regulatory pricing approaches. Price/revenue levels for the former group of utilities are based on the cost of capital and the capital base, ie. the formula approach. In contrast, the SCARM/ARMCANZ guidelines for water pricing allow for greater flexibility and require explicit consideration of the commercial viability of the water businesses.

2.2. CRITERIA FOR SUCCESSFUL REGULATION

Regulation requires information and authority on the part of regulators. The choice of regulatory systems and principles ultimately comes to striking a balance between the costs of imperfect information and poor regulatory process on the one hand, and the costs of obtaining better information, incentive structures and regulatory outcomes on the other.

Prime criteria to be considered when assessing the strengths and weaknesses of any system of price/revenue regulation include the extent to which regulation:

- **is limited** to the specific areas of market failure and monopoly power;
- provides **incentives for efficiency**, with the objective to improve community welfare. Regulatory pricing frameworks which prevent monopoly pricing may nonetheless lead to severe distortion of incentives for investment and operational efficiency. Good regulatory frameworks minimise the cost of distorting impacts on incentives;
- **minimises regulatory risk.** Any regime needs to operate in a transparent and predictable way to provide regulatory certainty. This is particularly important in the water industry where investment programs tend to be lumpy and assets are long lived. An uncertain and unpredictable regulatory framework will not provide companies with the medium-term horizon necessary to ensure optimal investment decisions. In the

[1] Director-General, Water Services who heads the Office of Water Services (Ofwat) is obliged under the Water Industry Act 1991, "*to secure that companies are … able (in particular by securing reasonable returns on their capital) to finance the proper carrying out of [their] functions.*"

[2] Alexander, I., and Mayer, C. (1997), "Incentives on Private Infrastructure Companies", World Bank Discussion Paper, prepared for the Private Sector Development Department, Private Participation in Infrastructure Group.

privatised sector, where market forces are more critical, regulatory uncertainty will also drive up the cost of capital and therefore charges to customers;

- **avoids costly disputes** between utilities and regulators and between incumbents and new entrants;
- minimises the direct **cost of regulation** to government and to the regulated businesses and the indirect costs in terms of poor incentives and opportunities forgone;
- **is reflective of risk.** High costs and risks from poor regulatory outcomes justify a higher investment in regulatory effort. Conversely, low costs and risks do not.
  - For instance, the failure of the UK Government to restructure the utility industries and markets prior to privatisation is generally seen as necessitating a bigger regulatory effort than would otherwise be required.

    Moreover, because the UK water businesses are fully privatised and several are owned by large multi-national companies, over-pricing benefits shareholders in other locations or countries. In contrast, in Queensland, the water businesses are part of local government and the customers and owners are effectively the same. As a result, there is, at least, the potential for close observation and feedback to the local community, and the income redistribution from under or overpricing is internalised within the local community – although such pricing will still result in inefficient resource allocation,
  - risk also depends on whether costs and charges are rising or stable; ie. whether the companies are in a phase of active asset creation, and associated high capital expenditure (when intensive regulation may be required to validate costs and charges), or are in a mature, established phase, providing continued asset management (when a more hands-off regime may be sufficient).
- is **realistic and flexible**, able to respond to diverse and changing circumstances, including the size range of businesses to be oversighted, increasing demands for higher standards for the environment and public health, uncertainty over resource security, the implications of climate change and so on; and
- reinforces **business drivers and the management of risk**. For example, information flows for the regulator must be based on data which the company needs for its own internal use, rather than being a separate category collected solely for the regulator. For instance, in the Queensland setting where the industry is embedded in a local government framework, it would be sensible to rely, wherever appropriate, on that framework to provide most of the process required for regulatory oversight.

2.3. METHODS, TOOLS & TECHNIQUES

Principal methods applied by both utilities and regulators to determine prices and revenues include:

- rate of return regulation;
- price cap regulation including CPI-X; and
- a range of supporting tools including customer consultation, benchmarking, data envelop analysis and assessments of total factor productivity.

While the professional literature tends to discuss the advantages and disadvantages of these methods and tools as if they were mutually exclusive alternatives, in practice they tend to be complementary and provide the regulator with alternative perspectives and a range of tools rather than outright choices.

Common inputs to both 'rate-of-return regulation' and to the most common form of 'price-cap regulation' are estimates of the regulatory capital base and the cost of capital. Since these are common inputs involving major conceptual and practical issues, we comment briefly on these before discussing the particular methods and techniques in which they are frequently incorporated.

2.3.1. CAPITAL BASE & COST OF CAPITAL

The value of **the regulatory capital** sets the base on which the investor can reasonably expect a return. Policy makers, regulators and utility owners have given considerable attention to different concepts and measures of capital, none of which have been found to be entirely satisfactory. Particular attention has been applied to the concept of deprival value, defined in simplified terms as the minimum of replacement cost and economic value[3]. However, the incorporation of economic value into the capital base introduces an inevitable circularity: the capital base determines the regulated income, but the capitalised value of the net income stream determines the capital value!

These traditional and long-standing problems are explored at length in texts such as Bonbright[4] or more recent papers such as Gaffikin and Johnstone for IPART/ the Centre for Accounting Excellence[5]. Despite the major theoretical and practical difficulties in definition of measurement of capital, the concept of regulatory capital remains central to rate of return regulation, and indeed, to price cap regulation.

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[3] Bonbright, J.C. (1937) "Valuation of Property" New York: McGraw Hill.

[4] Bonbright, J.C., Danielsen, A.L, Kamerschen, D. R. (1988) "Principles of Public Utility Rates" Public Utilities Reports Inc, Arlington Virginia.

[5] Johnstone D.J. & Gaffikin M.J.R. (1995) "Review of the Asset Valuation Guidelines of the Steering Committee on National Performance Monitoring of GTEs".

The **cost of capital** is the minimum return that an investor must expect in order to invest funds in that activity. Obviously, higher risk activities require higher expected rates of return. The cost of capital is generally estimated by either of two methods, the dividend growth model or the capital asset pricing model (CAPM), leading to estimates of the Weighted Average Cost of Capital (WACC).

Despite the importance of this index, and extensive theoretical and analytical investigations, the professional assessment is equally critical of the validity of estimates of capital value:

> *"CAPM has been castigated on both theoretical and practical problems ….surveys...conclude that as of now CAPM is inaccurate, incomplete and unreliable as a measure of a firm's equity cost of capital ."*[6]

Despite these concerns, at both a theoretical and practical level, CAPM is generally accepted as the most useful methodology for deriving a single figure to represent the average cost-of-capital for a company and is widely used both by regulators and credit agencies. The dividend growth model is equally subject to criticism. Although, in practice, many agencies use both these and a range of other approaches to come to a balanced view on the overall capital requirements of the business.

In practice, there is a substantial variation in cost of capital estimates for the same activity and the same business, allowing very substantial variations in price/revenue and profit. As an example, Chart 2.1, below, confirms the range of figures for the WACC for gas distribution businesses proposed by applicants and regulators during recent negotiations. A variance of 4% to 5% between the parties is not uncommon.

CHART 2.1 : REAL PRE-TAX WACC PROPOSED FOR GAS DISTRIBUTION

EPD Proposal for gas transmission	ACCC draft determination for gas transmission	Great Southern Energy proposal	EPD proposal for gas distribution	ORG Gas Distribution determination	IPART proposal Albury Gas
1997	1998	1998	1997	1998	1998
9.73%	6.7%	11.1%	10.16%	5.5 – 7.5%	7.5-9.5%

Source: IPART (1999) "Pricing for Electricity Networks and Retail Supply : Issues Paper"

Difficulties encountered in measuring and agreeing estimates of the cost of capital and the appropriate capital base are not, however, restricted to rate-of-return regulation, occurring also in price-cap regulation and, indeed, in virtually any form of regulation which does more than set a price path from some pre-existing price.

The key lesson for regulatory bodies is that the apparent certainty of these parameters can be deceptive and that in practice any regulatory decision will involve considerable judgment and discretion.

6 Bonbright, J.C., Danielsen, A.L, Kamerschen, D.R. (1988), op cit. pages 327 328.

2.3.2. RATE OF RETURN REGULATION

Rate of return regulation (which focuses on the return to capital employed, rather than the total revenue required or allowed) has been the dominant form of monopoly price regulation for utilities in the United States. The rationale is simple: monopolists seek to earn excessive rates of return, and therefore, the rates of return should be regulated. In principle, the main information requirements are a knowledge of the cost of capital and the capital base. The substantial practical difficulties arising in estimating and agreeing both aggregates have already been noted.

Rate of return regulation has specific disadvantages in terms of incentives and risk. In particular, it redirects the attention of directors and management of monopoly businesses away from efficiency:

- encouraging inefficient asset creation;

  "…since rates of return are computed on the capital base of the firm, by expanding the value of assets employed utilities can earn higher profits. Rate of return regulation therefore provides undue incentives to invest."[7]

- creating few incentives for efficiency improvements;

  "…by offering utilities a fixed rate of return, regulation provides little incentive to improve efficiency. If improvements to operating efficiency provoke lower prices to achieve target rates of return, then utilities will have no incentives to improve efficiency in the first place."[8] and

- requiring extensive regulatory intervention. Regulated utilities find the review process bureaucratic, complex, finely detailed and involving considerable second-guessing of expenditure decisions.[9]

2.3.3. PRICE CAP REGULATION

Reflecting concerns over the poor incentive properties of rate-of-return regulation, Stephen Littlechild drew attention to the advantages of price-cap regulation, particularly in the form of RPI-X[10]. In its generic form, price cap regulation sets a total price revenue level for the utility which allows the shareholders to gain from any productivity or efficiency gains achieved which lead to lower costs, and therefore, higher profits. The price-cap sets a control for the medium term (normally a minimum of five years) to encourage optimal investment decisions and to give sufficient time to stimulate efficiency gains[11].

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7 Bishop, M., Kay, J. and Mayer, C., (1995) The Regulatory Challenge, Oxford University Press, p.4

8 Bishop, M., Kay, J. and Mayer, C., (1995), p.4

9 California Public Utilities Commission, Report from Henry M Duque, Commissioner, April 22, 1999.

10 Littlechild, S.C. (1983) "Regulation of British Telecommunications Profitability", London HMSO.

11 Prices Surveillance Authority (1994), "Price Capping: Design and Implementation Issues", June.

The most common method of setting the price cap is as the sum of operations, maintenance, administration and depreciation costs, and the minimum level of profits that the business requires to reward shareholders adequately, ie. the product of the cost of capital and the value of assets employed. (The precise definition varies between jurisdictions according to current preferences for capital definitions and the treatment of depreciation.) This modular approach is commonly referred to as 'building-block' price-setting and ties the charges of a company closely to an assessment of efficient costs at the company level.

This approach to setting the price caps is also typically applied, in the context of access pricing, when setting arbitrated prices for access to individual pieces of infrastructure in a network.

Whereas rate of return regulation does not provide strong incentives for owners to pursue efficiency gains, price cap regulation certainly does. But it also provides stronger incentives, therefore, to undermine operating standards. As a result, price cap regulation requires stronger controls to ensure delivery of specified outputs.

The RPI-X form of price cap regulation attempts to simulate the operation of the competitive market by recognising that in a competitive market, competitors also enjoy productivity and efficiency gains and should be able to lower their prices in real terms. Consequently, over time, prices should be expected to fall in real terms due to productivity gains – the X factor – even though rising with general inflation as measured by the retail price index (RPI) or in Australian terms, the consumer price index (CPI).

Littlechild assumed that the X-factor would be set primarily by reference to efficiency benchmarks established by comparing the relative performance of the different players in the industry. This was the basis of 'competition by comparison'.

Changes in operating standards, public health requirements and so on need to be reflected in the price cap and can be introduced either in the base revenue determination, or through incorporation in annual percentage adjustments known as the K factor. In this case, the RPI-X becomes RPI-X + K. The importance of the K factor is that it is forward looking (focussing on additional capital and operational expenditures to be incurred in future years).

The original enthusiasm for the RPI-X method of varying price caps has shifted to a more cautionary approach.

> *"At first sight the RPI-X method of price control looks simple, different from, and superior to rate-of-return regulation, with good incentives for cost efficiency, minimal regulatory burden, and low risk of capture.*
>
> *However, a number of parameters have to be set and from time to time reset: the coverage of the price cap; construction of the price indeed; whether and how much cost passthrough to allow; the level of X; the extent to which individual prices are*

> *made subject to regulation; the frequency of price reviews; and controls on quality, to name only the most obvious.*
>
> *This is not to say that the RPI-X system is the same as rate-of-return regulation. It does however mean that RPI-X price regulation is more complex and problematic than its original advocates appeared to believe."*[12]

Given these concerns on complexity and the level of intervention required in standard price-cap regulation, several utility regulators in the US are now exploring a less interventionist approach. Under this approach the efficiency factor in the RPI – X equation is set by reference to the total factor productivity demonstrated by the industry at a state or national level, rather than by analysis of the costs of the individual company[13]. A standard price cap then applies to all companies within an industry sector.

This approach relies on a well-established baseline and high-quality comparative data on the industry and its efficiency trends over time. It is also difficult to apply an industry-wide price-cap where distribution businesses demonstrate widely differing external environments. The merits of this new approach have been debated both in NSW and Victoria[14]. At this stage both ORG and IPART are maintaining a commitment to a building–block approach to price–cap regulation, although both have indicated an interest in developing the capability to adopt elements of the revised methodology as time passes.

Because utilities in the UK and USA are wholly or predominantly private companies, the focus in the US and UK literature is on price-cap regulation as an alternative to rate of return regulation. However, the maximum price cap is likely to be of much less relevance where the entities are either state government or local government owned. Indeed, much of the concern of COAG in the early 1990s was on the inadequacy of cost recovery in the water sector. In the Australian context attention needs to be given to both price caps and price floors. This is now reflected in the SCARM/ARMCANZ guidelines.

2.3.4. HOLISTIC APPROACHES

While the price cap/RPI-X approach has been extensively adopted in the UK, the regulators rely on a full suite of methods and tools in order to validate their decisions. This involves consideration not only of the price-cap, calculated on the above formula approach (product of capital base and the WACC), but also extensive cash flow analysis to test the viability and robustness of the resulting business outcomes. The assessment is also supported by a wide range of independent analyses relating to comparative performance, productivity gains

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12 Rees, Ray and Vickers, John, RPI-X Price Cap Regulation in Bishop, M., Kay, J. and Mayer, Colin., (1995) "The Regulatory Challenge" OUP.

13 Kaufmann, L. & Lowry M., (1997), "Updating Price Controls for Victoria's Power Distributors", available at reggen.vic.gov.au/electricity.

14 ORG (1998) "Finalising the framework: 2001 electricity distribution price review", section 3; and IPART (1999) "Pricing for Electricity Networks and Retail Supply" Chapter 3.

and other benchmarks. The approach of Ofwat, in particular, might best be described as intensive and holistic, with the Director General's resultant judgements expressed within an RPI-X framework.

The evolution of water pricing principles from the original rigid rate-of-return formula advocated by the COAG Expert Group, to the endorsement of a less prescriptive approach (involving the need to assess both rates of return and commercial viability) indicates movement towards a similar holistic approach in Australia.

New regulatory pricing principles for water were endorsed by SCARM/ARMCANZ at its Hobart meeting in February 1998, following reports by the COAG Expert Group, Ernst & Young and Marsden Jacob Associates.

> *"When all of this work is taken into account, it becomes clear that a prescriptive approach that can be universally applied is not practicable. Indeed to apply a rigid formula to cost recovery* [as originally suggested by the COAG Expert Group] *is likely to cause unintended consequences in pricing.*[15]
>
> *ARMCANZ agreed the guidelines should be applicable to the Council's assessments and should be endorsed by COAG as the minimum requirements. These guidelines maintain the integrity of the COAG reforms but recognise the range of circumstances peculiar to each water authority that should be considered in determining whether the full cost recovery test is met."*[16]

The core principles adopted by SCARM/ARMCANZ are that:

> *"To avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs,* [incurred] *externalities, taxes or TERs* [tax equivalent regime], *provision for the cost of asset consumption and cost of capital, the latter being calculated using a WACC."*
>
> (We refer to this first principle as the COAG formula.)
>
> *"To be viable, a water business should recover, at least, the operational, maintenance and administrative costs, externalities, taxes or TERs, not including income tax, the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement … Dividends should be set at a level that reflects commercial realities and stimulates a competitive market outcome."*[17]
>
> (We refer to the second principle as "commercial viability".)

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15 National Competition Council (1998), "Compendium of National Competition Policy Agreements" – Second Edition, June 1998, p. 111

16 *ibid..*, page 112.

17 *Ibid..*, page 112..

Most frequently, the formula approach results in a revenue level substantially above the level of revenue required for commercial viability, giving an upper and lower bound. However, this ranking need not always apply, especially where a small water business is required to expand substantially and rapidly.

The integration of these two principles is that maximum prices should be equal to the higher of:

(a) the amount required to deliver the service in a commercially viable sustainable manner; and

(b) the amount derived by the "COAG" formula.[18]

Minimum prices should be no lower than those required for the business to be commercially viable/sustainable.

Recognition of the importance of commercial viability was the key feature of successful submissions, which were based directly on the report, *"Pricing Principles for Competitive Water Businesses"*, prepared by Marsden Jacob Associates.[19]

The "COAG formula" is a backward looking accounting approach focussing on past capital expenditure. The magnitude of that past capital expenditure is the prime determinant of the capital base to which the WACC is applied and the magnitude of depreciation.

Questions relating to the definition and size of the relevant asset base, therefore, directly affect revenue estimates derived through the "COAG formula".

In contrast, commercial viability is a forward looking concept focussed on the adequacy of cash flows. That is, the ability of the entity to meet its current and ongoing responsibilities and liabilities. The commercial viability of a water or sewerage system must reflect the substantial costs of ongoing asset maintenance and future refurbishment and replacement.

However, the "commercial viability" approach to revenue requirement is determined not by the size of past investments, but by the size of the future commitments to maintain, replace and upgrade. Particularly for small water businesses, where major asset replacement is irregular and lumpy, this requires that substantial reserves must be accumulated ahead of major replacement expenditures.

Typically, the gap between revenue estimates generated by the costs formula and the commercial viability approach is substantial. Chart 2.2 indicates the impact on prices which would result from applying the COAG formula rule to the revenue requirements of a number of the Victorian non-metropolitan urban water authorities.

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[18] See NCC Compendium 1998, p. 112

[19] MJA (1997), "Pricing Principles for Competitive Water Businesses".

CHART 2.2 : PRICE IMPACTS OF COAG RULE (EXISTING BUSINESS ONLY, NOMINAL WACC)

AUTHORITY	CV REVENUE FOR EXISTING BUSINESSES	COAG RULE	
		CAPITAL = ECONOMIC VALUE	CAPITAL = ODRC
	INDEX	% OF CURRENT	% OF CURRENT
Western Water	100	94	160
Coliban	100	105	315
Goulburn Valley	100	101	240
East Gippsland	100	97	155
Otway	100	118	168

Source: Marsden Jacob Associates "Pricing Principles for Competitive Water Businesses", July 1997

In principle, the use of deprival method for asset valuation might be expected to close a substantial part of the usual gap between the COAG formula estimates and the revenue needs generated by a commercial viability/cash flow analysis.

In the water industry, deprival valuations rigorously applied will generally be determined by the economic value of the business – since this is typically lower than the optimised replacement cost of the assets in aggregate. But to use the economic value of the business to set its revenue level (ie. the capitalised value of future income streams) is obviously circular. Moreover, economic values for sub-components of network assets can be misleading and do not avoid the circularity.

In practice, the economic value is, in fact, often not calculated which means the "deprival value" reverts to the optimised depreciated replacement cost (ODRC). However, within the water industry, asset valuations typically involve very little optimisation often limited to the treatment plant, pipeline materials and the obvious, but rare, stranded assets. This situation is not unique to the water industry.

The IPART survey of deprival valuation practices actually employed by major utilities found that most claimed to apply deprival valuation but few actually did.[20] At best, the so called deprival valuations might be described as very lightly optimised replacement valuations.

The more fundamental reason why the COAG formula/building block approach for an established water business typically generates a substantially higher revenue estimate than does the commercial viability approach is that :

[20] Public Sector Accounting Centre of Excellence "Asset Valuation by Government Trading Enterprises: An Evaluation of Pricing Issues" (1996), A research project sponsored by the Independent Pricing and Regulatory Tribunal of NSW.

- the formula approach attempts to estimate the cost at which an efficient **new** competitor could provide the full service, ie. what capital and operating expenses would need to be incurred to set up – afresh – an equivalent business; and
- the commercial viability approach, in contrast, takes a medium to long term perspective (typically 20:30 years minimum) and examines the revenue levels required to keep the existing business fully operational, meeting all ongoing and future obligations including refurbishment and growth/capacity expansions.

  Commercial viability treats past investments as bygones and need not require a full return on sunk assets. Note that sunk assets tend to be much more important in the water industry than in other utility sectors.

As a result, the gap between the revenue level required for commercial viability and the level required to encourage entry by an efficient new competitor is substantial – even where deprival valuation is fully and correctly applied.

The fact that past investments may be treated as such does not preclude future investments from being required (and priced) to meet appropriate hurdles rates reflecting the cost of capital.

Moreover, to the extent that all customers use the existing infrastructure they all benefit from lower pricing of that infrastructure even though incremental customers may not be paying their own incremental costs and all customers pay for health and environmental upgrades.

2.3.5. REGULATORY ISSUES AND TOOLS

Price-setting raises a number of issues which the regulator will have to consider across different methodologies.

Efficiency Comparisons: using comparative competition to set prices is problematic when the regulator has only a limited number of companies as it is difficult to determine whether the companies' prices are efficient. In Tasmania, GPOC has recently expressed concern as to the relative efficiency of the bulk water suppliers bodies under review, and noted that it was difficult to determine 'efficient prices' when there was little comparative benchmarking data[21].

In its recent price determination for the NSW electricity distribution businesses (DBs), IPART could only make comparisons between six DBs, whilst in Victoria the Office of the Regulator General can only review five separate entities. Moreover, in each case, those DBs fall into discrete categories as either CBD, urban or rural companies. This further reduces the comparability of the different entities. IPART has recently announced price

[21] GPOC (1998) "Investigation into the pricing policies of Hobart Water, North West Regional Water Authority and Esk Water", Final Report, December.

reductions of 16% on average over the next five years. This can be compared with the UK where following criticism of an earlier price review, Offer, has just announced a 30% reduction in year one of the new price period for electricity customers in the UK. The wider availability of comparative entities in the UK was one factor in providing the regulator with the evidence to justify a tighter price path.

Price Control Mechanisms: once an annual average revenue requirement has been determined there are a number of different controls which can be applied to the future movement of regulated prices. The choice depends on the nature of the industry and the extent to which costs vary with the level of demand:

- **Revenue Cap:** this provides the company with a guaranteed income, irrespective of the volume sold. This approach is used for transmission businesses where there is little correlation between the volumes supplied and the costs of the business, and where other mechanisms exist to send signals for system augmentation. Correction factors are required to adjust for any over or under recovery against a set revenue target. This approach tends to rate-of-return regulation and may send signals to encourage asset creation;
- **Revenue Yield:** this places a cap on the average revenue per unit of output. The company, therefore, has incentives to reduce costs and increase outputs. This is valuable where there is an objective to encourage system augmentation. However, the cap may create perverse incentives to encourage inefficient asset growth and utilisation in areas of low unit cost. This is the form of price control adopted to date for the distribution businesses in Victoria in both the gas and electricity industries;
- **Tariff Basket:** this controls prices rather than revenue and places a limit on the weighted average of the prices of a 'basket of services'. This reduces some of the incentives to inefficient system growth and should encourage efficient pricing strategies. There are some incentives to seek growth preferentially in higher tariff categories. It also protects the company from some of the risks from demand volatility. This is the approach adopted by Ofwat in the UK and is most suited to water businesses where there are a range of business services/products.

Sharing Benefits: incentive based regulation provides an opportunity for the utility to retain additional profits generated by outperforming the regulator's efficiency targets. The regulator then needs to decide how and when those benefits should be shared between shareholders and customers[22].

The general consensus is for a policy of no clawback, ie. profits should be retained up to the next price review (unless they result from incorrect data in the decision) and are then gradually wound out over the next five years, on an even 'glide-path'. The temptation is then to try and develop an elaborate process to distinguish between those efficiency gains which arose from management effort and those which were the result of exogenous factors.

[22] ORG (1998) Consultation Paper No 3: electricity price review 2001.

The consensus appears to be that creating a simple, standard approach to all such gains is likely to promote greater savings, by strengthening incentives, than would be won through attempting to recoup a higher percentage of efficiency gains at an earlier stage.

2.4. CHOICES, OPTIONS & DESIGN PARAMETERS

Important choices must be made on how regulation is to be applied. Some of the key choices include:

- should there be **one system and approach only** for all utilities or all water businesses? IPART recognised the challenge of reconciling the objective of developing consistent principles, intended to apply across all entities, with the need to retain sufficient flexibility to respond to local circumstances.

  > *"Local water authorities often face vastly different local hydrologic, geographic and demographic conditions. Some authorities service a great many small villages across large areas, while others service relatively large urban centres. Some supply water and manage waste water without direct access to natural water courses, while others directly access large coastal rivers. Some service communities in economic decline, while others service regional centres or rapidly growing coastal towns. The major challenge of this Inquiry has been to develop a consistent set of basic pricing principles while recognising and accommodating the great variety of local conditions."*[23]

  The US initiative to develop industry-wide, rather than company specific, price-caps may suit the regulation of industries which demonstrate relatively consistent cost structures and operating environments, such as telecoms. It is not appropriate as an approach to the prices-oversight of an industry, such as water, where different businesses face very different operating environments.

- Should the system pursue as much **certainty** as possible with the regulator auditing and judging every assumption and input into the price calculations or, should the system of regulation be essentially **passive**, merely relying on regulatory guidelines and the good offices of the utility's management?

- Should the system of regulation seek **tailored information** or seek to rely on pre-existing information to the maximum extent possible?

- Should the system of regulation seek to review **all entities** covered, or should it seek to rely on **exception reporting** and review only those businesses which fall outside the guidelines?

The Queensland Competition Authority has already indicated preferences on some of these choices.

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[23] IPART (1996), "Pricing Principles for Local Water Authorities", Foreword, June 1996.

3. APPROACHES TO PRICE REGULATION – OVERSEAS EXPERIENCE

3.1. INTRODUCTION

This chapter provides an overview of the experience and approach to regulation adopted by a number of key overseas countries. Four main models are explored in detail:

- the USA, where a fragmented and scattered industry is mainly delivered in urban areas through public sector bodies, subject to regulation by state-based Public Utility Commissions, who implement prices oversight through rate-of-return regulation;
- the UK, where Ofwat has established a highly interventionist regulatory regime, for the privatised water companies, based on price-cap incentive regulation and comparative competition;
- France, where many of the local municipalities franchise out the operation of their water businesses, through a system of leases and concessions, to private sector water companies, thereby replacing price regulation with periodic competition; and
- New Zealand, where light-handed regulation has been attempted.

A recent OECD publication provides a useful review of the state of play regarding water pricing across most OECD member states[24]. A series of broad issues can be distinguished:

- charges are increasingly set to cover "full long-run costs, including a return on assets";
- adoption of consumption based pricing with two-part tariffs – rather than a fixed charge with a free-allocation;
- increasing pressure for higher expenditure to meet more stringent standards for drinking water and sewage treatment, such as the Safe Water Drinking Act in the USA, and the European Urban Waste Water Treatment Directive; and
- an increase in the involvement of the private sector through the French model of concessions and through greater use of BOOT type projects.

OECD recommend the adoption of two-part tariffs, with the volumetric element based largely on the long-run marginal cost of supply in order to send effective signals for efficient use of the resource.

[24] OECD (1999) "Household Water Pricing in OECD Countries", ENV/EPOC/GEEI(98)12/FINAL.

3.2. THE US WATER SECTOR

3.2.1. THE INDUSTRY

The provision of water and sewerage services in the USA is piecemeal and fragmented across the states, with more than 52,000 separate water supply companies:

- 46% are publicly owned. These public companies serve 85% of the population, especially in the large cities;
- 28% are privately owned. Though these tend to be much smaller entities, normally focussed on supplying small residential communities; and
- 26% are ancillary to functions such as hospitals or other institutions.

Municipalities

The large publicly owned entities face many of the problems experienced in other countries:

- demands to improve standards for drinking water and sewage treatment; ie. the recent amendments to the federal Safe Water Drinking Act;
- the need for increased expenditure. According to the EPA, improvements to the USA's water and wastewater systems will cost about $260 billion over the next 20 years;[25]
- tariffs are often low, with a history of subsidies and there is political sensitivity about increasing them; and
- there is ever increasing budgetary pressures on the municipalities.

Responsibility for investment and service delivery is therefore increasingly contracted out by municipalities to specialist service companies or larger neighbouring entities. For example United Water now manages water and waste water facilities and provision for 25 major cities across the States including: Atlanta, Milwaukee, Indianapolis, Jersey City, Houston and Hoboken.[26] United Water is partly owned by the French water company Lyonnaise des Eaux (LdeE) which is currently negotiating a $1 billion buy out.

The other dynamic has been the merger and acquisition of smaller entities by larger water businesses:

> *"These developments are consistent with our policy goal that water utilities operate at the size and scale needed to meet both the financial and operating requirements posted by the Safe Drinking Water Act Amendments."*[27]

[25] http://www.epa.gov/OGWDW/ssafford.html#tfb

[26] www.unitedwater.com

[27] California Public Utilities Commission, Report from Henry M Duque, Commissioner, April 22, 1999.

3.2.2. REGULATORY FRAMEWORK

Price setting for most water utilities is controlled through state-based Public Utility Commissions (PUCs). There are 46 PUCs across the USA. For instance: the Wisconsin Public Service Commission which regulates more than 500 municipal water utilities, sanitary districts and investor owned water utilities, most with fewer than 2,000 customers; and the California Public Utilities Commission which regulates 164 water companies with fewer than 10,000 customers. On the other hand, it also regulates 13 companies with more than 10,000 customers which include a few extremely large entities such as the California-American Water Co which services much of Los Angeles, Monterey and San Diego.

The PUCs determine charges through regular rate reviews normally based on Rate of Return regulation. The California PUC does this on a regular three yearly cycle. However, bodies can submit applications for rate rises in between those reviews if they face additional expenditure. This approach involves determining the revenue requirement of the utility primarily by reference to its asset value. The process requires a detailed examination and review of all expenditure proposals and validation of that expenditure. These often involve public hearings of a quasi judicial nature. The water division of the California PUC hears 100 such cases each year. It has 52 permanent staff to progress the procedurally complex protocols which need to be followed. As with the Wisconsin PUC, many smaller rate applications are now dealt with by mail.

3.2.3. LESSONS FOR THE QCA

The general strengths and weaknesses of rate-of-return regulation are dealt with in Chapter 2. The specific experience of the regulation of water businesses throws up some particular issues with relevant to Queensland.

Given that the smaller water companies find the process of regulation in California overly complex, there is a risk that:

> *"If small companies do not regularly file for needed increases, their systems can deteriorate quickly, reducing service quality and increasing long-term costs to ratepayers".*[28]

The approach also tends to involve considerable second-guessing of expenditure decisions. An example can be seen in the description of one of the elements in the current work program of the California PUC regarding an application from:

> *"California Water Service Company, for an order authorizing it to increase rates charged for water service in each of its operating districts to recover increased operating expenditures at its general office."*[29]

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[28] California PUC (1998) Business Plan 1998-1999, Section12 Water Division.

[29] California PUC, Active Cases & Assignments, ref: A99-03-061, 3/31/99, available on the web at www.cpuc.ca.gov/divisions/water/Active_Filings.htm

The QCA may wish to establish price-setting mechanisms which do not require water businesses to approach it whenever there is a need to amend their prices.

However, the operations of the PUCs have a number of features which provide positive lessons for the QCA:

- they make good use of public hearings. This gives authority and public acceptance to decision making. However it tends to limit the discretion of the regulator, as it tends to emphasise a standard, mechanistic approach to decision making;
- they publish guidelines and discussion papers on proposed policy issues; and
- they increasingly deal with regulatory matters through proforma reviews.

3.3. ENGLAND & WALES / OFWAT

3.3.1. THE WATER INDUSTRY

The water industry in England and Wales consists of ten large, vertically integrated companies providing both water and sewerage services, and some fifteen smaller companies providing water supplies only. Scotland has three public sector water companies which are subject to separate regulatory arrangements.

The industry in England and Wales has faced major challenges over the last ten years to improve water supply and waste-water treatment. This has required substantial expenditure.[30]

- £33 billion spent over the last ten years (≈ A$82 billion);
- £15 billion scheduled over next five years (≈ A$37 billion); and
- ≡ A$400 pa/household.

This expenditure led to prices rising by CPI + 5.5% pa from 1990 – 1995. Many customers saw their bills double over that period. This created considerable political and regulatory risk.

3.3.2. REGULATORY FRAMEWORK

The need for this expenditure was the major driver for the privatisation of the industry and for the creation of the regulatory framework run by the Office of Water Services (Ofwat). Ofwat has developed a highly interventionist regime, to be able to monitor and challenge the need for those steeply rising bills. The regime imposes significant costs and burdens on the industry, but is now delivering major benefits for customers. The following are key elements of that regime.

Price Setting: Ofwat applies a price-cap incentive model of regulation, on a five-year cycle. This is commonly described as following an RPI-X methodology. However, in practice, it is a holistic model which incorporates a number of different elements, on a pragmatic basis. It emphasises a clear, staged process but leaves the final decision up to regulator discretion and judgment. The RPI-X formula is expanded by Ofwat to RPI+K-X to include an explicit factor K to take account of the need for additional expenditure to meet higher standards.

[30] Ofwat (1999) "Future water and sewerage charges: 2000-05" 1999 Periodic Review – draft determinations.

The price-setting process has a number of elements:

- it starts with a series of decisions which are common with rate of return regulation. These focus on determining the size of the **regulated capital base** and the appropriate **WACC**. Given the size of the asset base in water, these decisions have a major impact on the overall revenue requirement of the business:

  - at the price determination in 1995 the **asset value** was set by reference to the market value at privatisation rather than the current cost valuation. This was equivalent to only 9% of the DORC; and

  - at the most recent price determination in 1999 the **WACC** was set at a figure between 4.25% to 5.25%, with the smaller companies given an additional premium of 0.75%.

- The second stage involves a **'building-block'** approach to validating future expenditure. This requires a detailed scrutiny of the separate elements of the future expenditure of the companies, eg. operating expenditure, capital expenditure for infrastructure maintenance or augmentation to meet new standards etc. Ofwat is able to employ comparative data between the companies in validating that expenditure. This level of expenditure sets the K in the RPI+K-X formula. The K factor is company specific.

- Third, there is then an assessment of the **productivity gains** which Ofwat considers it is reasonable to expect the companies to make over the period concerned. This path is derived both from the efficiency gains demonstrated by the industry itself, during the previous period, and from comparative data from other utilities. This sets the size of the X in the RPI+K– X formula. The X varies between companies depending on their ranking in the comparisons of relative efficiency – ie. less efficient companies are given tougher targets to meet.

- At the most recent review, then Ofwat **rewarded or penalised** companies, which could demonstrate customer service performance significantly above or below the norm, by reducing or increasing the size of the X factor by a figure of 0.5.

- The resultant total revenue requirements are then translated into **draft price paths** and revenue yields for each company, for each of the years of the five year period. These price paths are company specific.

- The draft price paths are then subject to review against two main criteria:

  - first, does the revenue yield in each year ensure that the company is able to meet key financial indicators – ie. is the company **'bankable'**? Ofwat assumes a parallel approach to that followed by credit rating agencies. The primary indicators assessed are interest cover and cash flow based indicators, which measure the ability of the companies to service their debt burden (see Chart 3.1 below for details). Prices/revenues in specific years are adjusted to ensure the companies

meet these indicators. In this regard the approach is very similar to a cash-flow model; and

CHART 3.1 : OFWAT'S PROPOSED RANGES FOR CRITICAL FINANCIAL INDICATORS BY COMPANY SIZE, 1999[31]

Indicator	Large	Medium	Small
Historic cost interest cover	Min 2x	Min 2.25 x	Min 2.5x
Average gearing (D/D+E)	45-55%	45-55%	45-55%
Cash interest cover (EBITDA basis)	Min 3x	Min 3.4x	Min 3.75x
Cash interest cover (EBIDA basis)	Min 2x	Min 2.25x	Min 2.5x
Debt payback period (EBITDA basis)	Max 5 years	Max 5 years	Max 5 years
Debt payback period (EBDA basis)	Max 7 years	Max 7 years	Max 7 years
Cash flow to capex ratio (EBDA basis)	Min 40%	Min 40%	Min 40%

  - second, are the price paths within the bounds of **customer acceptability**? At the Ofwat price review in 1994/5 the Director General made it clear that he considered that the average price-cap should not be greater than RPI + 2%. Expenditure programs were re-profiled, where necessary, to ensure that these targets were met.

- Finally the Regulator General weighs the balance of the component elements in coming to a decision based on **judgment and discretion** rather than as a mechanistic outcome of a procedural equation. The best example of this discretion is on the decision regarding the WACC, where the Director General identified that there was a range between 4.25% to 5.25% but commented that:

  "Although there is some market evidence for a figure lower than the middle of this range, the Director has also had to take account of the need to ensure that companies retain solid investment grade credit ratings in order to finance their capital investment programs".[32]

The price cap sets a limit on the overall basket of charges, rather than a limit on revenue or on profits. That limit assumes certain efficiency targets. The companies are given an incentive to out-perform those targets, as any additional returns are retained by the company until the next five-yearly price review.

This more efficient level of production achieved then provides the regulator with a starting point for the next price review, at a lower level than the previous price cap assumed. This

31 Ofwat (1999) "Future water and sewerage charges: 2000-05" 1999 Periodic Review – draft determinations, page 132.

32 *Ibid.* page 124.

allows a one-off reduction in prices (referred to as a P_0 adjustment) at the start of the next price path when those benefits are shared with customers.

Recent Draft Determination: Ofwat has recently published the outcome of its current review of prices for England and Wales for the period from 2000-2005.[33] This sets a separate, company-specific annual price limit for each of the companies. The size of those limits demonstrates the significant power which now rests in the hands of the regulator, as seen in the substantial reductions which he has proposed in water-customers' bills:

- a reduction of 13.7% in year 1 of the new price period, to pass on the benefits of the out-performance by the companies in the previous five years (a P_0 adjustment). This demonstrates that the regime is creating strong incentives for companies to seek efficiency gains; and
- a reduction of 6.7% in the annual price limits faced by customers from the figure of CPI + 3.8%, sought by the companies, to the average draft determination at CPI – 2.9%. This reduction is equal to a total saving of $650 per household over the 5 year period.

Routine Monitoring: Ofwat requires a very substantial information flow from the companies on an annual basis supplemented with a major revenue submission at the time of the five yearly price review.[34] The data, which has to be externally validated by an independent assessor, covers a wide range of parameters including:

- company data: customer nos., volumes delivered etc.;
- financial performance: revenue against all categories, P&L, balance sheet;
- asset data: by type and condition;
- expenditure against all categories and service attributes;
- performance against a wide set of customer service standards; and
- compliance data on external standards.

Regular Comparative Publications: Ofwat publishes a set of annual publications which report on the performance of the companies against the above data. These reports implement 'comparative competition' between monopoly suppliers by creating pressure on the companies to improve performance (particularly on levels of customer service) and by increasing the transparency of the regulatory regime by informing stakeholders.

Comparative Competition: the large number of companies involved, and the substantial data available, gives Ofwat the opportunity to mimic the market and employ the tools of comparative competition. In setting prices, it approved figures at the lower quartile of the

[33] Ofwat (1999) "Future water and sewerage charges: 2000-05" 1999 Periodic Review – draft determinations, page 11.

[34] Ofwat (1996) "July Return – reporting requirements and definitions manual".

range of the companies for allowed capital expenditure and set efficiency targets for operating expenditure based on relative performance.

Inset Appointments: Ofwat has also introduced the use of inset appointments as a mechanism to drive competitive pressures within a monopoly network system[35]. This approach involves a new entrant competing to provide services to a large customer (either new or existing) within the licence area of an existing supplier. The approach drives a simple form of access regime as it normally relies on the incumbent supplier providing the use of its infrastructure to allow delivery of products and services to the boundary of the site.

Customer Consultation: Ofwat places importance on customer representation. It has set up ten Customer Service Committees on a regional basis to provide advice and representation for customers in their dealings with the relevant local water companies.

3.3.3. LESSONS FOR QCA

The rigorous interventionist approach can yield considerable benefits for customers, as seen in the recent price determination which Ofwat would claim generated customers benefits equal to A$650, per household, over a five year period.

On the other hand, significant costs are involved both for the companies and for the regulator. Ofwat's annual budget is approximately A$25 million, supporting a full time staff of 220.[36] It has been estimated that each of the major regulated companies spend $2.5 million pa in compliance costs for data collection, auditing, senior management time etc., with lower figures for the smaller entities.[37] That adds a further $35 million to the sum – giving a total of approximately $60 million p.a. for the costs of regulating the water industry in England and Wales. This is equivalent to $3 p.a. for each water customer. Set against the benefits of the recent determination that yields a return for customers of nearly 50:1.

All things being equal, an equivalent approach in Queensland would require a minimum annual budget of $4 million, solely for the QCA's work in the water sector.

The success of this approach also depends on there being a sufficient number of similar entities to allow comparative competition to be effective. As GPOC found in Tasmania, this is unlikely to be the case for most state-based regulators. NSW has found solutions to this issue through international benchmarking of Sydney Water. However, this approach is only readily applicable where large standardised reticulated entities are involved, and where, as in the case of Sydney Water the business is willing to cover the costs of the benchmarking

35 Ofwat (1999), "Inset Appointments – Guidance for Applicants".

36 Ofwat (1999) "Annual Report - 1998"

37 *pers comm*, John Smith, Regulation Manager, Anglian Water, March 1997.

exercise. It is far more difficult in the case of small businesses or headworks which are likely to demonstrate far greater variability of operating environment and cost structure.

Ofwat's approach contains other lessons for the QCA:

- Ofwat places considerable store on consultation with customers on price and quality trade-offs;
- this is part of an open process in all stages of its price-setting exercise with wide publication of proposals and consultation papers;[38] and
- a recent innovation is the appointment of a panel of senior industrialists to advise the Director General on key decisions. This has given additional credibility to the Regulator's decisions.

[38] Ofwat (1997) "The proposed framework and approach to the 1999 Periodic Review" etc.

3.4. FRANCE

3.4.1. THE WATER INDUSTRY

France has a long history of the role of the private sector in the delivery of water services. Currently some 75% of the public water supply is delivered through private sector players.

There are some 36,000 separate municipalities across France with responsibility for water services. However those entities often combine functions in the delivery of those services. Assets are normally retained in the ownership of the local municipality. However the management of the service is usually contracted out. This provides an opportunity for a contestable market to be introduced into the delivery of a natural monopoly.

3.4.2. FRANCHISE CONTRACTS & REGULATION

The contracts involve franchises of two basic forms, depending on the sharing of risk for capital expenditure. Firms compete to win the contracts, which then specify both service standards and future charges. The length of the contract depends on the level of risk adopted by the franchisee:

- **leasing:** (affermage contrât) under this approach the franchisee leases the assets and the right to collect the revenue from the customer base in return for delivery of defined services and the maintenance of the assets. Under this model the municipality retains responsibility for new asset creation. Contracts are normally for 10 – 15 years; and
- **concessions:** under this model the franchisee takes on not only the routine asset maintenance but also responsibility for expenditure for any new infrastructure required to service growth in demand and higher standards. Contracts in this case are commonly for 20 to 25 years, to give sufficient time for the franchisee to recover costs incurred in that expenditure.

The franchise contract bid will involve a combination of parameters:

- the output standards to be met across a variety of indicators;
- the capital works to be undertaken and system augmentation achieved;
- the prices to be charged; and
- in some cases, a one-off lump-sum bid to win the contract.

The franchising process effectively replaces external prices-oversight, as competition on a periodic basis for the contract should ensure that market forces drive efficient outcomes. In France, the Ministry of Finance hold records of all such franchises as a data base to which local municipalities can refer. However, there is little or no direct regulatory intervention in the setting of the tariffs in the franchise contracts, where the major control is through the political process and the incentives on the local politicians to minimise unpopular price rises.

The model is attractive for municipalities as they retain ownership of the assets, yet can rely on specialist companies for their management. The length of the contract may also encourage innovation in technology and management. However:

> "*The disadvantage of long-term contracts (as indicated in the French water industry) is that incumbents become difficult to remove, new entrants are discouraged and franchising turns into a scheme of regulation."*[39]

Concession contracts, for periods of up to 25 years, normally have a price review every five years, at which point the franchisee can seek to renegotiate the terms of the contract. This allows for the reasonable assumption that standards and other external factors will vary during the life of the contract.

The large majority of the contracts are won and held by two of the world's largest and most successful water companies: Compagnie Générale des Eaux (CGE) (part of the wider Vivendi Group) and Compagnie Lyonnaise des Eaux (LdeE). CGE controls about 40% of the franchisees in France whilst LdeE holds some 25%. Both companies also have substantial interests and activity outside France, with CGE now supplying water to 80 million people worldwide and LdeE some 77 million. LdeE has an active presence in Australia through its part ownership of Australian Water Services (AWS) which built and now operates the Prospect Water Treatment Plant in Sydney. Both LdeE and Compagnie Générale des Eaux (CGE) see the USA as a major target for future growth. CGE's subsidiary, Aqua Alliance, is now the country's main private operator.

3.4.3. LESSONS FOR QCA

The use of competitive tendering for the right to manage and provide services, on behalf of local councils, is a model which has clearly established a track record in France and gaining popularity in the United States and elsewhere. It allows competitive market forces to be applied to a natural monopoly. The model has also been successful in balancing the retention of local ownership by the community with the introduction of professional management. This is likely to be of increasing relevance to the water businesses of local councils in Queensland, as they face the need to meet more stringent standards and operate in a more professional manner.

However, letting of contracts by franchise in this way, for periods of up to twenty five years, limits the ability of the regulator to intervene once a contract has been signed that specifies both price and levels of service. There is also risk of collusion in contracting where the market is weak.[40] This can occur both in the initial contract letting and at the end of the contract when the incumbent has significant market advantage.

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[39] OECD (1995) " Franchise Auctions in Network Infrastructure Industries," Prof Martin Cave, p. 8.

[40] *ibid.* p. 9.

3.5. NEW ZEALAND

New Zealand has experimented with light-handed approaches to industry regulation and prices over-sight.

New Zealand corporatised and privatised elements of both the electricity supply industry and the telecommunications sector during the early 1990s with further separation of the electricity industry in the late 1990s.

The water sector remains largely in local, public ownership with the bulk supplies, headworks and tailworks owned by the regional councils, special purpose local authorities (Watercare) or local councils and the retail reticulation systems owned and operated by local councils. There are many privately owned and operated water supplies, although these a mainly of a small scale. One medium-size provincial town (Oamaru) is supplied by a private company in which the local council is a minority shareholder.

3.5.1. LIGHT-HANDED REGULATION

The New Zealand Government has sought to prevent monopoly exploitation by the newly privatised entities by methods other than direct regulation of prices and profits because of its assessment of the empirical evidence that such regulation does not produce a net benefit to the community over time. This alternative "light-handed" approach relies upon:

- express and implied legislative restraints;
- explicit disclosure regimes to reveal the prices, costs and profits in target industries;
- reliance on general competition law, in particular the Commerce Act and the Fair Trading Act, with the benefit of extensive disclosure information to make action under these statutes easier and more effective in the event of abuse of a dominant position;. and
- a threat of future political intervention if participants fail to meet expected norms of commercial behaviour.

The essence of this approach is not that light-handed regulation solves all problems, but that it is more likely over time to produce a better outcome for the community. It also needs to be appreciated that the term "light-handed" refers to the direct involvement of regulators in the business, not to the rigour of the regulations.

The application of these provisions is not uniform and varies from industry to industry. An example of the restraints are the obligation on Telecom to publish separate audited financial statements on each of its regional operating entities as if they were stand-alone companies.[41] Other such restraints involve the "Kiwi Share" which provides the Government with special

[41] Telecommunications (Disclosure) Regulations 1990.

voting rights to ensure that Telecom continues to provide eg. free local calls and that rural customers are provided with equivalent services to urban customers[42].

3.5.2. EXPERIENCE OF THE TELECOMS SECTOR

The belief and expectation of the government was that privatisation would lead to the development of an open commercial market with multiple players.

> *" Instead, new entrants into the privatised telecommunications market have faced a monopolist determined not to loose market share".*[43]

In the absence of a utility regulator both the Commerce Commission and new entrants have had no resort other than the Courts to achieve competitive objectives in the face of monopolist behaviour. (Note that even with a regulator, resort to the Courts may be inevitable when the stakes are high and well established and funded entities are involved.)

The Commerce Commission attempted to restrict Telecom's growth into the mobile phone sector by refusing it permission to acquire an additional mobile phone frequency. However, the New Zealand Court of Appeal ruled that the Commerce Commission had no authority to restrain Telecom in this way.[44]

Equally, Clear Communications, a new entrant telecoms company, owned by a consortium including Television NZ and New Zealand Rail:

> *" … finally resorted to Court action after the failure of prolonged negotiations with Telecom to gain reasonable interconnection charges on the domestic phone lines".*[45]

However, this route has proved lengthy and expensive with the courts proving to be a poor substitute for a formal regulatory agency, in terms of skills and procedures. On appeal, the Court of Appeal explicitly commented that it was inappropriate to treat it as a regulatory agency.[46]

In spite of these problems, competition has flourished, toll prices have plummeted and Telecom's profits have grown predominantly in the most competitive parts of the market - mobiles and internet etc.

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42 Janisch, H.N. (1994), "From monopoly towards competition in telecommunications: what role for competition law?" 23 Canadian Business Law Journal 239, p. 266.

43 Malbon, J. (1997), "New Zealand's privatisation of telecommunications and electricity utilities", in Regulating Australian Utilities – the Balancing Act – conference Melbourne February 1997.

44 Telecom Corporation of New Zealand v Commerce Commission [1992] 3 NZLR 429.

45 Malbon, J. (1997), *op cit* p. 36.

46 Clear Communications v Telecom Corporation of New Zealand (1993) 4 NZBLC 103, 340.

While regulatory process and investigations, in Australia, may also, on occasion, involve substantial time and cost, the speed at which the wholesale prices for local calls were determined initially by commercial negotiation and ultimately by the ACCC, suggests that an explicit regulatory process approach has potentially major advantages over the New Zealand model:

> *" the courts which have been assigned the principal responsibility of policing the telecoms market, appear to be making very heavy weather of it and, as generalists, are institutionally poorly equipped to deal with either the economic principles or technological issues involved."*[47]

3.5.3. ELECTRICITY

The intended principles behind the establishment of the disclosure regime for electricity hinged on the ability to monitor profits, costs and prices, particularly in the more competitive sectors to allow comparison with the less competitive sectors. In practice, the major focus of government monitoring of the price disclosure was not on the more competitive commercial sector but on the less competitive domestic sector. Since domestic customers had previously been substantially cross-subsidised, the monitored prices rose. With the further reform and separation of the electricity industry, requirements to disclose prices in competitive sectors have been removed. At present there is yardstick monitoring with enhanced ability of the Commerce Commission to apply regulation to those businesses who look bad on these measures.

3.5.4. WATER

As noted, bulk supplies, headworks, tailworks and reticulation are mostly run by one or more forms of local government.

The examples of vertically split structural arrangement have led to major governance problems and battles both for control for Auckland's wholesale water business – WaterCare Services Ltd – and in the Wellington region. Similar problems are not as apparent elsewhere.

The general and longstanding presumption has been that with democratically elected representatives, no formal price regulatory process or discipline has been required for New Zealand's water businesses. However, there are now concerns over:

- the large variation in water prices which do not appear to be explained by cost variations;
- poor incentives for water conservation or investments in efficient use;
- lack of coherence and consistency in financial information; and

[47] Janisch, H.N. (1994), *op cit.*.

- poor accountability and strategic direction.

As a consequence, there is likely to be a move toward more formal disciplines/codes of practice requiring:

- separate accounts;
- business planning frameworks;
- pricing to recover total costs and incentivise efficient use during drought periods;
- recognition of the opportunity cost of capital; and
- greater use of competitive supply.

3.5.5. LESSONS FOR QCA

There is an emerging feeling among New Zealand observers that the experiment with light-handed regulation has not lived up to its promise. First, light-handed regulation should not mean absence of regulation. Second, light-handed regulation should not mean non systematic. Third, light-handed regulation should not create undue uncertainty and capricious legal costs.

To be effective, light-handed regulation must be designed and implemented in a consistent way. Because most consumers are rationally disinterested in monitoring disclosed data, there needs to be appropriate official monitoring. The monitoring must be comprehensive across all sectors of the industry and consistent over time so that long term trends become clear.

At the same time, in the water sector, the New Zealand approach sensibly recognises that public ownership under democratically elected local governments may not warrant the same level of regulation as the privatised areas. Nevertheless, public ownership is not a panacea. This is recognised by the NZ Local Government Association which has recently announced an agreement with the Government to review the delivery of water and wastewater services and develop proposals to address these concerns. The QCA has the advantage that the water businesses with which it is dealing are still public sector bodies and so some of the risks associated with private sector commercial drivers will be less evident.

The main lesson, though, is the importance of establishing clear guidelines and administrative arrangements for regulatory oversight which do not require recourse to the Courts to resolve complex economic and technical issues.

Arguably, the New Zealand approach has attempted to establish minimum requirements for a light-handed, but effective approach, to price regulation and consumer protection. While these requirements – particularly information disclosure – are essential elements, there are concerns that they do not constitute a necessary and sufficient set of minimal requirements for effective and cost efficient regulation.

4. AUSTRALIAN REGULATORY SYSTEMS

4.1. INTRODUCTION

This chapter provides a review of a range of different models of regulation of water and other utilities which have been implemented across different states in Australia:

- New South Wales;
- Victoria;
- Western Australia;
- Tasmania; and
- electricity and gas regulation.

Key pointers and issues for the work of the QCA are identified in each section.

4.2. NEW SOUTH WALES

4.2.1. THE WATER INDUSTRY

The water industry can, usefully, be analysed as three main sectors:

- **Major urban:** there are four main urban water businesses in NSW, although Sydney Water stands out as by far the largest, as the largest water company in Australia. Both Sydney Water and Hunter Water also provide bulk water services to local councils.
- **Non-metropolitan urban:** there are 126, generally much smaller, non-metropolitan water companies, the large majority of which are run by the relevant local council.
- **Rural water:** the Department of Land and Water Conservation (DLWC) provides bulk water services across the State. This includes supplies to many of the NMUs and also to irrigation bodies.

4.2.2. REGULATORY FRAMEWORK

Responsibility for regulating the major urban water industry has been allocated to the Independent Pricing and Regulatory Tribunal (IPART).[48] IPART has the authority to set prices and related matters for specified entities, independent of ministerial decisions. In the case of water, this covers the four major urban businesses. Responsibility for monitoring that the companies comply with the terms of their licences rests with a separate and independent licence regulator.[49]

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[48] IPART: Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997 (Gazette No. 18, 14 February, 1997, page 558).

[49] IPART (1999), "Review of the Operating Licences for Sydney Water Corporation and the Sydney Water Catchment Authority" - Issues Paper, June.

The main influences on the history of regulation of the water industry in NSW are that the companies are clearly set within the public sector and that the key individuals in the companies and the regulator's office have worked closely together in creating and implementing regulatory processes and objectives.

IPART's determinations of the price paths for these water businesses involves a flexible, holistic model incorporating:

- the ARMCANZ concept of commercial viability, based on a forward cash-flow assessment;
- an adjustment to the value of existing assets, to take account of social policy reasons for prior capital investment decisions. This has supported a 'line in the sand' approach to asset valuation[50]. This approach was developed by a joint working party consisting of the NSW Treasury, IPART and the NSW Water Industry Working Group. This demonstrates the cooperative approach to regulation of water in NSW;
- a rigorous critique of the main business drivers, such as relative efficiency and trends in operating expenditure and the need, cost and timing of capital expenditures;
- tariff structure, and incidence effects on customer groups; and
- environmental standards and risk assessment and standards of service.

This process includes explicit review against the requirements of the ARMCANZ Strategic Framework regarding eg. full cost recovery and identification of cross subsidies. IPART also regulates the bulk prices charged by the DLWC. In this area, its determinations have been an essential tool to allow prices to rise sufficiently to achieve commercial viability. IPART has also published broad guidelines on other related issues, such as developer charges which are applicable both to the major urban companies and to the NMUs.

4.2.3. NON-METROPOLITAN URBAN WATER BUSINESSES (NMUS)

The 126 smaller water businesses across the State are still part of local councils. IPART does not formally regulate their prices but has published a set of pricing principles to act as guidelines for the water businesses in those councils.[51] The key elements of those principles are that:

- pricing should reflect costs;
- consumers should have the power to influence their bills by controlling the amount of water they consume;
- pricing and investment decisions are interrelated;
- cross subsidies should be eliminated;

[50] NSW Treasury (1997), "Valuation of Infrastructure Assets for Pricing Purposes", September, part 3.2.

[51] IPART (1996), "Pricing Principles for Local Water Authorities", June 1996.

- the distributional effects of changes to pricing should be catered for through safety nets; and
- capital expenditures resulting from changes to water quality standards should occur only after a transparent process involving consideration of costs and benefits.

The report set out a common set of pricing principles that could form the basis of pricing policies by the local government water authorities across New South Wales. However,

> *"While the Inquiry has identified significant scope for the application of common pricing principles, an important theme is the need to cater for diversity in actual practice in meeting particular local circumstances."*[52]

This mix of consistency and flexibility is an important lesson from IPART's work.

The Department of Local Government has also produced Guidelines for the Councils on applying pricing to council businesses.[53] Under these guidelines, if the turnover of the business is greater than $2 million, the council is required to corporatised the business and separate it from other council functions (this implements S409 of the Local Government Act). The term corporatisation, in these guidelines, appears to involve commercialisation but not formal creation of separate legal entities.

The regulation of this industry sector is based on an effective mix of elements:

- oversight from the Department of Local Government (DLG);
- separation of council and water business functions and charges;
- clear guidelines on pricing and costing;
- Strategic Business Plans required from each water business to define eg.
  - levels of service,
  - future capital expenditure,
  - proposed charges,
  - progress towards commercial viability,
- incentives on councils to make progress with reform; and
- a reporting framework with an annual report from each water business collated by DLG.[54] This provides peer group pressure and monitoring of performance. IPART monitors this report to identify issues.

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52 *ibid,* Introduction.

53 DLG (1997) "Pricing and Costing for Council Businesses – a Guide to Competitive Neutrality"

54 DLG (1997) "Performance Report on Water & Sewerage Businesses".

4.2.4. LESSONS FOR QCA

The regulatory framework for the major water companies provides a model of a holistic approach to price setting, taking account both of commercial viability, cash-flow and asset valuation. The methodology covers the matters which the QCA is required to have regard to in any formal investigation under S26 of the Act.

The model established in NSW for the over-sight of the NMUs also provides a useful model for Queensland. This entails primary reliance on the Department of Local Government to set standards and monitor compliance, as part of its wider responsibility for local government. The publication of explicit guidelines on charging provides a benchmark for councils to meet and the annual performance report provides a mechanism for QCA to identify outliers and initiate additional investigation.

4.3. VICTORIA

4.3.1. THE WATER INDUSTRY

The water industry in Victoria comprises three main sectors:

- **the metropolitan sector** representing the supply of water services to residential, commercial and industrial customers within the Melbourne Metropolitan area. This comprises a single wholesaler, Melbourne Water (responsible for headworks and the large majority of sewage treatment and also the major transfer assets) and three retail water companies who purchase bulk services from the wholesaler and supply customers in geographically discrete areas. The retailers are fully corporatised with Boards of Directors appointed under Corporations Law;
- **the non-metropolitan urban sector** responsible for providing water services for residential, commercial and industrial customers across the rest of the State. There are fifteen NMUs. They range in size from Portland Water which provides water services to 8,000 customers and has a turnover of $4.5 million, up to Barwon Water which services Geelong and the surrounding area, with a customer base of 110,000 and a turnover of $67 million;
- **the rural water sector** which supplies water for use in irrigated agriculture. There are five Rural Water Authorities (RWAs) which supply 80% of the water delivered across the state. They vary in size and function reflecting the differences in irrigation intensity and practice across the state. The RWAs also provide bulk services to many of the NMUs.

These sectors have traditionally been managed separately. They face different challenges and operate under different legislative and regulatory regimes. There are good reasons for retaining these separate arrangements. Capital costs and operating expenditure are both driven by a number of different factors. One of the most critical is customer density. Chart 4.1 provides a graphical illustration of the relative size and density of the metro and NMU water businesses across Victoria. This confirms that the metro and NMU sectors clearly fall into two separate camps.

4.3.2. REGULATORY FRAMEWORK

Responsibility for regulation varies between the three sectors.

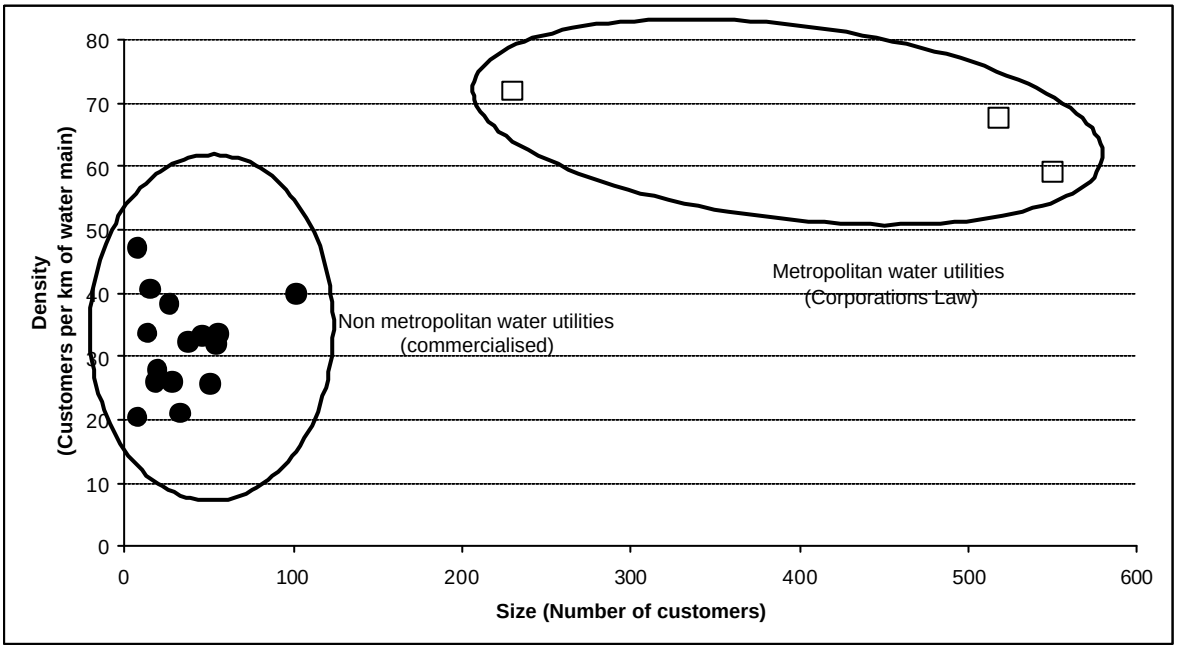
Metros: Responsibility for price control, industry-structure and reform rests with the Water Reform Unit in the Department of Treasury and Finance (DTF). The Treasurer is also the shareholder. The original intention, in the Water Industry Act 1994, that prices should be regulated by the independent Office of the Regulator General has not been implemented. The Minister for Agriculture and Resources retains responsibility for the terms and conditions of the operating licences, issued to the metros.

Major reforms to pricing were introduced in November 1997, designed to effect a transition from charges based on rateable values to two-part tariffs. This involved a substantial package of reforms. The revised overall revenue of each business was recalculated to ensure that the incidence effects of the change were acceptable for all groups of customers. The outcome was an overall average reduction in charges of 18%. The balancing item was the level of debt written-off by government, previously held by MW and the three retailers. A two-part tariff is now in place with the volumetric charge based on long run marginal cost with a fixed fee to cover residual costs. Tariffs have been frozen since 1997.

This exercise, which was undertaken solely by the DTF, exposed the ambiguous status of the Directors of these corporatised entities, which operate under Corporations Law, yet who played no role in a process which had profound effects on the future value of their businesses.

Proposals are under development to allocate bulk entitlements (BEs) to the three retailers. This would give them greater control over a key resource of their businesses. It would also change the role of the wholesaler from that of resource owner and asset manager to simply one of asset manager. This should help mitigate some of the monopoly power of the wholesaler.

CHART 4.1 : SIZE AND DENSITY OF WATER BUSINESSES IN VICTORIA
METRO -V- NMUS



NMUs: Responsibility for the NMUs rests with the Department of Natural Resources and Environment (NRE). The Boards of Directors of the NMUs are accountable to the Minister. The DTF plays a key role as shareholder.

The NMUs submit detailed five year Corporate Plans based on a coherent analysis of future expenditure requirements and their cash flow implications, but are set one year price limits. This annual exercise and lack of a medium-term horizon tends to limit the value of the planning exercise and the degree of attention given to data beyond year 1.

The NMUs are expected to operate on a commercial basis, within a framework which, in principle, is based on cost-reflective pricing. However, at the same time the NMUs are being expected to undertake major expenditure eg. sewering of small country towns, and, in practice have had to recover such non-commercial costs from the wider customer base. The provision of these uneconomic services has to be accepted as part of 'the cost of doing business' rather than being identified as explicit CSOs.

The NMUs were also included in the price reform package in November 1997 and, through Memoranda of Understanding (MOUs), received significant injections of funds to finance improvements in water quality and sewerage, and to off-set an 18% reduction in charges. Since then the NMUs have also been subject to a continuing price freeze.

An annual report is produced by the Victorian Water Industry Association each year documenting financial and performance measures.[55] This is in addition to WSAA*facts* which covers the metropolitan companies and a few of the larger NMUs.

RWAs: The RWAs play a number of different roles. As the managers of infrastructure they act as a mutual cooperative on behalf of the irrigators who own the water rights. This role is reinforced following the delegation of decision making to regional Water Service Committees (WSCs). However, in their role as natural resource managers, they are clearly part of State Government. Prices and charges are set as part of a five year Corporate Plan submitted each year to the Minister. This includes a submission from each WSC supporting the proposed trade-off between investment and levels of service.

The Office of the Regulator General (ORG): has responsibility for performance monitoring of the retail metros through licences and customer contracts under the Water Industry Act. The presence of three companies allows for some 'comparative competition'. The publication of an annual report on the relative performance of the retailers against a range of indicators has been effective in spurring innovation and improvement.[56] The retailers also have to validate their performance through an annual 'Operational Audit'.

[55] VWIA (1999) "Urban Water review – 1998".

[56] ORG (1999), "Performance Report, Melbourne's Retail Water & Sewerage Companies – July 1997 to June 1998".

The ORG has no responsibility for prices or for other sectors of the industry such as the wholesaler or the NMUs. The NCC reports that the State is reviewing the current regulatory arrangements for the industry.[57] It faces the challenge that several of the NMUs have not yet reached a stable position as viable commercial and managerial entities. Given this, it is problematic to transfer responsibility for pricing to an external player.

4.3.3. LESSONS FOR QCA

The separation of the wholesale and retail functions in Melbourne provides some additional clarity on cost allocation, and the creation of three retailers has allowed for influence through comparative competition. These structural changes create incentives for business behaviour which reduce the need for the degree of regulation that would be required for a single monopoly provider. The proposed allocation of Bulk Entitlements to the retailers will further this process.

The annual report from the ORG, on the metropolitan retailers, has stimulated improvements in performance. The annual round of Corporate Plans produced by the NMUs and Metros provide a good example of the structured approach to business planning needed to validate any coherent charging regime.

The tariff reform program in 1997 raises a number of issues:

- the relationship between prices-oversight, regulation and Director's responsibilities; and
- the need to retain the ability to re-open pricing decisions when there is evidence of adverse outcomes.

The capital injection for each NMU, as part of the 1997 reform, was set at the level believed by the Treasury to be required to achieve commercial viability following modelling of future cash flows. Since then the Treasury has set prices and advised Boards of the result, on a basis not necessarily reflective of the circumstances of each entity.

As a result, several of the NMUs face a questionable financial future. A number of them are now seeking to re-open the basis of the original MOUs. This illustrates the difficulties which central agencies face in trying to model and control the full financial requirements of multiple businesses which face very different circumstances.

[57] NCC (1999), "NCP - Second Tranche Assessment – Water: Victoria", p. 392.

4.4. WESTERN AUSTRALIA

4.4.1. THE WATER INDUSTRY

The structure of the water industry in the State consists of one major service delivery business, the Water Corporation, two or three much smaller local businesses and a number of very small local councils supplying smaller communities.

4.4.2. REGULATORY FRAMEWORK

Reform of the industry in 1995 led to the disaggregation of the previously integrated Water Authority of Western Australia (WAWA) into three separate entities:

- the Water Corporation – to deliver the commercial service functions of the business;
- the Water and Rivers Commission – to manage, protect and allocate access to water resources across the State; and
- the Office of Water Regulation – to act as a licensing authority and source of policy advice on pricing and the economic performance of the water industry.

The Minister for Water Resources retains overall responsibility for most roles in the water sector (ie. the three new bodies, above, all report to the Minister). Price setting powers rest with the Minister, for the larger entities and with the local councils for the smaller ones. The Treasurer also has multiple roles as shareholder and price reviewer.

Licensing and performance oversight is provided by the Office of Water Regulation (OWR). The OWR licences 28 service providers to date, covering a wide range of entities from the Water Corporation, with 1.7 million water customers down to small shire councils with less than a hundred water customers.

The OWR also provides advice to the Minister on prices and pricing policy, competition issues and on CSOs. WA has a significant CSO policy with explicit payment of sums to reduce charges in the bush. Competitive opportunities arise in new developments where the OWR plays a role in assessing competitive applicants for new licences to provide services funded through CSOs.[58]

Prices for the Water Corporation are set by the Minister annually, although informed by a five year strategic plan. This process involves assessment of a range of parameters including incidence effects of changes in tariffs, RoR on equity, level of dividend payments, TERs etc. However, the process is not transparent or subject to public consultation. In practice, recent revenue increases have been initiated by the Treasury, mitigated by the Minister and approved by the Board.

[58] As at Coral Bay where a first private scheme was authorised in 1998. See OWR (1999) Annual Report.

Nominal revenue for the Water Corporation is set by the COAG formula, ie., by applying the estimated WACC to the Corporation's capital base. Since the resulting revenue level is substantially above the existing level of revenue actually received from metropolitan and country customers, the balance is met through the payment by the Treasury of a CSO to the Corporation. The Corporation then pays a dividend to the Treasury approximately equal to that CSO.

The existing level of revenue actually received appears to be sufficient to meet commercial viability.

4.4.3. LESSONS FOR QCA

The National Competition Council (NCC) has strongly recommended further separation of roles and functions within WA, and the creation of a body with responsibility for independent price regulation.[59] It is understood that WA is considering creating an independent regulator with responsibility for price setting across all utilities (similar in scope to IPART in NSW).

The NCC also recommended disaggregation of the bulk water business within the Water Corporation to ensure clarity on costs and charges.

The WA example of compliance with the COAG formula appears to be largely an accounting exercise.

Finally, the OWR has introduced a system of independent audit of licence conditions to put the onus of proof on the licensees that they have met the terms of their licences. This is model which might have application on a default basis in Queensland which the QCA could trigger when there was evidence of outliers in performance.

[59] NCC (1999), "NCP Second Tranche Assessment", Vol. 2 Water: Western Australia, p. 544.

4.5. TASMANIA

4.5.1. THE INDUSTRY

Water and sewerage services in Tasmania are provided through 29 local councils, 11 of which manage all stages in the process, while bulk-water is provided to 18 of the councils by three bulk water providers:

- Hobart Regional Water Authority;
- North West Regional Water Authority; and
- Esk Water Authority.

Those bulk water providers are now owned by the councils which they supply.

4.5.2. REGULATORY FRAMEWORK

The primary oversight of the local councils is by the Local Government Office (LGO) in the Department of Premier and Cabinet. Local councils have to provide separate accounting for significant business activities. This covers most water delivery agencies. Those businesses have to submit annual operational plans to the LGO to specified guidelines. The Department of Primary Industries, Water and Environment also plays a central role in policy formation.

Additional oversight is now provided through the Government Prices Oversight Commission (GPOC). GPOC has recently produced guidelines on asset valuation and renewal and will produce equivalent guidelines on pricing principles. Local councils are required to undertake public consultation as part of any pricing proposals with the power retained by the Treasurer to trigger a price review by GPOC.

GPOC has recently completed such a review of the three bulk water suppliers. This involved a substantial exercise with a review of the key elements of the suppliers' future costs. GPOC's proposed approach was set out in a paper published at the start of the process.[60] This proposed the adoption of a fairly mechanistic approach, based largely on applying a WACC to the deprival value of the asset base.

However, the recent final report on the investigation recognises that:

> *"To achieve a commercial return would require average increases ranging from 10 per cent to 60 per cent on current prices.…The Commission recognises the impact that such an increase would have on users."*[61]

[60] GPOC (1998) "Pricing Principles Paper – Investigation into the Pricing Policies of Hobart Water, North West Regional Water Authority and Esk Water".

[61] GPOC (1998) "Investigation into the pricing policies of Hobart Water, North West Regional Water Authority and Esk Water", Final Report, December.

The outcome is that GPOC has set the three water businesses a set of target revenues which are considerably higher than their current projected sales revenue. The objective is not to meet a full economic return but to provide a minimum 4.5% return on existing assets. However, the only result of these targets will be to generate a higher dividend to return to the same Councils which are having to pay higher prices for the water as a result of the decision.

The final report also commented on GPOC's concerns as to the relative efficiency of the bodies but noted that it was difficult to determine 'efficient prices' when there was little comparative benchmarking data.

4.5.3. LESSONS FOR QCA

The structural arrangements, whereby the bulk water businesses are explicitly owned by the local councils which they service, provides for clarity on decision making and should ensure some incentives on the bulk businesses to drive for efficiency gains. This model could be applied equally in Queensland where bulk water is supplied to a number of the councils' water businesses from large bulk water suppliers.

Primary over-sight by the LGO is a model which would also apply well in Queensland, given that water in both states is delivered primarily through local councils. This leaves the external regulator available as a default power to undertake reviews with explicit triggers for such reviews. The requirement for local councils to publicise proposals for price increases should help reduce the need for QCA involvement in the process.

GPOC appears to have adopted a fairly prescriptive approach to prices oversight. The rationale for proposing a 4.5% return on existing assets is not clear, if the entities are already meeting the lower bound of commercial viability and are providing a commercial return on all new investment.

The problem faced by GPOC, in determining whether the three Tasmanian Bulk Water Businesses were efficient highlights one of the main problems which faces all state-based regulators. Each regulator has only a limited number of large businesses to review. This makes it difficult to exercise the powers of comparative competition. Any comparative approach, such as data envelope analysis (DEA) requires a minimum number of sample points to enable an efficiency frontier to be calculated. This suggests that it would be sensible to collate some form of national database on bulk water businesses to allow that wider comparative population to be constructed. This should also help minimise any duplication in workload which the state-based regulators currently face.

4.6. ELECTRICITY AND GAS

4.6.1. BACKGROUND TO INDUSTRIES

Both energy industries are now increasingly transformed from being delivered through vertically integrated businesses into joint horizontal functions. Chart 4.2 illustrates the Victorian position.

CHART 4.2 : CONVERGENCE IN ENERGY UTILITY DELIVERY IN VICTORIA

	Gas		Electricity
Wholesale	Esso/BHP		Generation
Market Mgt & Planning	VENCorp		
Transmission	GPU		
Distribution	Joint energy companies		
Asset Management	Joint utility companies		
Retail Sales	Joint energy retailers		
Retail Services	Joint service companies		

This process has separated out those functions which remain as natural monopolies, such as transmission and distribution, from those where competition can be introduced, such as generation and retail supply. The major focus of regulation is therefore on the residual natural monopoly functions. A future challenge for the water industry nationally is as to the applicability of this model in the water sector.

4.6.2. REGULATORY FRAMEWORK

Responsibility for regulating transmission functions has been passed to the ACCC, while regulation of the distribution businesses remains with the jurisdictional regulator.

There is a spectrum of approaches which can be employed in setting prices for network infrastructure companies, involving varying degrees of intervention. The predominant methodology employed is equivalent to the COAG formula, ie. an emphasis on the return on capital. The two main opposing approaches within this are exemplified in the debate which

has taken place as part of the price review of the electricity distribution businesses (DBs) in Victoria. The arguments of the proponents of each camp are well set out in the papers on the Office of the Regulator General's (ORG) web site:[62]

- **Building-block:** this is the approach favoured by the ORG. It relies on a rigorous assessment of the different elements which make up the future revenue requirements of the individual companies to ensure that charges are can be justified by reference to efficient costs. This requires an interventionist regulatory regime and relies on regular external price reviews.

- **Total factor productivity:** this approach has been advocated by the DBs, on the back of the experience of regulation of telecoms companies in the USA. Under this approach the efficiency factor in the CPI – X equation is set by reference to the total factor productivity of the industry at a state or national level, rather than by analysis of the actual costs of the individual company. This allows a more hands-off approach with an internal dynamic to continue to drive efficiency gains. However it is dependent on starting from a robust baseline when costs and charges are aligned, and relies on high quality data being available across the industry on total factor productivity trends.

At this stage both ORG and IPART are sticking with a building–block approach, in a similar way to Ofwat, although both have expressed interest in seeing whether they could adopt elements of the other methodology as time passes.[63]

4.6.3. LESSONS FOR QCA

The main lesson for the QCA is that it is difficult to undertake a full price determination without completing a very substantial exercise. It is very easy to get drawn into complex methodologies and major regulatory exercises. This is particularly the case where private sector enterprises are involved. It should be possible to construct a less adversarial and complex price setting model where the players are in the public sector.

[62] http://www.reggen.vic.gov.au

[63] ORG (1998) "Finalising the framework: 2001 electricity distribution price review", section 3; and IPART (1999) "Pricing for Electricity Networks and Retail Supply" Chapter 3.

5. THIRD PARTY ACCESS REGIMES

5.1. ACCESS REGIMES

Third party access regimes involve requiring the owner of a monopoly network to allow a competitor's product or service to be carried by that network. The approach does not seek to subject the infrastructure itself to competition, rather it seeks to increase competition in contestable markets, either up-stream or down-stream of that monopoly service, that are otherwise inaccessible to the new entrant.

Access regimes will only be required where it would not be economic to duplicate the relevant infrastructure and where that capability can be used to give third parties access to other markets. In other situations normal competitive pressures should apply.

The approach does not require legal separation of the infrastructure from other functions, eg. in telecoms there has been no requirement for Telstra to disaggregate its lines business from its retail function. However, in the electricity and gas industries there has been increasing formality in the separation of functions, between infrastructure ownership and retail product supply. The extreme example of this occurs in the gas industry with the separation of the transmission pipeline as a standalone company, where what is termed an 'access regime' for use of that pipeline is, in practice, closer to monopoly price regulation.

The approach is also not without its critics, who claim that access rights are equivalent to expropriation of basic property rights and allege that this right will discourage investment in infrastructure. An extreme view advocates duplication of distribution infrastructure:

> *"Forced open access to the grid, because of the heavy regulation it will almost certainly require, can actually be harmful to healthy electricity competition."*[64]

The same basic pricing principles apply to access regimes as to prices oversight. In calculating the annual average revenue requirement of the infrastructure owner a regulator will wish to take account of the same criteria as are considered in deriving the upper and lower bounds under the ARMCANZ approach. The only difference between the two regimes is that under an access regime the allowable costs of the infrastructure owner will not include any related to acquisition of the base product – as the new entrant will own their own bulk entitlement.

The adoption of access regimes in water would require the investment of very substantial resources to analyse the costs of infrastructure provision in order to construct charges on a discrete geographical basis and to establish peak and off-peak measurement.

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[64] Crews, C.W. Jr. (1997), "Electricity Utility Reform: The Free Market Alternative to Mandatory Open Access", The Electricity Journal, December, Vol. 10 No. 10, pp 32 – 43.

5.2. REGULATION OF ACCESS REGIMES

The nature and extent of regulation required will vary from industry to industry and from case-to-case, depending on the degree of formality involved.

At one end of the spectrum, access regimes can constitute formal binding arrangements under the Trade Practices Act 1974 (TPA). This approach implements the provisions in Part IIIA of the Act and in the Competition Policy Reform Act whereby access regimes can be 'declared'. Three alternative options are envisaged:

- an access regime can be developed by an individual jurisdiction, which can then seek certification of the regime by the National Competition Council (NCC);
- alternatively the owner of the infrastructure can propose an undertaking to the ACCC, on the terms and conditions for access; and
- finally a new entrant can formally petition the NCC to determine the terms of a declaration.

At its simplest level, access can be negotiated on mutually acceptable terms by the two parties, without the need for recourse to regulation or arbitration. A recent example is the access agreed between growers in the Barossa and SA Water to use surplus capacity in SA Water's transfer assets, off-peak, to transport water owned by the growers from the River Murray to the growers' vineyards. This agreement has been struck by the parties involved, outside any formal access regime. As long as both parties feel that the terms are beneficial then commercial negotiation will be the most effective basis for the contract.

The availability of a formal regime and arbitration to the new entrant has been known to assist the successful resolution of these informal agreements!

5.3. ACCESS REGIMES IN UTILITIES

Electricity and gas: The recent price determinations for distribution and transmission in the electricity and gas industries constitute formal access regimes, as they determine the price and conditions for the use of essential infrastructure for the carriage of a third party's product. In the case of electricity a National Electricity Code has been submitted to the ACCC as a formal access code under Parts IIIA and VII of the TPA. For gas, each jurisdiction has passed legislation based on the Gas Pipelines Access (Commonwealth) Act 1998 to implement a 'National Third Party Access Code for Natural Gas Pipeline Systems', and will now apply to the NCC to have its own access regime certified as effective under Part IIIA of the TPA.

Telecoms: In telecoms the importance of access regimes was recognised and explicit provision was made for such arrangements in Part XIC of the TPA. This reflected the assumption that it would not be economic to duplicate the basic infrastructure required to provide telephony, and, that in the absence of that access, competition would only be

limited. In practice, of course, access has proved to be only one of a series of competitive routes into telephony markets.

The provisions of Part XIC of the Act start with the standard NCP presumption that access arrangements can best be agreed through commercial negotiation. Otherwise they can be approved by the ACCC on the basis of a submission from a carrier or following arbitration. The ACCC has reinforced the effectiveness of negotiation by publishing guidelines on its recommended approach to access pricing.[65]

These guidelines recommend that access pricing should be based on the total service long-run incremental cost (TSLRIC) of providing the service. This approach involves remunerating the incumbent for the costs of the total service not just for incremental costs. The guidelines stress several basic principles which should underpin this pricing:

- prices should be cost justified and not inflated to discourage entry;
- prices should not discriminate between new entrants in order to influence the relative competitive position of those players in other markets; and
- prices should not be predatory to try and exclude new entrants from market segments.

Experience has shown, however, that the monopoly telecoms carrier has only agreed commercial terms 'in negotiation' when the ACCC has played a high profile role. The ACCC's recent 'declaration' of the local call market is a good example. This declaration raises a number of issues regarding the relative roles of the infrastructure owner and the new entrant regarding responsibility for service quality, provision of new connections and fault repairs. These will be central issues for any access regime.

Rail: The key issue in rail is to separate out the two separate functions of:

- ownership of the monopoly rail-track business; from
- the contestable functions of running services (whether passengers or freight).

This then allows the rail-track to be declared as an essential service and subject to an access regime. In practice, different arrangements are being taken forward by different bodies in different states and jurisdictions. The most extensive arrangements have been implemented in NSW and country Victoria, where there is now full separation between the rail track owner (eg. NSW Rail Access Corporation) and the potentially contestable rail operator.

NSW has applied to the NCC for certification of its rail access regime. The key elements of the regime are that:

- access prices should be developed where possible through commercial negotiation;
- the track owner has duties to disclose relevant information to inform that negotiation;

[65] ACCC (1998), "Telecommunications Pricing Principles".

- arbitration is available, through IPART, in the event of failure to negotiate an acceptable outcome; and
- pricing should be set within the upper and lower bounds of incremental cost and stand-alone cost (this is directly equivalent to the definition of 'full cost recovery' for the water industry).

Following a round of consultation the Council forwarded its recommendation to the Commonwealth Minister for Financial Services and Regulation for formal endorsement of the proposed regime. Parallel negotiations are currently underway regarding access regimes for Western Australia and jointly for the Northern Territory and South Australia.

However, the really contentious issues in rail regards the rights of competing third parties to access infrastructure owned and run by the private sector. The most high profile case relates to an application to the NCC, from Robe River Mining Co, in September 1998, for the right to access and use rail line services in the Pilbara owned by Hamersely Iron Pty Ltd (part of Rio Tinto Ltd).

As a result of the application, Hamersely applied to the Federal Court in Melbourne in October 1998 seeking a declaration that the Council did not have the jurisdiction or power in regard to the relevant infrastructure. The Federal Court handed down its decision on 28 June 1999. According to the Court, Hamersely's rail line is a production process and therefore a Part IIIA access regime cannot be applied to it.[66] The application for declaration has now been withdrawn.

5.4. THIRD PARTY ACCESS IN WATER

This section assesses the issues involved in the introduction of third party access arrangements in the water industry.

A review of the application of access regimes in the water industry, for the NCC in 1997, concluded that:

> *"There are many services provided by the industry that are likely to meet the criteria for declaration."*[67]

The report urged caution on the introduction of any such arrangements until cost reflective pricing and broader reforms were more fully implemented. This conclusion was echoed in a recent report for the Water Services Association of Australia (WSAA) on the practical implications of implementing a third party access regime in the urban water industry.[68]

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66 A copy of the judgment is available at http://www.fedcourt.gov.au

67 Tasman Asia Pacific (1997), "Third Party Access in the Water Industry", a report for the NCC.

68 WSAA (1999), "The Economics of Third Party Access", research report prepared by KPMG.

5.4.1. PRICING ISSUES

For any access regime to be applied to the water industry, major changes would be required in the current arrangements for managing the business and setting tariffs. The application of uniform pricing across large customer areas, which is common in most water businesses, has meant that there have been few pressures on the businesses to understand or identify their costs, or to relate charges to those costs, other than at the broadest level.

The introduction of an access regime would require a substantial work program. The minimum requirement would be to:

- identify the cost drivers for different aspects of the business. Key elements are likely to be eg. peak demand, average daily demand, customer density;
- separate the business, at least on an accounting basis, into the natural monopoly functions such as transfer and distribution, from possibly competitive activities such as bulk services and retail supply;
- calculate charges for the different elements of the business. These should be based on the objective of achieving economic efficiency, that is an emphasis on a two-part tariff with the volumetric element related to the LRMC;
- allocate those charges on a geographical or customer category basis. This will allow the business to anticipate and respond to any potential contestable challenge whether through cross border competition, inset appointment or access request. This process may include the development of tariffs for large users which allow lower charges eg. for off-peak supply, where there is valid evidence to show that costs are driven by peak demand. Otherwise water companies may be liable for accusations of predatory pricing. This approach has also recently been endorsed by Ofwat, in guidelines on the UK's 1998 Competition Act:[69]

  > *"Prices set at or above long run marginal costs would not normally present concerns in relation to predation."*

- reassess developer charges where, at the moment, the infrastructure owner currently receives capital contributions for system augmentation.

This work program would be a substantial exercise and would create a major challenge for most Australian water companies.

A particular challenge in calculating the access charges for delivering water to a specific site is the decision as to which costs should be allocated to that customer. There are two primary issues:

- where the transfer involves a linear flow, through a clearly identifiable route, then it will be possible to identify which assets are involved in the transfer. By contrast, where

[69] Office of Fair Trading/Ofwat (1999) "Competition Act 1998: application in the water and sewerage sectors" – draft, July.

reticulated network assets are involved, then the access charge will, by necessity, involve an allocation of the costs of the entire reticulated system; and

- one of the key cost-drivers for asset sizing and operation is peak flow. An assessment will need to be made as to the time-of-day profile of the new access use, and how this fits with the existing peak usage. Where the new demand is off-peak then charges should be suitably reduced. In principle, off-peak consumption should only be charged a volumetric charge related to LRMC and all capital costs should be recovered from customers consuming water at peak times. In practice some loading of fixed costs into off-peak usage is justified. Implementation of this approach depends on the relative transaction cost involved in establishing the time-of-day or time-of-year metering needed to validate peak and off-peak use.

5.4.2. MARKET FAILURES & COMPETITIVE MODELS

Water and sewerage services exhibit a number of special characteristics that explain why the industry has traditionally been delivered through single provider, public-sector, regional monopolies.

These distinct characteristics are often described as 'market failures', ie. in their presence a competitive market will not automatically generate optimal outcomes. These distinguishing characteristics include:

- **Natural monopoly:** The water and sewerage industries demonstrate very strong, spatially separated natural monopolies in their basic infrastructure. As a result competitive pressures from potential new entrants or existing participants are weak. This effect is stronger in water than other utilities;[70]
- **Externalities:** There are powerful externalities associated with water as a commodity. The primary ones relate to:
  - the public health benefits from the universal availability of clean drinking water and effective sewerage, and
  - potential adverse environmental impacts from over abstraction or from discharge of sewage effluent; and
- **Pricing:** There is a strong community preference for uniform pricing regimes reflecting a belief that water services are closer to a public service than a commodity.

These market failures argue for the maintenance of very clear public accountability and liability for standards. This will lead to the need for much tighter control over the use of water supply infrastructure than for say gas or electricity. In an access regime it will also be necessary to control the quality of water input to the infrastructure as well as terms for its carriage. This creates a more complex model than for other utilities.

[70] King, Stephen and Maddock, Rodney, (1996), "Unlocking the Infrastructure".

The need for this conservative approach was emphasised in the report of the Inquiry into the drinking water problems experienced by Sydney Water in 1998.[71] Even though major aspects of the drinking water supply and treatment had been contracted out, through BOOT schemes, final accountability for the quality of that water clearly remained with Sydney Water and, ultimately, the state government. A lower level of expectation exists with the delivery of other utilities.

5.5. OVERVIEW

Access regimes can provide a positive mechanism to allow greater competitive opportunities, where the market is constrained by infrastructure bottle-necks. The system can operate very effectively within a commercial environment provided both parties see a benefit from the arrangement. However, protracted legal and economic judgments may arise where there is dispute and the need for formal determinations.

The challenge to the QCA will be to construct arrangements which encourage commercial negotiation and minimise the need for formal determinations. There are a number of avenues which can be followed to promote this approach. The most valuable would be the publication of clear guidelines on key aspects of access regimes in water. These could cover factors such as: asset valuation, cost of capital, standard cost drivers for asset classes, and approaches to calculating pricing: eg. two-part tariffs.

Finally, implementation of access regimes in water will require a significant investment to analyse costs of supply at the disaggregated level necessary to support defensible access charges.

[71] Peter McClennan QC (1998), "Sydney Water Inquiry", Final Report, vol. 2, December.

6. QUEENSLAND REGULATORY ENVIRONMENT

6.1. QUEENSLAND CONTEXT

6.1.1. INDUSTRY

The water industry in Queensland comprises a large number of entities which vary widely in form, size and capability. The industry is in a state of flux, mid-way through a process of implementing a major reform program focussed on commercialisation and the implementation of tariffs based on full cost recovery.

The separate players in the industry are:

- **State Water Projects (SWP):** SWP is a ring-fenced commercialised business unit within the Department of Natural Resources (DNR). Its primary responsibility is the delivery of water for irrigation. However it also supplies fifty urban providers as well as industrial, mining and power generating customers. SWP is outside the scope of this project;
- **124 local-government councils:** Most water is delivered to urban customers by local council water businesses. These vary in size from Brisbane Water, down to very small local councils;
- **2 joint local government authorities:** In two cases, local councils have established joint water businesses to deliver water services;
- **4 urban water boards:** Bulk water is provided to seventeen of the largest councils by four Water Boards. These are at various stages of corporatisation with varying models of governance and legal formation being introduced;
- **55 rural water and drainage boards:** These entities manage the infrastructure for delivery of water to irrigated agriculture. These entities are outside the scope of this project; and
- **private sector:** There is an increasing role for private sector players in the water industry. First, there is increased use of DBO & BOOT schemes to introduce private sector finance in the water industry. The QCA's statement of pricing principles would help provide certainty for these business decisions. In addition, major new private developments are currently under review, such as the Sudaw Consortium, led by Babcock and Brown on the Dawson River. It is probable the QCA will be allocated responsibility for prices oversight for the private water sector. However, it is not covered by this project.

6.1.2. REGULATORY OVERSIGHT OF COUNCILS

Water businesses run by Councils are part of the local government sector. Each Council is essentially autonomous as far as decisions on pricing are concerned and the State Government has no authority or role regarding assessment or approval of pricing.

Larger Council businesses face obligations relevant to competition under two parts of the 1993 Local Government Act:

- under Parts 3 & 4 of the Act, Councils are required to meet competitive neutrality requirements, including separation of functions, commercialisation and full cost pricing; and
- under Chapter 10 of the Act, those Councils are required to implement reforms in line with the NCP Strategic Framework, on eg. adoption of Two-Part Tariffs and identification of cross-subsidies.

Under the Local Government Act the Councils are also obliged to produce a series of planning documents, including Operational and Corporate Plans and to make a statement of the performance of the Council against the targets and performance measures in those plans.

However, fewer controls apply to smaller councils, where the major influence on reform policy is exerted through the Local Government Financial Incentive Payments Scheme.

These elements of the current regulatory framework are explored further below.

6.1.3. LARGER COUNCIL BUSINESSES & JOINT BOARDS

Under the Local Government Act local councils are required to notify the Minister if their water businesses constitute a Type 1 & Type 2 business under the Act.[72] The defining criteria are:

- Type 1: turnover greater than $25.0 million
- Type 2: turnover greater than $7.5 million

Identification of a business in these categories triggers a requirement on the local council to undertake a public benefit assessment to consider how the business activity should be undertaken. This protects against risks regarding competitive neutrality. For Type 1 businesses, these options include, corporatisation, commercialisation and full cost pricing. For Type 2 businesses, the emphasis is on commercialisation and full cost pricing with the option of corporatisation only after explicit resolution of the Council. The requirement to implement full cost pricing is in accordance with the Local Government Finance Standards and follows recent 'Commercialisation Guidelines'.[73]

[72] Local Government Act 1993, Part 3 & Part 4.

[73] Queensland Treasury, December 1998.

There are 17 councils which fit into these two categories. Between them they recover some 85% of the revenue for water supplied across the State, with the next 10 councils adding a further 7%. This means that the remaining 100 councils only supply some 8% of the water by value, giving an indication of the scale of those entities.

Of the larger councils, 10 implemented commercialisation programs in July 1998, a number planned to follow in July 1999. However, final data on the position of the councils will not be available until the outcome of the submissions to the QCA, required by August 1999. The NCC notes that 17 are reported to be achieving the lower bound of commercial viability – although the basis of this judgment was qualified by the variable data quality.[74] In addition, 11 council water businesses are targeted to be covered by a Tax Equivalent Regime as from July 1999.

For a number of councils, some wholesale functions are now delivered through Joint Local Government Water Supply Boards. This applies in particular to Caloundra – Maroochydore, Esk, Gatton and Laidley.

These were created where the need for investment in eg. new storages and treatment facilities could more sensibly be undertaken on a joint basis. The businesses are covered by the same legislation as other local councils. However, this provides a further governance structure.

Water Reform Program

The local councils also face obligations, under the Local Government Act, to implement reforms as part of the NCP Strategic Framework. These obligations relate, in particular, to pricing. In each case formal guidelines are available providing guidance and case studies:

- **two part tariffs:** Councils are required by the Local Government Act (Chapter 10) to prepare a report analysing the impacts and cost benefit of moving to a two-part tariff; and
- **cross-subsidies etc:** Full Cost Recovery requires identification of cross subsidies and CSOs in line with the Local Government Finance Standard 1994. The MJA Guidelines are recognised by the NCC as a model framework for review by Councils[75];

There is considerable variability in the level of compliance, even within the largest 17 councils:

- four have not yet completed reviews;
- four completed reviews but have not adopted two-part tariffs, despite the review making this recommendation;

[74] NCC (1999), "NCP Second Tranche Assessment – Water" Vol. 2, p. 457-8.

[75] *ibid*, p. 462.

- for Thuringowa and Townsville City Councils, the recommendation was that a further study be carried out jointly covering the two councils and their bulk supplier. This has not yet been undertaken; and
- many local councils have retained significant 'free' base allowances.

6.1.4. SMALLER COUNCILS

Fewer controls apply to the smaller councils, eg. there are no specific statutory obligations on the water businesses of local councils, if they are not Type 1 or Type 2 businesses under the Local Government Act. The only requirement which applies is the general obligation to comply with the Local Government Finance Standard, which sets broad guidelines on the content of annual reports for all council business activities.

However, the State and all council businesses are still subject to the requirements of the NCP strategic framework. The Department of Local Government has, therefore, developed a package of financial incentives to encourage smaller councils to move towards the same outcomes. This is the Local Government Financial Incentives Payments Scheme.

The package requires that the councils provide data to the QCA on their progress in implementing reforms. A report is required by the end of August each year, starting in 1998, covering:

- extent of achievement of full cost recovery;
- position on implementing two part tariffs;
- identification of cross subsidies (but not until July 2000);
- transparent recording of CSOs (but not until July 2000); and
- policy on rates of return.

Where those councils provide evidence of compliance with the NCP program then they become eligible for competition payments. It is up to the QCA, under a Ministerial direction under Section 10(e) of the QCA Act, to assess the councils' progress with the reform package. The QCA then makes a report to Ministers by 30 November each year on the progress noted.

6.1.5. BULK URBAN WATER BOARDS

The third major sector in the industry, relevant for this study, comprises the Urban Water Boards:

- South East Queensland Water Board (SEQWB);
- Townsville Thuringowa Water Supply Board (TTWSB);
- Gladstone Area Water Board (GAWB); and

- Mount Isa Water Board (MIWB).

These Boards provide water services to 17 local councils as well as to industrial customers and power stations.

The current status and future governance arrangements varies between the four Boards:

- SEQWB: legislation is currently before the Queensland Parliament to transfer the business to a new entity, under the Government Owned Corporation Act. Ownership of the new Corporation will be split between the State, with 20%, Brisbane City Council, with 45%, and the remainder held by the other councils supplied by SEQWB;
- TTWSB is currently a statutory authority, under its own legislation. It will become a joint local government body, where control will, in effect, be vested in the two local councils it supplies, as under the governance arrangements, councillors from the two councils will share the Board membership;
- GAWB is also a statutory authority under its own legislation. Its stakeholders hold opposing views on the future commercial structure of the Board. The local councils would prefer a joint local government body, whilst industrial customers prefer the greater independence of a statutory authority. It seems probable that the Board will be converted to a Government Owned Corporation in the second half of 1999; and
- MIWB has made least progress towards commercialisation, to date. It is currently a Statutory Authority, by regulation, under the Water Resources Act.

Currently the four Boards report to the Minister in the Department of Natural Resources. They are required to produce five year Corporate Plans under the Finance Administration and Audit Act. However, the plans are fairly limited in scope and do not cover issues relevant to the Water Reform Framework. As the Boards convert to joint local government boards or corporations they will become subject to the Local Government Act.

In that new role, each of the Boards will be required to produce an Annual Report complying with the requirements of the Local Government Finance Standard and, where applicable, a five year Corporate Plan under the Government Owned Corporations Act. Each will also be subject to a requirement to implement Full Cost Pricing from the date of commencement. However, the detail of that pricing will be up to the individual Board subject to satisfactory compliance with the competitive neutrality requirements of the Act.

6.2. REGULATION

Institutional arrangements are also still in flux and have not yet achieved the complete separation of roles as recommended in the COAG framework. The NCC's assessment is that:

> *"The Queensland water industry presently falls well short of the strategic framework requirements to separate service providers from regulatory, standard setting and resource management functions."*[76]

As noted above, the water businesses form part of autonomous local councils. Responsibility for decisions on pricing rest with the individual Councils. Obligations are placed on the council businesses, if they are defined as significant business activities, to implement commercialised approaches including full cost recovery and to meet NCP reforms regarding the introduction of two-part tariffs and identification of cross subsidies and CSOs. However, until this stage, there has been no active role for the State Government in monitoring or approving those prices.

There is an expectation that local councils will self-regulate. Brisbane Water has developed a purchaser/provider model as has Ipswich Council. This leaves the council retaining control over the water business.

Brisbane Water, Gold Coast Water and SEQWB are all full contributing members of WSAA*facts.* This provides a regular, annual report on the performance of the water businesses against a wide range of parameters. Twenty two of the smaller councils now participate in the WSAA scheme for performance monitoring and benchmarking for NMUs. In due course, this will provide a useful source of data on business performance.

A system of Water Service Provider Licences has recently been proposed– setting out quality standards – subject to independent regulation – although differential standards would apply given the variation in standards across the State. [77] This may also include a customer charter and Annual Operating Agreement (as in Redland City Council). DNR would be the licensing agency, with the Department of Health playing a lead role in water quality standards.

The final roles and machinery for regulatory functions are clearly still to be settled.

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[76] *ibid*, p. 485.

[77] Water Reform Unit (1999), "A Regulatory Framework for the Provision of Water Services in Queensland".

6.3. ROLE OF QCA

The Queensland Competition Authority (QCA) was established by the Queensland Competition Authority Act 1997 (QCA Act). Broadly, the Authority is responsible for:

- undertaking prices oversight of monopoly or near monopoly Government business activities, subject to reference or declaration by the Ministers;
- receiving and investigating competitive neutrality complaints against significant government and local government business activities;
- accrediting significant Government and local government business activities as complying with the principle of competitive neutrality;
- overseeing and arbitrating third party access to infrastructure; and
- undertaking such other activities relating to national competition policy as the Ministers may direct.

6.3.1. THIRD PARTY ACCESS REGIMES

Part 5 of the QCA Act establishes a State based third party access regime which requires the Authority to:

- assess whether services ought to be declared for third party access;
- comment on access codes;
- accept (or refuse to accept) access undertakings in respect of declared services; and
- arbitrate third party access disputes.

6.3.2. PRICES OVER-SIGHT

The QCA currently has two roles in prices oversight, conferred upon it by Part 3 of the QCA Act, namely:

- developing a set of criteria for assessing whether government business activities should be referred to the Authority for prices oversight; and
- investigating the pricing practices of government monopoly business activities referred to it by the Ministers.

In December 1997, the Authority submitted Criteria for the Identification of Government Monopoly Business Activities to the Premier and Treasurer for their approval. The Premier and Treasurer accepted the criteria early in 1998. As yet, there have been no referrals of government monopoly business activities to the Authority for prices oversight.

6.3.3. PREFERRED ROLE

In implementing the above duties, the QCA has indicated an express preference for a role, in the first instance, as an independent umpire to encourage negotiation and commercial solutions. This requires the publication of clear guidelines to inform all parties of the principles which the QCA would follow in the event of a formal dispute. That clarifies the position and encourages informal resolution. Only if this stage fails would reactive intervention be required, through staged mediation and binding arbitration. Formal investigation would be a final option rather than a normal regulatory methodology.

7. LESSONS & IMPLICATIONS

7.1. DISCUSSION

The review of Australian and overseas regulatory approaches provides a number of lessons for the design of appropriate pricing frameworks and principles for urban water supply in Queensland. These lessons include:

- **Full and certain regulation can be extremely expensive**. There is considerable information asymmetry between the businesses and the regulator. The inability of regulator to obtain the same level of understanding and knowledge of the regulated business' activities means that regulator confidence can only be obtained through extensive and intrusive investigations, often using outside expertise. In England and Wales, the annual cost of regulating the water companies is around A$60 million. Many of these costs are essentially fixed. Smaller water businesses incur lower total costs, but higher unit costs of regulation.[78] Very small entities such as are represented by some of the Queensland Councils, would have considerable difficulty in resourcing information demands of this form.

  Not only is second guessing by the regulator an expensive challenge but it also raises major questions as to who is responsible for running the business. These questions occur at both a legal and moral level. For example, the recent re-setting of tariffs, and therefore revenue levels, by the Victorian Treasury took place without reference to the directors of the three metropolitan retailers. This would appear to contravene their responsibilities under Corporations Law. The fact that the directors of the Victorian NMUs are not bound by Corporations Law does not alter the fact that the current regulatory approach - such as the two year price freeze recently announced, can act directly across their responsibilities.

  In the Queensland context, where the water businesses are owned by local government, second guessing of essential information and the potential overriding of local preferences not only raises governance issues, but may cause significant antagonism between levels of government due to the imposition of externally imposed directions.

- **A tiered approach.** Where water businesses are diverse in terms of size, density and regulatory risk, a single common regulatory approach is not likely to be effective or appropriate. Reflecting the greater risk of monopoly exploitation in large privatised entities, Ofwat for instance employs an extensive and detailed approach. Ofwat's approach also reflects the significant capital formation involved in the industry and the need for prices to rise substantially to fund the necessary expenditure program. This approach is not warranted where the entities are owned by the ratepayers or customers and the businesses are stable regarding investment and charges.

[78] Even the smallest water company under Ofwat serves a population of 156,000 and is, itself, owned by one of the large French water companies.

In Australia, the NSW and Victorian regulatory systems each demonstrate a two tier approach with a more direct and detailed regulatory process for the three or four larger entities and reliance on guidelines and business plans for the smaller entities. As IPART comments:

> *"While the Inquiry has identified significant scope for the application of common pricing principles, an important theme is the need to cater for diversity in actual practice in meeting particular local circumstances."*[79]

- **Light-handed regulation** must be carefully designed. Light-handed regulation can be both expensive and ineffective. The New Zealand reliance on the court process as a substitute for regulation may provide less certainty and higher costs, as the Clear vs. NZ Telecom case demonstrates.

  An alternative light-handed approach is to rely on publication of clear guidelines and audit on an exception basis, ie. an approach on water pricing might include:

  – issue and require compliance with guidelines on pricing principles;

  – require reporting against those guidelines;,

  – identify businesses outside guidelines; and

  – audit compliance on an exception basis with a focus on non-compliant businesses.

  A current example of this approach is the provisions made by the ACCC to protect the public against price exploitation due to the introduction of the GST, where the ACCC has issued guidelines which all businesses must comply with and has retained the discretion and resource capability to undertake spot audits and investigations. The ATO has operated on a similar basis for a number of years.

  An important support for this approach is to create incentives for compliance. The payments scheme introduced by the Queensland Department of Local Government and monitored by the QCA is a good example.

- **A system to monitor and flag problems.** An essential prerequisite of an effective light-handed approach is the ability to monitor and signal potential problems.

  This requires:

  – clear separation of water business accounts from municipal functions;

  – separation of water and wastewater accounts;

  – that regular accounts be published; and

  – development of financial, physical and customer service performance indicators and the public reporting of these in some form of "league ladder".

[79] *ibid*, Introduction.

Regulators should, where possible, rely on existing reporting frameworks which are inherent to the normal running of the business or are required by other government departments.

However acquisition of this information by the regulator is not sufficient. More important is the broader availability and transparency of this information to customers and interest groups. This will provide an active forum for the review and critique of the data which will also help stimulate effective comparative competition and peer group pressure to improve performance.

This approach incorporates elements of the regulatory and industry regimes operating for the NSW and Victorian NMUs.

Clearly, this regime may not be a cost effective method of dealing with the very smallest of the water businesses. Similarly, for the very large water businesses such as Brisbane Water and SEQWB such a regime may need to be more rigorously applied.

- **Efficient business costs should underpin price regulation**. In practice, regulators have little effective information on efficient business costs. High level investigations such as data envelop analysis are at best, indicative and by definition are high level.

  Ofwat is able to mimic some of the pressures of the market, through the use of comparative benchmarking in validating costs and setting prices. This requires a significant number of independent entities with relatively equivalent operating parameters.

  As a result, regulators such as Ofwat and IPART make extensive use of specialist engineering advisors to audit and report on capital needs, design standards, operating protocols and so on. These audits are an essential component of the more comprehensive but intrusive regulatory approaches where it is the regulator who makes the ultimate decision.

  A light handed approach based on guideline compliance, and investigation of the non-compliant exceptions, does not allow the regulator to enforce these regulatory audits, even if they were desirable. On the other hand, there are significant advantages from having periodic reviews of key activities for more significant water businesses. The value of this approach is evidenced not only in regulatory pricing, but also in maintaining the effectiveness of strategic directions and day-to-day operations in major successful corporations through their use of external management consultancy.

- **No one regulatory method or formula.** Despite the apparent textbook clarity between different regulatory methods, the choice between the alternatives of rate of return regulation, price cap regulation (based on, say, CPI-X) and commercial viability (based on adequacy of cash flows to sustain the business and fully meet directors obligations) is more apparent than real.

  Major regulators such as Ofwat certainly present their results as the outcome of the application of a weighted average cost of capital applied to a regulatory capital base.

However, in arriving at their price/revenue determinations, they pay particular attention to the adequacy of cash flows and cash-flow performance indicators. Equally, where major expenditure is required, the approach approximates to rate of return regulation.

In other words, the approach is eclectic and includes judgements on eg. productivity gains, the timing for the introduction of new standards (to phase expenditure programs), trade-offs between engineering and non-engineering solutions to capacity augmentations. Both the Ofwat and IPART experience demonstrates substantial regulator discretion and judgement.

The more intrusive the regulatory approach, the greater the need for judgement and discretion to be exercised. There is also an apparent conflict between clarity of process and regulatory discretion. Ofwat has sought clarity in process and has encouraged public contribution to the decision making. However, the Director General has always stressed that his final decision has to be the outcome of judgment rather than being merely a mechanistic determination. This has allowed him to balance qualitative issues, such as customers' willingness to pay and the rate of any change, against quantitative parameters.

In contrast to the discretion exercised in the determination of process to final customers, prices determined for access regimes, generally under TSLRIC pricing[80], appear to be more directly based on formula approaches. This reflects the essentially commercial relationship between the parties to an access regime, in contrast to prices over-sight where the regulator has to act on behalf of the general public.

However, since TSLRIC pricing is also directly dependent on the WACC and the nominated capital increment (typically the cost of duplicating the entire infrastructure) the arbitrated access prices set by the regulator can also be subject to the considerable discretion of the regulator. A recent example is the gas distribution (access arrangements) determination in Victoria, where the competing parties adduced weighty evidence in support of widely varying figures for the WACC, from 5.5% to 9.73%.[81] Given this spread, there is clearly no single correct answer, even in seemingly formula driven approaches.

[80] TSLRIC = total service long run incremental cost.

[81] Office of the Regulator General, (1998) Final Decision on the Victorian Gas Distribution Access Arrangements, October.

7.2. LESSONS & POINTERS

This review has identified a number of lessons and pointers which the QCA might follow, both in drafting its Statement of Regulatory Principles and in developing a workable regime to implement those principles in practice. This final section pulls together the lessons identified in the earlier sections of the report and in the above discussion. It covers the key elements of the framework set out in Section 2.

- **Horses for courses** : it is necessary to match the regime to the circumstances and risks. NSW provides a good example of a tiered approach, with a higher level of intervention in the larger businesses.

- **Publishing clear guidelines** on key aspects of the proposed regime will inform parties and minimise the need for formal intervention and the direct costs of regulation. Creating an effective framework and clear set of principles will allow the water industry effectively to police itself.

- **Price Cap regulation** of urban water businesses will prevent monopoly prices exploitation. Rate-of-return regulation is too interventionist and neither franchising nor light-handed regulation provide adequate accountability or disclosure.

- **Assessment of the WACC and regulatory capital value** involves judgement and discretion. These are not simple mechanistic parameters. Determining revenue solely on the basis of these two factors will provide insufficient flexibility to meet the commercial needs of water businesses.

- **Commercial viability,** based on cash flow modelling, sets the revenue floor. It also provides a **holistic** approach to assessing future business needs and risks. A **building block approach** to assessing future expenditure requirements is justified.

- **Creating incentives** for businesses to meet reform and regulatory objectives will promote achievement of outcomes and minimise the need for regulatory intervention.

- **Publishing data** on the businesses' performance creates incentives for improvement through peer-group pressure, and increases the customer's negotiating position. The data can also be used to identify outliers for regulatory audit, and should, in time, identify where efficiency gains could be made. The data should, where possible, be based on pre-existing monitoring requirements.

- Both the companies and the regulator need to **understand customers' preferences** in trade-offs between cost and quality.

- **Providing a transparent regulatory process** ensures confidence in all parties. However, the regulator needs to retain discretion and judgment in taking any final decision.

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