Gladstone Area Water Board

(GAWB)

Queensland Competition Authority (QCA) -

2004 review of GAWB's pricing practices

Response to the QCA's Issues Paper

2 July 2004

This document is not confidential.

Summary

Gladstone Area Water Board

The Gladstone Area Water Board (GAWB) is a commercialised Statutory Authority which stores, delivers, treats and reticulates bulk raw and potable water in the Gladstone region.

The availability of a secure, reliable and cost competitive water supply underpins many important investment decisions and promotes confidence in the region as an economic hub. GAWB sees its role as ensuring that the water needs of this growing region are met in ways that are environmentally, socially and commercially sustainable.

GAWB's customer base comprises a small number of large businesses and two Local Authorities. GAWB's business customers are predominantly engaged in electricity generation, light metals and other processing industries. The cost of water represents a small proportion of the total cost of operation of most industrial customers. Whilst GAWB is the supplier of potable water, the Local Authorities have responsibility for the reticulation and retail supply of potable water to the region's population and small business customers. Potable water accounts for less than 20% of the total water consumed.

Because GAWB's principle operations are declared government monopoly business activities, GAWB is subject to regulation in the form of pricing oversight by the Queensland Competition Authority (QCA).

GAWB's demand forecasts are dominated by large projects rather than the gradual growth brought about by population growth or increases in economic activity. Therefore GAWB makes few incremental investments. GAWB's investments are typically large and infrequent and have significant price and service implications for customers.

Most of the businesses around which Australian utility regulation precedent has developed are incremental natural monopolies (typically electricity and gas network providers). Significant assumptions and conclusions underlying the regulation of these businesses do not hold for GAWB's business. In particular, water storage investment characteristics are very different from those of distribution networks. The experience from the regulation of other utilities is valuable but this experience should be tested for specific relevance to GAWB.

Current Regulatory Regime

The current regulatory regime consists of:

- price cap regulation;
- price investigations of uncertain frequency and scope determined by discretionary Ministerial direction;
- implicit frequent asset revaluations including re-optimisations;

Compared to regulatory frameworks developed for other regulated industries, the current framework provides:

- no mechanism for 'roll-in' or regulatory approval of investment between investigations;
- no mechanism for sharing unanticipated efficiency gains;
- no mechanism for ensuring regulatory consistency over regulatory periods (and, in particular, no mechanism to offset high returns from mature assets against low initial returns); and
- no requirement for disclosure of information that may be useful for customers and third-party investors.

GAWB submits that the current combination of regulatory framework and commercial environment exposes GAWB to more risk than is faced by many other utilities. Moreover we do not believe that GAWB is adequately compensated for this additional risk in our total regulated return.

We acknowledge that there is little regulatory precedent for the QCA to provide higher rates of return to compensate GAWB for the relative uncertainty of its cashflows. Instead other Australian regulators have attempted to create a regulatory framework that minimises the risks faced by regulated businesses in the interest of delivering the lowest long run sustainable prices to customers. We support this approach.

GAWB would like to use the opportunity of the current investigation of pricing practices to further develop the regulatory framework and obtain more regulatory certainty for both GAWB and its customers.

Proposed Regulatory Regime

GAWB proposes changes to the regulatory and contract framework which are designed to reduce the risks faced by GAWB. That is, we are seeking to better align the business risk with the allowed return. The specific enhancements that GAWB proposes to the regulatory framework are:

- more certainty over the nature of the QCA's role, the frequency of price reviews and the scope of such reviews (including the demarcation between GAWB's regulated and unregulated business activities);
- introduction of an Investment Review Panel (IRP) to scrutinise major new capital investment;
- a change to a fixed revenue cap form of regulation (with price control side constraints);
- comprehensive information disclosure by GAWB;
- reduction of the pricing horizon to 5 years; and
- alignment of the regulatory framework and GAWB's standard supply contracts.

The following table summarises GAWB's proposal for the QCA's role in the price-setting process with respect to each of the different products and services offered by GAWB.

Product or Service	Description	Price-Setting Process
Regulated Reference	Standard reliability and quality product sold at the Reference Tariff.	Revenue cap set by the QCA every five years. Reference tariffs set by GAWB annually and approved by the QCA as being consistent with the pricing principles and the revenue cap.
Regulated Non-Reference	Non-standard products and services delivered through the monopoly infrastructure (e.g. higher reliability supply).	Prices set by negotiation between GAWB and customers. The QCA can act as a dispute resolution body for contract disputes in regard to manifest error by GAWB in its interpretation of pricing principles established by Ministerial direction.
Competitive	Prices for competitive products and services (e.g. provision of customer on-site storage).	Prices set by negotiation between GAWB and its customers. The QCA has no role.

Table 1 - Summary of Proposed Price-Setting Process

Allowed Revenue

GAWB supports the DORC valuation adopted for the 2001 investigation.

However revisiting valuations after just 3 years would introduce significant disincentives for investment given GAWB's inherent demand forecasting challenges. We do not believe that a further review of the Mt Miller pipeline or other delivery assets is justified so soon after they were accepted by SMEC and the QCA as prudent.

GAWB proposes roll-forward of the 2001 valuation with appropriate adjustments for cost inflation, capital expenditure and depreciation.

Notwithstanding its limitations GAWB supports the use of the CAPM methodology to determine an appropriate return on capital.

Most of the WACC parameters for regulated businesses throughout Australia are now stable and entrenched by regulatory precedent. GAWB does not propose to argue for significantly different treatment of parameters than that provided by the QCA in its 2001 investigation.

However, we submit that the QCA should adopt an asset beta in excess of 0.45 (We suggest a beta similar to the 0.60 applied to Central West Pipeline by the ACCC). Alternatively the QCA should de-risk the regulatory framework to the extent possible to better align GAWB's regulated business risk with its allowed return.

Proposed Reference Tariff Arrangements

Water Contracts

We propose that customers be able to enter into forward contracts where each such contract allows the customer to take a particular volume of water from a particular

GAWB source in a specific year (subject to any restrictions imposed under GAWB's Drought Management Plan).

Delivery Contracts

We propose that customers with Water Contracts enter into back to back Delivery Contracts. Delivery Contracts allow the customer to take delivery of the volume of water specified in the Water Contract.

In its 2001 investigation, the QCA recommended that GAWB adopt two-part tariffs. Because the storage and delivery network components of GAWB's business have different cost drivers, GAWB proposes to implement separate two-part tariffs for water availability and the delivery system.

Moreover, because all customers currently use the same storage, separation of common storage access from the spatially specific delivery system facilitates water access trading. In order to facilitate this trading we propose allow exchanges of contracted delivery capacity on a case by case basis.

Available water charges would comprise:

- a Water Access Charge; and
- a Water Volume Charge.

The Water Access Charge ($/ML) would be payable on the volume of Water Contracts held by a customer for that year.

The Water Volume Charge ($/ML) would be paid on the actual volume delivered from the storage in that year. We propose to set the volume charge based on the long run marginal cost (LRMC) of new storage capacity using a QCA-agreed methodology.

An Excess Volume Charge ($/ML) would apply to all volume delivered in excess of that specified in a customer's Water Contracts.

As indicated earlier we propose that the Water Contracts be tradable (subject to counter-party approval by GAWB).

Delivery capacity charges would comprise:

- a Delivery Access Charge; and
- a Delivery Volume Charge.

The Delivery Access Charge ($/ML/s) would be payable on the maximum instantaneous flow rate specified by the customer in its Delivery Contract.

The Delivery Volume Charge ($/ML) would be paid on the actual volume of water delivered to the supply point. We propose to set the volume charge based on the LRMC of new delivery capacity using a QCA-agreed methodology.

An Excess Instantaneous Flow Charge ($/ML/s) would apply to all instantaneous flows in excess of that specified in the customer's Delivery Contract.

We propose to retain geographically differentiated pricing for the delivery infrastructure.

Delivery of potable water will be priced on the same basis as delivery of raw water (allowing for recovery of the operating costs and capital costs of the additional infrastructure associated with treatment to potable standards and delivery).

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QCA Issue	GAWB Response
The Authority invites comment on:	
1. the reliability of GAWB's supply and its implications for consumers; 2. the likelihood of further downgrades in Awoonga Dam hydrology, and the implications for alternative sources of supply;	Reliability of supply from the Awoonga Dam and customers' desire for enhanced reliability are discussed in Section 5.2, page 56.
3. appropriate approaches to projecting GAWB's demand including how to deal with uncertainty regarding prospective customers and the timing and magnitude of their demand;	Demand forecasting is discussed in Section 5.1, page 52.
4. the permanent impact of demand management measures adopted by customers in response to the recent drought;	The demand reduction measures adopted during the 1996 – 2003 drought have permanently reduced demand by approximately 10 GL per annum (see Section 5.1, page 55)
5. the appropriateness of the length of the planning period;	GAWB supports a planning period of at least 20 years (see Section 5.1, page 56).
6. implications of alternative demand scenarios; 7. opportunities for further supply management initiatives; 8. opportunities for the adoption of further demand management measures by existing and prospective customers;	GAWB makes no submission on specific supply or demand management initiatives. Instead in Section 3.2, page 23 we propose a process for publicly and independently evaluating supply and demand side management alternatives. GAWB will complete its Strategic Water Plan in September or October 2004. That document discusses various options for additional water supply or saving.
9. ensuring cost-effective supply and demand management initiatives are adopted and appropriately reflected in prices;	GAWB proposes that an Investment Review Panel (IRP) be convened when major investment is required. The IRP review would be an independent and public process to ensure that the most appropriate supply or demand side investment options are adopted (see Section 3.2, page 23).
10. the most appropriate approach for estimating LRMC;	GAWB does not have a strong preference for either the AIC or Turvey methods. We propose to work with the QCA to model price outcomes under both methodologies (see Section 4.7, page 48).
11. ensuring a consistent approach to the application of the pricing framework between successive regulatory periods.	GAWB submits that adopting a fixed revenue cap with an 'unders and overs' account that is rolled-forward across regulatory periods would facilitate inter-period consistency (Section 3.3, page 31).
12. the appropriateness of treating Gladstone City Council and Calliope Shire Council as one customer class.	GAWB proposes that the Local Authorities manage their own price equalisation process outside the regulatory regime (see Section 4.8, page 49).

QCA Issue	GAWB Response
13. the appropriate arrangements to be incorporated in a Drought Management Plan including: ♦ thresholds at which restrictions are triggered; ♦ the basis for allocating supplies of water (including administrative arrangements, relevant standards of service, pricing for priority access and provisions for customers to determine their own responses); 14. the approach for incorporating the costs of GAWB's Drought Management Plan in prices including any adjustments to pricing practices applying otherwise;	GAWB's Drought Management Plan is discussed in Section 5.3, page 58. Apart from the preparatory costs of agreed contingency responses (also discussed in Section 5.3, page 58), GAWB proposes that only actual costs are included after droughts occur (see in Section 3.3, page 31 and Section 6.5 page 70). A separate issue is whether customers are prepared to pay higher than reference tariffs for a higher than reference standard of reliability. This issue is discussed in Section 5.2, page 57.
15. the value of GAWB's asset base for pricing, including: ♦ the approach to establishing an opening asset value; ♦ the net impact of revised hydrology and demand on the appropriate asset base for pricing purposes; and ♦ the impact of recent circumstances on the utilisation of the Mt Miller and Hansen Road pipelines;	GAWB proposes a roll-forward of the 2001 DORC valuation (see Section 6.1, page 60).
16. the rate of return, including determination of the WACC/CAPM parameters applicable to GAWB from 1 July 2005;	GAWB does not propose to argue for significantly different treatment of parameters than that provided by the QCA in its 2001 investigation. However, we submit that the QCA should adopt an asset beta similar to the 0.60 applied to Central West Pipeline by the ACCC (see Section 6.3, page 65).
17. return of capital, and in particular whether renewals annuities should be implemented; . 18. which components of GAWB's network are more suited to the application of a renewals annuity; 19. the standards against which the comprehensiveness of annual maintenance, replacements and capex should be assessed and how to ensure that GAWB does not over maintain the assets; 20. the manner in which GAWB would manage a renewals annuity account to ensure a capacity to fund major refurbishments over time	The asset management plan under development by GAWB does not include the necessary information to develop a robust renewals annuity approach. GAWB proposes to maintain the current straight line depreciation approach for existing assets and minor new assets. Where GAWB identifies that particular assets are at risk of redundancy GAWB will make a case for accelerated depreciation. To de-risk new investment, GAWB proposes to use 'economic depreciation' for significant new investments (see Section 6.4, page 68).
21. GAWB's operating expenditure, particularly in relation to: ♦ the allocation of general administration costs; and ♦ insurance costs, including those associated with extraordinary circumstances.	GAWB proposes to retain the current allocation of administration costs (see Section 6.5, page 69). GAWB supports ex-post pricing of uninsured risks. This approach is consistent with the revenue cap form of regulation (see Section 6.5, page 70).

QCA Issue	GAWB Response
22. whether expected efficient costs based on expert opinion should be incorporated in cash flows; 23. whether a CPI-X type of mechanism be adopted to promote further efficiency gains;	GAWB proposes that operating expenditures be based on expert opinion in regard to the efficient level of expenditure. No additional X-factor adjustment for speculative unanticipated efficiency improvements is justified (see Section 3.6, page 37).
24. whether a mechanism for sharing unanticipated efficiency gains should be adopted and, if so, how to: ♦ distinguish between efficiency gains (attributable to management initiatives) and windfall gains (as a result of favourable external conditions); ♦ avoid the potential for gaming related to over inflation of initial cost estimates, substituting between operating and capital categories, or trading off of service quality; ♦ validate efficiency gains – either by self assessment by GAWB, third party certification, ex-ante business case submissions by GAWB, detailed assessment by the Authority, or another approach;	GAWB supports, in principle, the concept of sharing efficiency gains across several regulatory periods (see Section 3.6, page 38).
25. the appropriate specification of CPI for annual indexation of prices;	GAWB proposes that for 1 July price changes that the Brisbane All Groups March Quarter CPI is used where CPI indexation is required (see Section 3.6, page 38).
26. whether additional review trigger mechanisms or eligible cost pass-through items are necessary;	GAWB proposes that a limited review of the revenue cap should be triggered where significant unanticipated investment is required. In addition GAWB proposes pass-through of costs incurred arising from a government-declared emergency, disaster or extraordinary circumstance (see Section 3.7, page 39).
27. the framework for monitoring GAWB's prices and pricing practices and in particular whether it: ♦ be limited to monitoring prices after contractual arrangements have been entered into; or ♦ monitor contractual arrangements prior to contracts being entered into; 28. the appropriate means for monitoring contractual arrangements, for example by audit, periodic reporting or exception reporting; 29. the appropriate means for reporting the results of monitoring activities undertaken; and	GAWB submits that the QCA should not monitor individual contracts. QCA's ongoing monitoring role should be limited to annual approval of reference tariffs (see Section 3.1, page 18).
30. the appropriate role for the Authority in regard to disputes relating to individual contractual arrangements.	The QCA can act as a dispute resolution body for contract disputes in regard to manifest error by GAWB in its interpretation of pricing principles established by Ministerial direction. (see Section 3.1, page 18).

Table 2 - Index of GAWB's Response to QCA Issues

List of Abbreviations

AARR	Aggregate Annual Revenue Requirement
ACCC	Australian Competition and Consumer Commission
AIC	Average Incremental Cost
ARY	Average Revenue Yield
CAPM	Capital Asset Pricing Model
COAG	Council of Australian Governments
CPI	Consumer Price Index
CWP	Central West Pipeline
DNRME	Department of Natural Resources, Mines and Energy
DSD	Department of State Development
ESC	Essential Services Commission (of Victoria)
GAWB	Gladstone Area Water Board
IPART	Independent Pricing and Regulatory Tribunal (of New South Wales)
IRP	Investment Review Panel
LRMC	Long Run Marginal Cost
ORG	Office of the Regulator General (of Victoria)
QCA	Queensland Competition Authority
RAB	Regulated Asset Base
SRMC	Short Run Marginal Cost
WACC	Weighted Average Cost of Capital
WAPC	Weighted Average Price Cap

1 Introduction

1.1 Gladstone Area Water Board

The Gladstone Area Water Board (GAWB) is a commercialised Statutory Authority which stores, delivers, treats and reticulates bulk raw and potable water in the Gladstone region.

GAWB's Environment

The Gladstone region comprises Gladstone City (population 27,000) and adjoining Calliope Shire (population 15,000). Its development as a strategic industrial centre is an essential element in Queensland's overall economic performance. It receives special government attention as a declared state development area. Gladstone is recognised worldwide as a location for internationally competitive industrial (chemical and light metals) process industries. It is supported by significant rail, port and power infrastructure (including the Gladstone Port and the Callide Power Stations near Biloela). The region has grown to the extent that it now represents a very significant economic centre with benefits flowing to both state and national economies.

The availability of a secure, reliable and cost competitive water supply underpins many important investment decisions and promotes confidence in the region as an economic hub. GAWB sees its role as ensuring that the water needs of this growing region are met in ways that are environmentally, socially and commercially sustainable.

To achieve that end GAWB both:

- owns and operates essential water infrastructure which supports existing and future industrial development; and

- plans for the future by continuously reviewing and updating its forward planning to ensure that the best solutions to meet the region's water needs are identified and delivered.

GAWB's customer base comprises a small number of large businesses and two Local Authorities. GAWB's business customers are predominantly engaged in electricity generation, light metals and other processing industries. The cost of water represents a small proportion of the total cost of operation of most industrial customers. Whilst GAWB is the bulk supplier of potable water, the Local Authorities have responsibility for the reticulation and retail supply of potable water to the region's population and small business customers. Potable water accounts for less than 20% of the total water consumed.

Water sustains life and is an essential input into most industrial processes. There are substitutes for some water uses and alternative sources of supply to GAWB's Awoonga Dam product. These substitutes and alternative sources are generally not price competitive under normal conditions.

Substitutes for and alternatives to GAWB's supply are not easily and quickly brought to market; consequently, water can become scarce and more valuable during drought periods. GAWB recognises that the management of water as a valuable and scarce resource has significant potential to affect and enhance community well-being.

Competitive markets provide a discipline to commercial behaviour that efficiently aligns incentives. In order to succeed in a competitive market a service provider must better satisfy its customers than its competitors do. In this way the commercial outcomes of competitive market activity can be and usually are consistent with the maximisation of community benefit.

GAWB recognises that in respect of most of its operations, it is not subject to the full disciplines normally imposed by competitive markets and that regulation of its monopoly business activities is a necessary part of its environment.

Regulation takes the form of pricing oversight by the Queensland Competition Authority (QCA). GAWB is also accountable to the State Government (as shareholder) for its commercial performance and (as technical regulator) for the management of the Awoonga Dam water resource allocated to it.

Both GAWB and its customers are subject to commercial pressures that should lead to GAWB developing and providing products that better suit its customers' operations as well as risk propensities and tolerances. If GAWB is unable to respond to changing market needs, competitors will respond to the opportunity.

Customers will look to technology and better practice to reduce demand. In this environment GAWB cannot be certain that it will generate satisfactory revenue streams throughout the useful lives of its long-lived assets. These pressures also create a significant stranding risk that GAWB must manage in order to remain financially viable.

GAWB's operating environment continues to develop rapidly. In the last 4 years it has been commercialised, dealt with a pricing practices investigation by the QCA, managed water restrictions due to the recent drought and built infrastructure costing in excess of $150m. These events combined with heightened expectations of customers, community and stakeholders have all presented GAWB with numerous issues, challenges and opportunities.

GAWB's Response to its Environment

GAWB is responding to the changing environment, including customer, stakeholder and community expectations by continuing to shift its focus, emphasis and culture from that of an infrastructure focussed utility to a service provider driven to deliver a balance of commercial and water supply outcomes.

Critical elements of this shift include:

- a strong focus on commercial management and delivery of commercial outcomes from activities;
- a strong focus on understanding customers' businesses and their current and future needs as well as the identification of opportunities and the development and delivery of solutions which meet these needs;
- a strengthening of focus on management of water quality and asset operation and maintenance;
- an increasing focus on management of the water resources within the region;

- the development of a multi disciplinary and coordinated approach to all major issues within the business, rather than considering particular issues as engineering, environmental, social, commercial or accounting issues.

The changing environment and expectations in which GAWB operates mean that the organisation must continue to develop and refine its business capability and culture to effectively deal with these challenges and opportunities. Building organisational capability is a key priority for GAWB.

Following the experiences of both GAWB and its customers in the 1996 – 2003 drought and the consequential downgrading of the HNFY of Awoonga Dam, GAWB instituted a Strategic Water Planning Project. The aim of the project is to identify the need for changes to water management practices and alternative water supply sources, and then to identify and evaluate the range of viable water supply development options which address practical, economic and commercial considerations.

As a key outcome of the project GAWB has developed and refined its methodologies for demand forecasting and its understanding of the operations of current customers. The review and revision of forecasts will now become an on-going GAWB business process.

We expect to complete the Strategic Water Plan in late September / early October.

As a result of the knowledge gained through the Strategic Water Planning project, GAWB will in the future offer differentiated products customised to the extent possible to meet the needs of individual customers.

1.2 GAWB's Business Goals

Corporate Plan Goals

In carrying out its functions GAWB has identified four key interlinked business goals which define excellence for GAWB as a water business. GAWB aims to manage its business so as to achieve the best possible balance of these goals.

The four goals are:

Meeting Water Needs	To understand, facilitate and satisfy the water requirements of current and future customers.
Commercial Results	To enhance GAWB's profitability and build the value of the business.
Corporate Citizenship	To be regarded as a responsible corporate citizen.
Capability	To ensure the organisation has the capability to carry out its mission.

Each of the four primary business goals is supported by a number of key objectives and second level objectives, measures and targets.

Commercial Water Supply Policy

GAWB has adopted a Commercial Water Supply Policy to support its business goals. Relevant extracts are set out below.

"The contractual framework, pricing and associated pricing mechanisms are key instruments available to GAWB to promote and further the achievement of its business objectives. The objective of GAWB's commercial philosophy is to facilitate an efficient and sustainable pricing and contractual structure that will produce the following balance of outcomes.

1. *GAWB is financially viable at all times.*

2. *GAWB earns appropriate commercial returns consistent with the disciplines that would be imposed by a competitive market. GAWB is rewarded for innovation in better identifying and satisfying needs which are important to its customers.*

   In so doing:

   - *GAWB develops solutions which maximise the total benefits to the customer base and itself and as a consequence benefits the community.*

3. *There is a free flow of information between GAWB and its customers to achieve mutually beneficial outcomes and avoid perverse results. This requires ownership at several levels – GAWB, customers and other relevant stakeholders.*

   In this environment:

   - *Customers accurately specify requirements, including current and forward demand, quality needs and risk propensities.*

   - *GAWB actively seeks to identify, understand and respond to these requirements.*

4. *GAWB promotes, develops and maintains sufficient capacity to meet its contractual obligations and reasonable future demand and efficiently and sustainably manages the water resources allocated to it.*

   So that demand is met:

   - *customers accurately estimate required demand and release reserved demand that is not required; and*

   GAWB:

   - *as water demand becomes more closely matched to water availability, pursues opportunities that release water for other consumptive uses (through trading or by facilitating capacity augmentation from other sources).*

   - *develops capacity in a timely manner having regard to the cost of development and all opportunity costs of not being able to meet demand,*

   - *develops capacity for reasonably expected future growth,*

- *seeks to adopt the best solution in the circumstances consistent with efficient use of the region's water resources and protecting GAWB's financial viability. In this regard GAWB should not be predisposed to build infrastructure but only to adopt the best solution, and*

- *applies pricing structures which encourage the efficient utilisation of existing storage capacity and defer capacity expansion wherever it is efficient to do so taking into account demand management (This includes the investment of GAWB financial resources into demand management solutions on a commercial basis.)."*

1.3 Pricing Principles

The practical application of the commercial philosophy is achieved through price signals applied in conjunction with the wider contractual framework.

"GAWB is currently working with customers to develop pricing structures and a contractual framework which:

1. *are effective –Price signals must be transparent, easily understood and predictable. GAWB will only implement pricing and contractual practices that are proportionate and cost effective. If the relevant signal cannot accomplish any material behavioural change, then GAWB will review its options;*

2. *are cost reflective, that is, reflect the costs of providing the service;*

3. *are forward looking so that the best solution for providing the requisite level of service over the relevant period is implemented. It is important to recognise that in order to perform a signalling function (for both GAWB and its customers) pricing structures need to be forward looking to convey the consequences of alternative behaviours and provide some certainty;*

4. *are responsive to customer assessments of the trade-off between price and risk and in particular their propensity for the risk associated with security of supply;*

5. *are responsive to customer preferences in terms of payment options;*

6. *ensure revenue adequacy. The overall financial needs of the business must be addressed if GAWB is to achieve its objective of financial sustainability;*

7. *promote investment that is environmentally, socially and commercially sustainable. Where services are to be maintained into the future, GAWB (and any potential partners) must be given the opportunity to enjoy an appropriate return on the current investment and be provided with the incentive to make necessary future investment;*

8. *ensure regulatory efficiency. Pricing structures which minimise regulatory intrusion and compliance costs relevant to a particular circumstance should be adopted. Unnecessary regulatory risk and uncertainty should be avoided;*

9. *take into account other matters relevant to the public interest."*

GAWB's pricing objectives are highly aligned with the QCA's objectives set out in its Statement of Regulatory Pricing Principles for the Water Sector. They are also consistent with the Council of Australian Governments (COAG) strategic framework for water industry reform.

1.4 QCA Objectives

Section 26 of the QCA Act sets out the factors that the QCA must consider when undertaking a price investigation. These factors include considerations that reflect the three components of GAWB's mission.

Factors related to environmental outcomes include:

- the impact on the environment of prices charged;
- the requirement to consider government policies for ecologically sustainable development; and
- considerations of demand management.

Factors related to social outcomes include:

- the need for efficient resource allocation;
- social welfare and equity implications of prices;
- economic and regional development issues including employment and investment growth; and
- the protection of consumers from abuses of monopoly power;

Factors related to commercial outcomes include:

- the appropriate rate of return on assets;
- the cost of providing the goods and services in an efficient way; and
- the promotion of investment and innovation.

We conclude that GAWB's objectives and the requirements for the QCA investigation are well aligned.

1.5 What Customers Want

Of critical importance to GAWB's assessment of the most appropriate regulatory, pricing and contractual arrangements is that that the commercial arrangements must meet customers' needs.

GAWB has undertaken a systematic survey of customer preferences for its Strategic Water Planning project and continuously assesses customer preferences through appropriate dialogue.

Most customers have quite clearly articulated a desire for improved reliability if this can be achieved at an acceptable cost. To that end GAWB has been examining a range of options to significantly or marginally improve the reliability of the supply. This work is well progressed however a number of consultancy studies are currently underway to identify specific costs and benefits of some of the key options.

Second only to reliability is a desire for "the lowest possible price". GAWB is committed to developing a regime that delivers the lowest long-run sustainable price.

In addition to low price, our customers almost universally express a preference for price predictability and regime stability. To address this want, GAWB must provide certainty around how capacity is reserved and relinquished and how penalties for exceeding agreed capacity are calculated and applied. Moreover, customers must be able to make their own investment decisions on the basis of best information about future prices. Therefore, GAWB is committed to:

- improving the transparency of the regime in general and, in particular, the transparency with which major investment decisions are made; and
- increasing the information disclosed to customers about future capacity increments and forecast price impacts.

Customers are also concerned about equity: that over time they are treated consistently with other customers (who are frequently also competitors) and fairly (e.g. that their capital contributions are properly recognised).

Most businesses now attempt to operate in partnership with key suppliers and customers. In this environment positive incentives are always preferred to penalties to promote mutually beneficial behaviour. GAWB intends to build positive incentives for wise resource use into its pricing regime wherever possible and impose penalties only as a last resort.

Finally, customers have stated a preference for the most simple contractual and pricing arrangements possible. This objective is sometimes in conflict with other objectives (equity and efficiency) but all other things being equal, GAWB will pursue the most simple pricing options available. As stated above, effectiveness of the price signal is one of our pricing objectives: if customers don't understand the pricing signal, the pricing arrangements are likely to be ineffective.

1.6 QCA Price Investigation

In 2001 and 2002 the QCA conducted an investigation of GAWB's pricing practices. The QCA presented its final report in September 2002. The QCA's recommendations were accepted by the Premier and the Treasurer in August 2003.

GAWB Agrees with Major Recommendations

GAWB agrees with the major recommendations contained in the 2002 report with very few exceptions (the most significant being a preference for the revenue control form of regulation discussed in Section 3.3, rather than the recommended price control regime).

In particular, GAWB supports:

- the introduction of tariff reform with two-part tariffs forming the basis of future pricing;
- variable prices based on estimates of the long run marginal cost (LRMC) of supply;
- a DORC-based asset valuation approach; and
- a return on investment calculation based on the Capital Asset Pricing Model (CAPM) and GAWB's estimated Weighted Average Cost of Capital (WACC).

Unresolved Issues

Following the 2001 price investigation, the QCA identified significant unresolved issues as:

- ensuring a consistent approach to the application of the pricing framework between successive regulatory periods;
- a review of GAWB's drought management options with results to be incorporated into prices as appropriate;
- use of renewals annuities in lieu of depreciation;
- the need for an activity based analysis to enable allocation of general administration costs; and
- further review of incentive mechanisms.

GAWB welcomes the QCA's 2004 price investigation. We agree that the issues identified by QCA, and in particular the first listed issue, should be resolved during the current investigation.

In addition to the QCA-identified unresolved issues, GAWB wishes to use the current investigation to:

- complete the development of an appropriate regulatory regime including confirming QCA's ongoing role in future price reviews; and
- achieve a better balance between the risk borne by GAWB and its regulated return.
- revisit the methodology used to calculate the price impacts of capital contributions.

Approach to the 2004 Investigation

We believe we have taken a pragmatic approach to addressing the QCA's issues. GAWB is not wedded to any particular aspect of the proposed regime. Indeed, we are interested in discussing alternative regulatory/contractual solutions that deliver the desired outcomes in a more simple, cost effective manner. We are also interested in gauging support for the proposed regime from customers and other interested parties.

Whilst price review processes are of critical importance to regulated businesses and their regulators, we recognise that economic regulation of the water supply may not be our customers' highest business priority. We expect that our customers are unlikely to completely canvass options in their initial written submissions to the issues paper. In particular, in this submission GAWB is introducing new ideas for future commercial and regulatory arrangements. Other stakeholders should be given the opportunity to respond to these ideas. GAWB strongly encourages the QCA to utilise workshops or public forums to allow customers, GAWB and the QCA to discuss relevant issues.

GAWB looks forward to working with the QCA, our customers and other stakeholders to develop a regulatory regime and contract framework that helps ensure that the long and short term water needs of current and future customers in the Gladstone region are met in a way that is environmentally, socially and commercially sustainable.

2 Current Regulatory Regime

2.1 Context

Most of the businesses around which Australian utility regulation precedent has developed are incremental natural monopolies. Electricity and gas distribution companies are typical examples. Regulation design for these industries is driven by some key assumptions, including:

- that the marginal cost is below average cost; and
- capacity can be added in relatively small increments.

The conclusions from these assumptions are that:

- increasing the number of customers decreases the average price;
- a simple two-part tariff is an appropriate and efficient price structure.

These assumptions and conclusions do not hold for GAWB's business. In particular, water storage is very different from these incremental utilities.

Unlike these distribution utilities, GAWB makes few incremental investments. The nature of the customer base means that GAWB's demand forecasts are dominated by large projects rather than the gradual growth brought about by population growth or increases in economic activity. There are significant challenges associated with predicting the size, timing and location of large projects. GAWB's investments are typically large in comparison to the asset base, infrequent and have significant price and service implications for customers.

The following series of figures is intended to draw a distinction between GAWB's business and that of a generic incremental utility.

Figure 1 overleaf shows a simplified analysis of an incremental utility business. For an incremental business, capacity can be added in relatively small increments to provide a relatively constant capacity margin over demand. All other things being equal, constant capacity utilisation yields a constant return on investment where prices are designed (or regulated) to give that outcome.

Whilst the incremental business faces the risk of asset stranding as a result of technology changes, it is not usually exposed to significant optimisation risk with respect to specific assets from demand forecast errors.

For an incremental business average costs should fall over time. For efficient pricing the variable tariff components are set to equal the long run marginal cost (LRMC). Because LRMC is below average cost, a positive access charge is necessary for revenue sufficiency. The average cost and marginal cost are relatively stable over time – yielding stable tariffs for a constant return on investment.

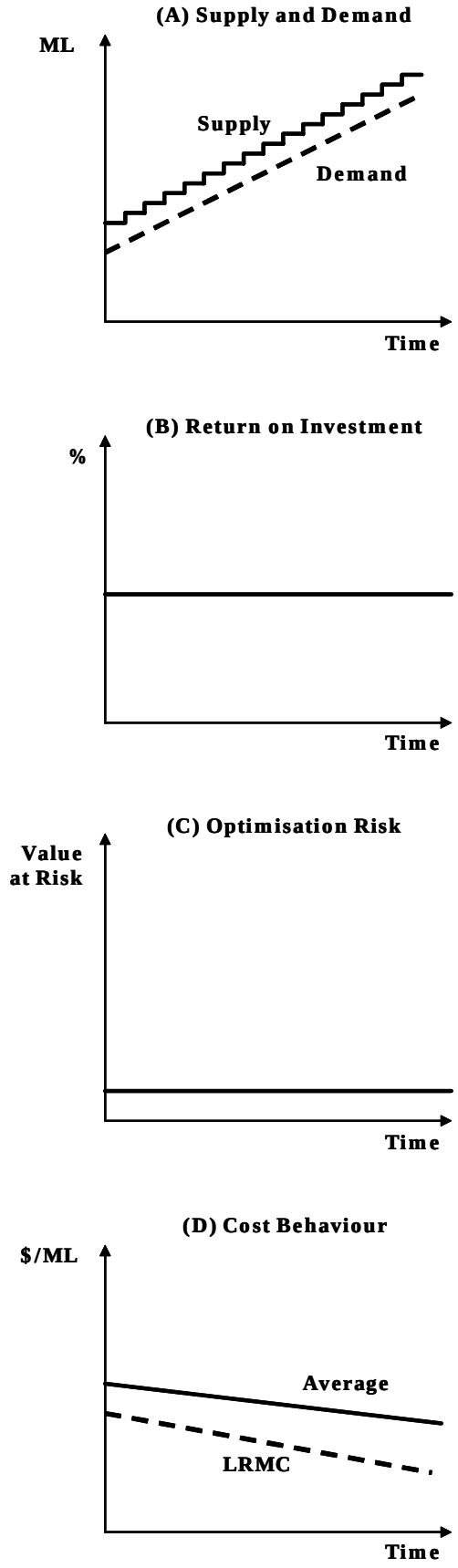

Figure 1 - Simplified Economics of an Incremental Utility Business

Figure 2 overleaf shows a simplified analysis for GAWB's business. Both supply and demand come in big 'lumps' yielding large differences in capacity utilisation over time. This fluctuating capacity utilisation yields a corresponding fluctuation in return on investment if constant real prices are maintained (see Figure 2(B)).

Like the incremental business, GAWB faces the risk of asset stranding as a result of technology changes. However, GAWB is exposed to the additional optimisation risk for specific assets related to demand forecast errors. This additional optimisation risk also varies with the investment cycle – being highest in the years immediately following investment (see Figure 2(C)).

Finally GAWB's cost behaviour is somewhat more complex than our generic incremental utility. Because capacity increments are significant, the average cost (target regulated revenue divided by volume of sales) will increase immediately after investment and decrease as capacity utilisation improves. The LRMC is out of phase with the average cost, rising as utilisation of existing capacity reduces the cost per ML delivered but increasing the LRMC by bringing forward the next capacity increment (see Figure 2(D)). Moreover, there is no reason to believe that the LRMC will be less than the average cost (even when cost is averaged over a significant period of time). For businesses like GAWB, the cheapest storages are generally developed first. The average cost will increase over time as more expensive storages (or alternatives) are developed. For increasing average cost, the marginal cost must be higher than the average cost. That is, LRMC-based pricing may require a negative access charge most of the time.

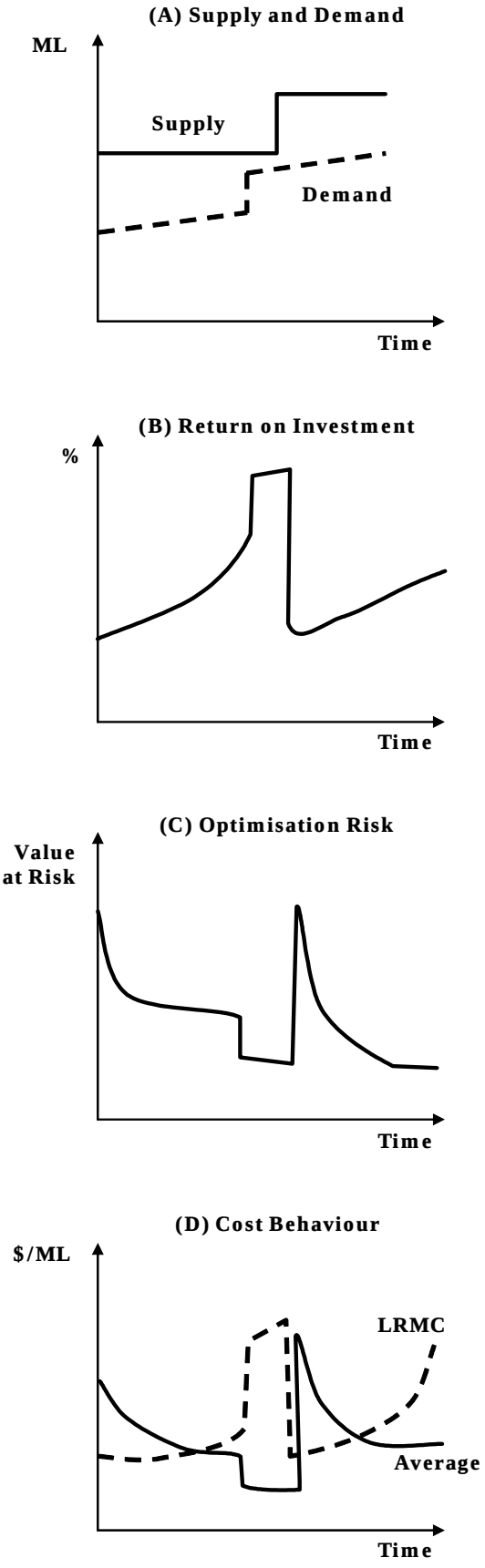

Figure 2 - Simplified Economics of GAWB's Business

The key messages from this analysis are:

- With constant real pricing, GAWB's return on investment will fluctuate through the investment cycle. The regulatory regime should not limit high returns in a particular year, rather it should ensure that the aggregate return over the cycle is fair.

- Because the LRMC and average cost functions are less stable and highly dependent on capacity utilisation, efficient pricing may be more complex than for other utilities.

We are not claiming that GAWB is unique nor that the many lessons from utility regulation around Australia should be ignored: merely that such lessons should be treated with caution and tested for specific relevance to GAWB.

2.2 Assessment of the Current Regime against Objectives

The current regulatory regime consists of:

- price cap regulation;

- QCA price investigations of uncertain frequency and scope determined by discretionary Ministerial direction;

- implicit frequent asset revaluations including re-optimisations;

Compared to the regulatory frameworks developed for other regulated industries, the current framework provides:

- no mechanism for 'roll-in' or regulatory approval of investment between investigations;

- no mechanism for sharing unanticipated efficiency gains;

- no mechanism for ensuring regulatory consistency over regulatory periods (and, in particular, no mechanism to offset high returns from mature assets against low initial returns); and

- no requirement for disclosure of information that may be useful for customers and third-party investors.

The following table assesses the current regime for alignment with GAWB's business objectives.

GAWB Objective	Assessment of Current Regime
Financial Viability	GAWB is subject to volume risk under the price control regime.
Returns related to business risk	GAWB submits that the current combination of regulatory framework and commercial environment exposes GAWB to more risk than is faced by many other utilities. Moreover we do not believe that GAWB is adequately compensated for this additional risk in our total regulated return.
Incentives for innovation	Uncertain treatment of any efficiency gains significantly reduces incentives to innovate.
Incentives to achieve optimal outcomes for customers and society	We argue that optimal outcomes for customers occur when customers are delivered a highly reliable supply at the lowest long run sustainable price. Price caps frequent revaluations and investment roll-in uncertainty are unlikely to result in the lowest possible prices.
Free flow of information	GAWB attempts to facilitate efficient information flow through contract provisions and an open relationship with customers. However, there is no requirement for future price and capacity forecast information to be made public.
Incentives for construction of sufficient spare capacity	Frequent revaluations and the associated threat of optimisation of the asset base creates uncertainty and leads to under-investment. Under investment is exacerbated by the lack of a mechanism to ensure that initial low returns are compensated by high returns in later periods.
Incentives to sustainably manage the allocated water resource	The price cap provides incentives to sell additional water without regard to the scarcity of the resource.
Incentives to adopt the best solution to future capacity needs.	The price cap theoretically biases the regulated business against pursuing efficient demand management solutions.
Incentives for efficient pricing	Price cap regimes are generally considered to provide incentives for efficient pricing.

Table 3 - Assessment of Current Regulatory Framework

2.3 Opportunities for Further Development

In its 2001 investigation, the QCA acknowledged that the regulatory framework was not stable:[1]

> as regulatory principles and methods are still evolving, it is recommended that no specific constraints be placed on the basis for future investigations

[1] QCA, Gladstone Area Water Board: Investigation of Pricing Practices Final Report, August 2002, p117

The direction for this investigation specifically requires the QCA to examine the regulatory framework. Under the direction, the QCA is required to undertake:[2]

> an investigation of an appropriate framework for monitoring pricing practices (including prices and contractual arrangements) relating to the declared activities.

GAWB submits that the current combination of regulatory framework and commercial environment exposes GAWB to more risk than is faced by many other utilities. Moreover we do not believe that GAWB is adequately compensated for this risk in its total regulated return.

We acknowledge that there is little regulatory precedent for the QCA to provide high rates of return to compensate GAWB for the relative uncertainty of its cashflows. Instead other Australian regulators have attempted to create regulatory frameworks that minimise the risks faced by regulated businesses in the interest of delivering the lowest long run sustainable prices to customers. We support this approach.

For example, in determining a regime for the Central West Pipeline (CWP) in NSW, the Australian Competition and Consumer Commission (ACCC) explicitly stated that it had approved a regulatory framework with lower risk to the regulated business in order to facilitate lower tariffs:[3]

> The key consideration for the Commission in assessing the CWP access arrangement has been to balance appropriate incentives and rewards for [the pipeline owner] with the setting of sustainable reference tariffs which would be paid for by users and prospective users of the CWP. While the Commission recognises the risks associated with a new regional pipeline without substantial contracts it is concerned that the approval of an excessive rate of return would result in unnecessarily high tariffs…
>
> The Commission's approach has been to recognise the risks [the pipeline owner] faces with the CWP and, where possible, balance those risks through the regulatory framework…

Because the pipeline is regulated under the National Gas Code the framework inherently provided features not present in GAWB's current framework:

- no optimisation of the regulated asset base;
- regulatory reviews of defined scope.

Mechanisms used by the ACCC to further de-risk the regulatory framework included allowing the pipeline owner to:

- capitalise early 'losses' so that they can be recovered once demand grows (i.e. included a mechanism to guarantee that high mature asset returns would not be restricted until the present value of early losses are recovered); and

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[2] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p3

[3] ACCC, Access Arrangement by AGL Pipelines (NSW) Pty Ltd for the Central West Pipeline, June 2000, p vii – viii.

- extended the initial access arrangement period from 5 years to 10 years "which would allow [the pipeline owner] the opportunity to earn higher returns than suggested by the ex-ante regulated rate of return"[4].

By comparison GAWB's current regulatory regime includes:

- regular periodic threat of ex-post optimisation of assets deemed to be in excess of the optimal asset that would have been built had GAWB had perfect knowledge of future demand and technological developments;

- no inherent regulatory mechanism to offset high returns from mature assets against low initial returns; and

- an uncertain regulatory period and uncertain scope of regulatory review.

GAWB would like to use the opportunity of the current price investigation to complete the regulatory framework and to obtain more regulatory certainty for both GAWB and its customers.

[4] ACCC, Access Arrangement by AGL Pipelines (NSW) Pty Ltd for the Central West Pipeline, June 2000, p viii

3 Proposed Regulatory Framework

This section sets out GAWB's view of an appropriate regulatory framework for its future monopoly business activities. The framework has been designed to reduce the regulatory risks faced by GAWB so as to better align the business risk with the allowed return. We argue that this will facilitate the lowest long run sustainable prices for our customers. The specific enhancements that GAWB proposes to the regulatory framework are:

- more certainty over the nature of the QCA's role, the frequency of price reviews and the scope of such reviews (including demarcation between GAWB's regulated and unregulated business activities);
- introduction of an Investment Review Panel (IRP) to scrutinise major new investment;
- a change to a fixed revenue cap form of regulation (with price control side constraints);
- comprehensive annual information disclosure by GAWB;
- reduction of the pricing horizon to 5 years; and
- alignment of the regulatory framework and GAWB's standard supply contracts.

In this section we also discuss the implementation of incentive mechanisms, review triggers and cost pass-through events.

The proposed regime is an internally consistent suite of initiatives. The de-risking of the regime is facilitated by the interaction of the elements. We strongly recommend that the QCA adopt the entire suite rather than merely selecting features.

In addition, some aspects of the regulatory regime design are dependent on consistent pricing and contractual arrangements.

3.1 Role of the QCA

In its final report for the 2001 investigation, the QCA discussed the appropriate regulatory period. However because the QCA recommended significant changes to GAWB's pricing and because of uncertainty over the effect of drought induced water restrictions, the QCA settled on a short initial regulatory period and, as we noted above, recommended that no constraints be placed on future investigations.

For this investigation the QCA has requested submissions regarding its role in monitoring individual contracts between GAWB and its customers:[5]

> The Authority invites comment on:
>
> 27. the framework for monitoring GAWB's prices and pricing practices and in particular whether it:
>
> - be limited to monitoring prices after contractual arrangements have been entered into; or
> - monitor contractual arrangements prior to contracts being entered into;
>
> 28. the appropriate means for monitoring contractual arrangements, for example by audit, periodic reporting or exception reporting;
>
> 29. the appropriate means for reporting the results of monitoring activities undertaken; and
>
> 30. the appropriate role for the Authority in regard to disputes relating to individual contractual arrangements.

More certainty over the frequency and nature of future price reviews would be of value to both GAWB and its customers. GAWB proposes that the QCA's role should be to:

- undertake regular price reviews of pre-defined scope;
- approve annual reference tariffs (i.e. confirm that reference tariffs conform to pricing principles and comply with the proposed fixed revenue cap);
- monitor annual information disclosure for completeness and accuracy;
- act as a dispute resolution body for third party access; and
- for regulated non-reference products and services, act as a dispute resolution body for contractual disputes arising between GAWB and its customers over alleged manifest error in the interpretation or application of pricing principles established by ministerial direction.

Scope of Reviews and Other Regulatory Interventions

GAWB proposes that the QCA conduct regular price reviews to determine a fixed revenue cap for reference products (standard reliability, quality, price). Standard contracts will be entered into at the reference tariff price.

Parties should be free to negotiate different prices for different products. GAWB proposes that the QCA should not monitor prices included in contracts.

[5] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p18

While most of GAWB's business activity has monopoly supply characteristics, technological change (in particular related to sea water technologies) will increasingly impose competitive pressure. GAWB foresees a time (within the life-cycle of current assets) where the business will face true competition across all of its products and services. We therefore propose that the scope of future reviews explicitly includes a test for monopoly characteristics so that the regulatory framework can be adjusted as required to cope with the changing commercial environment.

GAWB proposes that the following products should be regulated under a revenue cap:

- standard raw water availability;
- standard raw water delivery capacity; and
- standard potable water delivery capacity (including the cost of water treatment).

The QCA should develop a revenue cap for the reference products and work with GAWB to develop an appropriate set of pricing principles.

GAWB would then annually develop reference tariffs. The QCA's ongoing price monitoring role should be limited to annual approval of reference tariffs as:

- consistent with reference to the agreed pricing principles; and
- complying with the revenue cap and any pricing 'side constraints'.

This role would be consistent with jurisdictional regulator roles in the electricity and gas industries.

GAWB proposes that the following products and services should not be regulated under the revenue cap:

Non-reference

Products delivering non-standard reliability and/or quality through the monopoly infrastructure ('non-reference products') should be regulated on a 'fair and reasonable' basis. That is, prices for non-reference products should be set with reference to pricing principles agreed with the QCA

Competitive

Products or services which are essentially contestable include;

- construction, ownership and/or maintenance of customer connections;
- customer on-site storage owned or managed by GAWB; and
- non-standard pricing arrangements (refer Section 4.6 for discussion on contracts for difference).

These activities are competitive and do not form part of GAWB's monopoly business. Projects associated with these commercial opportunities carry risks that are entirely different from the regulated business risk. Such products should be priced according to the specific project risk and not subject to regulated business return constraints.

GAWB would welcome the opportunity to work with the QCA to further define the criteria for determining which GAWB activities should be regulated and to develop any ring-fencing protocols appropriate to ensure that commercial activities are not subsidised by the regulated business.

Regulatory Period

The 'regulatory period' is the time between formal reviews of the pricing arrangements. Almost all regulated utilities in Australia operate under regulatory periods of between 2 and 5 years, with 5 year periods being most common.

At the short end of this range, the NSW retail water businesses have recently operated with price reviews every 2 years. From July 2005 Victorian water businesses will be regulated by the Essential Services Commission (ESC) with an initial regulatory period of 3 years. In NSW, the current Sydney Catchment Authority regulatory period runs from October 2000 to June 2005 (4 years and 9 months). Most electricity and gas distribution businesses are regulated in 5 year periods.

At the long end of the range the Central West Pipeline (which shares GAWB's demand uncertainty characteristics) operates under a 5 year access arrangement that may be extended to 10 years at the discretion of the pipeline owner.

The benefits of a longer review period include:

- a more stable regulatory environment with greater certainty for customers' prices;
- a lower administrative burden of regulatory compliance; and
- greater incentives for utility innovation (because cost reductions are retained for longer periods).

Shorter regulatory periods provide the opportunity to:

- correct forecast performance errors; and
- share any efficiency gains with customers earlier (however shorter periods provide less incentive for innovation and so there may be less gain to share with customers).

The appropriate duration of a regulatory period should optimise the outcome for customers by ensuring that the utility has incentives to make efficiency improvements and that those efficiencies are passed on to customers, as lower prices, within a reasonable period of time. The regulatory period should also balance the desire to provide utilities with incentives to improve efficiency on the one hand, and reduce the degree to which uncontrollable events affect the returns to the utility on the other hand.

A simplified summary of some of these trade-offs is included in Table 4 below.

	Longer Regulatory Period	**Shorter Regulatory Period**
Administrative Burden	Lower	Higher
Investment Decision Distortion	Less	More
Regulatory Control and Error Correction	Lower	Higher
Share Efficiency Gains with Customers	Later	Sooner
Price Certainty for Customers	Higher	Lower

Table 4 – Summary of Regulatory Period Trade-offs

GAWB proposes a 5 year regulatory period. A longer period is perhaps justified because the long term nature of GAWB's assets means that there will be few opportunities for innovation with payback periods of less than 5 years. However, a 5 year period provides a reasonable opportunity to evaluate the success of the proposed changes to the regulatory framework and pricing arrangements. Moreover GAWB is already committed to 5 yearly contract reviews: aligning QCA regulatory reviews would facilitate the most rapid implementation of future QCA recommendations.

Contract Dispute Resolution

Under the current regulatory arrangements GAWB and its customers have very little recourse to a regulator between price investigations. As we understand it the QCA does not have the power to intervene in contract disputes or even issue clarifications of its previous recommendations.

For products and services covered by reference tariffs, we propose that the QCA has an opportunity to ensure appropriate application of the Ministerially directed pricing principles through the annual reference tariff approval process.

However, there should also be a role for the QCA in ensuring that tariffs for regulated non-reference products fairly reflect the pricing principles. We submit that customers purchasing these products should have recourse to QCA clarification where the customer believes that GAWB has made a manifest error in its interpretation or application.. In addition, GAWB should be able to request clarification of ambiguous aspects of a pricing principle.

The scope of any QCA power to intervene in individual contract disputes must be carefully defined to:

- avoid vexatious appeals to the QCA;
- prevent the QCA from becoming the de facto price setting body;
- facilitate general resolution of disputes where interpretation errors affect several customers.

GAWB submits that the QCA should have the power to:

- consider appeals from customers where the QCA considers that there is a prima facia case that GAWB has manifestly erred in its interpretation of Ministerially directed pricing principles; and
- issue a clarification decision or recommendation binding on all parties subject to the dispute.

Summary of QCA Role

The following table summarises GAWB's proposal for the QCA's role in the price-setting process with respect to each of the different products and services offered by GAWB.

Product or Service	Description	Price-Setting Process
Regulated Reference	Standard reliability and quality product sold at the Reference Tariff.	Revenue cap set by the QCA every five years. Reference tariffs set by GAWB annually and approved by the QCA as being consistent with the pricing principles and revenue cap.
Regulated Non-Reference	Non-standard products and services delivered through the monopoly infrastructure (e.g. higher reliability supply).	Prices set by negotiation between GAWB and customers. The QCA can act as a dispute resolution body for contract disputes in regard to manifest error by GAWB in its interpretation of pricing principles established by Ministerial direction
Competitive	Prices for competitive products and services (e.g. provision of customer on-site storage).	Prices set by negotiation between GAWB and customers. QCA has no role.

Table 5 - Summary of Proposed Price-Setting Process

3.2 Investment Review Panel

A Challenging Investment Environment

GAWB's planned capital investment programme is driven by estimates of future demand. GAWB's future demand comprises demand from incremental growth (from population increases and multiplier effects) as well as demand from large projects. As discussed in Section 5, GAWB's exposure to large industrial projects and consequently to the markets that influence the project proponents makes the process of estimating long run demand challenging.

GAWB may invest in new supply-side capacity such as raising an existing dam, building a new dam or perhaps investing in desalination of sea water. Alternately GAWB may invest customer processes such as air and sea water cooling thereby making existing water resources last longer by reducing demand (called demand-side management) and/or.

If immediate future growth comprises incremental growth then new demand-side and or supply-side investments that are scalable and or provide short term benefits may be favoured over long lived supply-side investments.

Immediate demand arising from a large project will generally favour long life supply-side investments. These investments are typically large in comparison to GAWB's asset base, occur infrequently and have significant price and service implications for customers. Investment in large increments of long life supply capacity carries considerable risk. There is significant risk that changes in technology will strand (or partially strand) any new long-lived water infrastructure built today.

Demand-side investments may prove problematic with GAWB's customer base where costs and benefits of the investment have to be allocated between specific customers in whose process GAWB invests and the affected customer base (which may include competitors of the customers in whose process GAWB invests).

GAWB operates in a challenging investment environment. Optimal investment, given the uncertain demand forecasts, is unlikely. GAWB's ability to recover its investment is subject to initial 'roll-in' and subsequent 'optimisation' by the QCA. Risk of non roll-in and subsequent optimisation is of serious concern to GAWB. As discussed in Section 6.1 below, many Australian regulators agree that the threat of optimisation under these circumstances is likely to lead to under-investment.

Improving Investment Decisions

GAWB believes that major supply-side or demand-side investments should be made in an open and transparent manner and on the basis of the best information available. Moreover, many stakeholders (including GAWB, its Minister, our customers, the QCA and relevant state government departments) must make near simultaneous assessment of the merits of major water infrastructure development options. Under the Water Act 2000 GAWB's Minister approves major project investment and related borrowings. It makes sense to provide a single forum where all stakeholders can scrutinise proposed projects and to develop as integrated an investment decision-making process as possible.

For this reason we propose an Investment Review Panel (IRP) to evaluate major new investment. We envisage that the IRP would be convened on an ad hoc basis by government. The IRP would provide non-binding recommendations to the QCA and GAWB.

Possible membership of the IRP could include:

- customer representatives;
- appropriate government representatives;
- a water industry expert;
- an environment representative; and
- a QCA representative.

We believe that the IRP would have the following significant benefits for GAWB, its customers and project proponents:

- improved efficiency of stakeholders' assessment of projects;
- improved probability of investment being rolled into the asset base;
- reduced probability of ex-post optimisation;
- improved customer consultation and input into the decision process;
- a more transparent process; and
- a forum for the independent evaluation of demand management opportunities.

This last point – providing an independent forum to evaluate demand management activities – is particularly pertinent to the current investigation. The QCA has sought comment on mechanisms to facilitate demand management:[6]

> The Authority invites comment on:
>
> 7. opportunities for further supply management initiatives;
>
> 8. opportunities for the adoption of further demand management measures by existing and prospective customers; and
>
> 9. ensuring cost-effective supply and demand management initiatives are adopted and appropriately reflected in prices.

GAWB submits that the IRP provides an excellent mechanism to independently, transparently and publicly evaluate demand management opportunities against supply side alternatives.

We understand that the QCA may face constraints in approving GAWB investment and that the QCA's representative on the IRP could not bind the QCA. For that reason the IRP would be only a recommending body. However, we believe that a formal, independent, transparent test of GAWB's proposed investment would be valuable and certainly better than the current "build it and hope for roll-in" approach.

GAWB would welcome the opportunity to work with key government stakeholders and QCA to develop this approach and an appropriate constitution for an IRP.

3.3 Form of Regulation

GAWB proposes that the form of regulation adopted should be a fixed revenue cap. We argue that this form of regulation:

- is consistent with delivering the lowest long run sustainable prices;
- assists in providing incentives for demand management;
- reduces the revenue impact on GAWB of demand volatility and forecast errors;

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[6] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p7

- facilitates consistency of treatment of the investment cycle over several regulatory periods; and

- is consistent with the QCA's decision to retain fixed revenue caps for Queensland electricity distributors.

We propose that the regime also include 'side constraints' that limit the price increase on any tariff component to CPI+5%.

General Considerations

In October 2002 the QCA released a paper discussing options for the form of regulation for electricity networks in Queensland.[7] We have analysed the general advantages and disadvantages of revenue control and price control for GAWB under the same headings used by the QCA in that document.

The allocation of volume risk

Under either revenue control or price control forms of regulation, initial prices will be based on forecasts of the volume of water that GAWB is expected to sell during the regulatory period.

There is a financial risk associated with these forecasts which either GAWB and/or its customers must bear, depending on what regulatory approach is adopted. Most of GAWB's costs are fixed irrespective of the volume of water it delivers. However, a significant proportion of revenue is derived from volume-based charges.

Because the difference between total revenue and total cost will vary as volumes change, there is financial risk associated with changes in volumes. Depending on the form of regulation, if GAWB's actual volume differs from that forecast, either GAWB and/or its customers will receive a windfall gain or loss.

Under GAWB's current price cap, GAWB bears the volume risk. If the volume of water actually delivered is greater than that forecast, GAWB will receive higher than expected profit. Conversely, if the actual volume delivered is below that forecast, GAWB will achieve a lower profit (or indeed make a loss). In theory, customers pay GAWB for bearing this risk by paying higher prices.

Under a fixed revenue cap, GAWB's allowed revenue remains the same, regardless of the volume actually delivered. Any under or over recovery of revenue will be compensated for by higher or lower prices in subsequent years. Although customers bear more of the volume risk, reducing the risk faced by the service provider theoretically reduces the prices that customers pay. In effect, customers would be trading off some price certainty for lower prices.

The economically efficient allocation of volume risk is a contentious issue. However, in GAWB's case, where the regulated business has little or no control over customers' consumption decisions, isolating the regulated business from this risk is consistent with

[7] QCA, Discussion Paper Review of the Form of Regulation of Electricity Distribution, October 2002.

delivering the lowest long-run sustainable prices. This principle was expressed by the Office of the Regulator General (ORG) of Victoria as follows:[8]

> The fundamental risks associated with providing [services] (e.g., demand variability and asset stranding) will ultimately be borne by customers, in the price of the service. The role of regulation is not artificially to introduce additional risks, which inflate prices for consumers more than is necessary.
>
> The form of [regulation] can have a direct impact on the income volatility of the regulated … businesses, and has implications for the financial risk borne by them. An increase in financial risk generally increases the cost of capital for the regulated business. Where this volatility arises from factors largely outside the control of the regulated business, such an allocation of financial risk may not be optimal, and other businesses (e.g., the retail business) or customers, may be better placed to bear the income risk.

Of course, adopting a revenue cap will not completely shelter GAWB from volume risk. Where GAWB invests in infrastructure on the basis of forecasts that fail to be achieved, the investment may be optimised from the asset base.

Incentive to set efficient prices

Efficient prices will reflect the marginal costs incurred in providing services. Efficient prices are desirable because they promote an efficient allocation of resources.

Under a fixed revenue cap, the business's income is fixed, regardless of how much commodity it distributes. As a result, the business does not have a strong incentive to maximise throughput by pricing services efficiently. Indeed under certain conditions, such as where demand is inelastic, a fixed revenue cap may provide incentives for the regulated business to produce a lower level of output at a higher price than is socially optimal.

It is generally accepted that price control provides stronger incentives to set efficient prices than does revenue control. However, commentators disagree on whether certain forms of price control deliver efficient pricing outcomes. For example, average revenue yield is often criticised because it decouples marginal revenue and marginal cost which, theoretically at least, may provide incentives for inefficient pricing.

Perhaps more importantly, commentators disagree over the extent to which these theoretical incentives matter in the practice of price setting. For example, research in the United Kingdom found that businesses subject to CPI-X regulation tend to focus on maximising revenue at the time of the regulator's decision rather than setting prices in response to short-term signals.[9]

Moreover, the mechanisms by which a regulated business could exploit profitable opportunities for inefficient pricing require the regulated business to identify groups of customers with different elasticities and to price above the marginal cost to one or more groups. These factors are not present in GAWB's bulk water supply business.

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[8] Office of the Regulator General of Victoria, 2001 Electricity Distribution Price Review – Consultation Paper No 3: The Form of Price Control, December 1998, p8

[9] Giulietti, M. and Waddams-Price, C.; Incentive Regulation and Efficient Pricing: Empirical Evidence, Centre for Management under Regulation Research Paper Series, March 2000 quoted in QCA, Discussion Paper Review of the Form of Regulation of Electricity Distribution, October 2002 at p 12.

GAWB does not seek the freedom to differentially price customer groups based on elasticity (or anything other than counter-party credit risk and contract duration) even if such segmentation were possible. GAWB also supports setting variable rates based on an externally-verified estimate of the LRMC of supply. We conclude that adopting a revenue control would not result in a loss of pricing efficiency in this case.

Flexibility of pricing

Pricing flexibility is generally considered to be desirable because the regulated business can restructure existing charges and introduce new ones to meet customers' needs and improve efficiency. That is, pricing flexibility allows regulated businesses to provide services that customers find attractive and to align prices with marginal costs.

Under most implementations, fixed revenue caps facilitate flexible pricing. Pricing is generally only restricted by any 'side constraints' that limit changes in the price faced by individual customers to some maximum rate (typically in the order of CPI+2% to CPI+10%).

It is generally more difficult to change price structure or introduce new prices under price control regimes.

Sensitivity to inaccurate forecasts

Price control and revenue control forms of regulation differ in the extent to which they link the revenue a business is allowed to earn to the volume of commodity delivered. As a result, the different forms of regulation will vary in their sensitivity to the accuracy of volume forecasts that are used in determining the revenue or price controls at the beginning of a regulatory period.

When evaluating options for the form of regulation for Queensland electricity distributors, the QCA stated:[10]

> …Under a fixed revenue cap, the accuracy of volume forecasts is not critical because regulated revenue is not linked to the volume of electricity distributed – distributors are guaranteed the opportunity to earn a set level of income, regardless of the level of actual demand. If demand diverges from the level that is forecast, such that revenues fall short of or exceed the cap, an unders and overs account allows a distributor to increase or decrease its earnings in subsequent years to compensate…
>
> In contrast to a fixed revenue cap, under [price control], allowed revenue depends on the volume of electricity distributed. Since the cost structures of distributors exhibit reducing average costs as output increases, profits can increase if the distributor's volumes increase beyond those forecast. Conversely, failure by the distributor to secure volumes assumed in the forecasts will mean that profits fall. As a result, accurate forecasts are critical to the profitability of distributors under [price control].

The implications of forecast inaccuracy are central to GAWB's preference to move away from price control. The Gladstone region's water demand is driven largely by a small number of large customers. Water demand forecasts for GAWB over any significant period are particularly challenging: customers, project proponents, Government development agencies, GAWB officers and consultants have all proved to be too optimistic in their view of future demand.

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[10] QCA, Discussion Paper Review of the Form of Regulation of Electricity Distribution, October 2002, p 13.

Section 5.1 highlights challenges with forecasting water demand. Under GAWB's price control regime, systematically over estimating demand has resulted in setting prices too low over an extended period.

Incentive to reduce costs

Under a fixed revenue cap, a regulated business's income is fixed, regardless of how much water, gas or electricity it sells. As a result, the business must absorb any increase in costs – it is unable to pass such cost increases on to customers. Moreover reducing costs below the forecast level will result in a higher profit for the regulated business. That is, the revenue control form of regulation provides a significant incentive for the regulated businesses to minimise costs.

It is often argued that under price control the incentive to reduce costs is not as strong as under a fixed revenue cap. Because revenue is allowed to vary with the volume of commodity delivered, the regulated business is able to recover from customers any increase in costs associated with increased volume of commodity delivered. However, any reduction in costs will increase the business's profit.

For both forms of regulation, a $1 saving in cost yields a $1 increase in profit. In practice we believe that both forms of regulation provide equally strong incentives to reduce costs.

Demand side management

Demand side management refers to measures designed to reduce demand for water and thereby reduce the need for further 'supply side' investment - storage or alternative sources of supply, treatment and delivery infrastructure.

Regulators are almost universally charged with providing incentives for the most efficient outcomes. In some cases demand management is the most efficient option for meeting a community's water requirements. Regulators therefore consider it very important that the form of regulation does not create a bias against demand side management by introducing incentives to expand volumes.

GAWB is not only an infrastructure and service provider but also in many senses a manager of water resource. In the case of essential and limited resources wise long term resource management outcomes are as important as economically efficient outcomes. The investment environment including the form of regulation, pricing, and the regulatory processes must aim to encourage GAWB to make long term decisions which provide the best possible balance of managing the resource and efficient investment and utilisation.

Under a fixed revenue cap, the regulated business's allowed revenue is independent of the volume of commodity delivered. This form of regulation is not biased against demand management.

On the other hand, price control provides a disincentive for regulated businesses to adopt demand management solutions when capacity becomes constrained. Under price control the regulated business's income is linked to the amount of commodity it distributes. As a result, businesses may choose to augment their storage or delivery network and increase throughput even though demand management strategies may be more efficient.

In selecting a price control form of regulation for NSW electricity distributors, the Independent Pricing and Regulatory Tribunal (IPART) specifically noted that:[11]

> [Price control would] create a clear financial disincentive for [regulated businesses] to use appropriate demand management practices, as under these forms of regulation their income is linked to the amount of [commodity] they distribute. As a result, [regulated businesses] may choose to augment their network even though demand management strategies may be more efficient.
>
> Revenue caps are not biased against demand management, as under these forms of regulation [regulated businesses'] income is not linked to the amount of [commodity] they sell.

To correct for this known weakness in price control forms of regulation, regulators in other jurisdictions have modified the regulatory regime to specifically encourage demand management. For example, in NSW IPART has recently released a proposal to modify the price control regime to allow electricity distributors to recoup, amongst other things, foregone revenue as a result of demand management activities.[12]

Also in NSW, IPART is currently undertaking an investigation into mechanisms to reduce demand for water in the Sydney area. One option being considered is a 'D-Factor'. This regulatory mechanism adds considerable complexity to the regime and, in effect, merely changes the price control into a revenue control (plus incentive for reduced demand).[13]

Transparency

GAWB supports the QCA's conclusion that revenue control is less complex and more transparent:[14]

> The complexity of all of the forms of regulation outlined can vary depending on the approach taken on specific issues, such as whether or not allowed revenue is calculated on a cost-linked basis or a service quality incentive regime is incorporated into the framework. However, other things being equal, it is generally the case that fixed revenue caps are less complex than the other forms of regulation outlined. This is because [price control forms of regulation] use algebraic formula, which can be complex and difficult to understand.

Specific Considerations for GAWB and Water Businesses

The previous section discussed general regulatory implications of the revenue control form of regulation. The available literature is largely based on regulation of 'incremental' businesses: in particular electricity and gas distribution businesses.

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[11] IPART, Form of Economic Regulation for NSW Electricity Network Charges Discussion Paper, September 2001, p17

[12] IPART, Treatment of Demand Management in the Regulatory Framework for Electricity Distribution Pricing 2004/05 to 2008/09: Draft Decision, February 2004

[13] Sydney Water Corporation, Submission to Investigation into Price Structures to Reduce the Demand for Water in the Sydney Basin, February 2004, p24 ff

[14] QCA, Discussion Paper Review of the Form of Regulation of Electricity Distribution, October 2002, p 14.

This section discusses specific implications for water-industry and GAWB-specific circumstances: drought handling and lumpy investments.

Handling Drought

One way of thinking of drought is as another component of volume uncertainty discussed above. We have already argued that a revenue control better handles demand uncertainty in general. The specific treatment of drought is discussed below.

Under price control, the regulator must make, or at least approve, the following estimates:

- the expected annualised direct cost of drought;
- the expected annualised revenue impact of water supply restrictions and rationing; and
- the premium that should be built into prices to compensate GAWB for bearing the risk that QCA's estimate is systematically biased.

Clearly this is a daunting task.

Under a revenue cap, the regulatory task is much simpler. The revenue effect of drought events need not be estimated. When a drought occurs, GAWB's revenues fall and an 'under-recovery' is generated in GAWB's regulatory 'unders and overs account'. This under-recovery would then be recouped from customers in the next year (or over many subsequent years for a significant event).

Instead of QCA having to estimate the revenue impact of future drought and provide additional revenue to compensate GAWB for bearing the risk that QCA's estimate is systematically biased, the regime automatically adjusts future prices after the cost of the drought is known. Only the direct cost of drought, the costs of planning and any preparatory drought avoidance/mitigation measures need be estimated in advance (alternatively these costs could be handled as a pass-through). Customers need only pay for the actual revenue impact – with no additional risk premium.

Again customers would be trading off some price certainty for lower prices. A fixed revenue cap is consistent with the delivery of the lowest long-run sustainable prices.

Multi-Period Regulatory Risk

The nature of GAWB's business is that efficient capacity increments are usually large and have long lives. It is inevitable that these increments will initially have low utilisation and therefore generate low returns on investment. As demand grows, higher utilisation and high returns on investment should result in GAWB earning an appropriate return on efficient investments over the investment lives. However if the regulatory mechanism prevents GAWB from earning high returns in later years, then it will fail to earn a fair return overall (and have no incentive to continue to invest).

Moreover, because it may take many years (several regulatory periods) to achieve full utilisation, it will be difficult to maintain regulatory consistency across time (particularly when GAWB is earning 'super' returns and coming under pressure from government and customers to distribute profits and or reduce prices).It would be even more difficult to convince investors ex-ante that a fair return will be achieved over time.

In its 2001 investigation the QCA recognised this issue and, in principle, supported the notion that the regulatory approach should consider previous returns:[15]

> As a general principle, any future review should take into account the basis used for the current pricing recommendations, so that GAWB is able to achieve a commercial return on its assets over the life of its assets. Regulatory consistency in approach for subsequent reviews is a desirable objective.

Price control regimes do not inherently consider past returns. In most implementations, prices are set on the basis of forward-looking estimates of cost and revenue (as is appropriate for most incremental businesses).

On the other hand, revenue control regimes can inherently take account of initial low returns through an accumulated 'unders' balance in the 'unders and overs account'. The 'unders and overs account' balance typically rolls forward from one regulatory period to the next. This roll-forward (like the Regulated Asset Base roll-forward) provides regulatory consistency without constraining the regulator to any particular approach for subsequent periods.

The QCA has specifically requested comments on mechanisms to provide inter-period consistency:[16]

> The Authority invites comment on:
>
> 11. ensuring a consistent approach to the application of the pricing framework between successive regulatory periods.

GAWB submits that adopting a fixed revenue cap with an 'unders and overs' account that is rolled forward across periods (earning or paying interest at the regulated WACC rate) would provide a simple and effective mechanism to:

- ensure a consistent approach to the application of the pricing framework between successive regulatory periods; and
- alleviate GAWB's concerns related to achieving a fair return over several regulatory periods.

If a fixed revenue cap is not approved by the QCA then GAWB proposes that the QCA adopt a mechanism similar to the 'economic depreciation' approved by the ACCC for CWP[17].

Price Change Protection for Customers

Under revenue control it is theoretically possible for customers to experience significant price increases (especially if the initial volume forecasts are optimistic). To

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[15] QCA, Gladstone Area Water Board: Investigation of Pricing Practices Final Report, August 2002, p117

[16] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p9

[17] refer ACCC, Access Arrangement by AGL Pipelines (NSW) Pty Ltd for the Central West Pipeline, June 2000, p 70

protect customers from the possibility of unreasonable price rises all revenue control regimes implemented in Australia contain 'side constraints' on tariffs or bills.

We propose that, when the 'unders' balance in the 'unders and overs' account is less than 20% of the Aggregate Annual Revenue Requirement (AARR) for that year, the regime implemented for GAWB includes 'side constraints' that limit the price increase on any tariff component to CPI+5%. When the 'unders' balance in the 'unders and overs' account is greater than 20% of the AARR next year, GAWB should agree with the QCA an appropriate price path for recovering allowed revenue.

Revenue Cap not Universally Appropriate

For the avoidance of doubt, GAWB proposes fixed revenue cap regulation based on the specific economic characteristics and environmental requirements of GAWB's business. We do not advocate this form of regulation as universally appropriate for utilities or even bulk water utilities.

On the contrary GAWB agrees with, for example, IPART's recent decision to adopt Weighted Average Price Cap (WAPC) regulation with additional demand management incentives and information disclosure requirements for NSW electricity distribution businesses. The WAPC form of price control has significant merit for those specific businesses because:

- costs are reasonably proportional to revenue (assuming price structure is relatively efficient) over the range of forecast volumes; and
- there is almost no spare capacity in NSW's urban distribution systems.

In their last regulatory period NSW electricity distributors were surprised by an unprecedented increase in residential air-conditioner penetration. Because there was limited spare urban distribution capacity, significant capital and operating expenditure was required to cope with the un-forecast air-conditioning load on NSW's hottest days. Under their revenue cap, the businesses were unable to recover the additional costs and profits suffered.

Under WAPC, if pricing is relatively cost reflective, then the additional revenue associated with extra sales volume matches the additional cost and the businesses' profitability is relatively unchanged.

The change from a revenue cap to WAPC was strongly supported by the NSW electricity distributors. For them profit risk associated with volume uncertainty is lower under WAPC than under a fixed revenue cap.

By comparison, GAWB's network includes prudent levels of spare capacity. Moreover, costs are relatively insensitive to volume. Provided that additional consumption does not trigger new investment, costs are effectively unchanged. If significant new investment is triggered, we propose that the revenue cap will be 're-opened'. Therefore for GAWB profit risk is mitigated by revenue control not price control.

Conclusion

Table 6 below summarises an evaluation of the price and revenue comtrol forms of regulation against seven traditional regulatory criteria and two GAWB-specific criteria.

	Price Control	**Revenue Control**
Allocation of Volume Risk	More risk allocated to the regulated business (theoretically results in higher prices)	More risk allocated to customers (theoretically results in lower prices)
Incentives to Set Efficient Prices	Generally stronger	Generally weaker. However, mitigated in GAWB's case because GAWB will price at LRMC to all customers.
Flexibility of Pricing	Less flexible	More flexible
Sensitivity to Inaccurate Forecasts	Highly sensitive	Less sensitive
Incentive to Reduce Costs	Strong	Strong
Incentives for Demand Management	Biased against DM unless specific modifications are made to the regime.	Efficient DM supported.
Transparency	Less transparency	Greater transparency
Handling Drought	Customers pay for QCA estimated cost of future droughts plus a risk premium.	Customers pay for actual cost of droughts after they occur with no additional risk premium.
Multi-Period Regulatory Risk	Regime ignores historic returns.	Regime inherently considers historic returns.

Table 6 – Evaluation of Form of Regulation Options

We conclude that a fixed revenue cap is appropriate for GAWB's specific circumstances. Adopting a fixed revenue cap:

- is consistent with delivering the lowest long run sustainable prices;
- assists in providing incentives for demand management;
- reduces the revenue impact on GAWB of demand volatility and forecast errors;
- facilitates consistency of treatment of the investment cycle over several regulatory periods; and
- is consistent with the QCA's decision to retain fixed revenue caps for Queensland electricity distributors.

3.4 Information Disclosure

Information disclosure is an important component of many regulatory regimes. GAWB's commercial water policy attempts to create an environment where there is a free flow of information between GAWB and its customers to achieve mutually beneficial outcomes and avoid outcomes that are not aligned with agreed objectives.

The provision of timely, accurate and relevant information to our customers and the public in general will enable:

- third party capacity providers to value opportunities to build storage capacity in the region;
- customers to make investment decisions (in plant, demand management measures and alternative supplies); and
- customers/others to propose more cost effective supply solutions (including relinquishment – i.e. GAWB buy-back of capacity).

To meet our commitment to provide relevant information to our customers, GAWB will implement a comprehensive disclosure regime.

Two options are available to communicate relevant information to customers: privately through contract or publicly. GAWB proposes to publicly release information because potential investors in local infrastructure and industrial process and interested parties who are not customers do not have access to contract information. Moreover, public disclosure and scrutiny by the QCA (to whom we could provide confidential information if necessary) will put additional discipline on GAWB and provide greater comfort to customers and potential investors that information is as accurate as possible.

GAWB will publish an annual disclosure document including:

- total and current spare water availability by source and year;
- total and current spare delivery capacity in major pipelines and year;
- requests for available water and delivery capacity in any queue (volume but not requesting party);
- 10 year demand forecast;
- proposed capital projects to meet forecast demand;
- 10 year regulated water availability price (volume, access and excess volume) forecast;
- 10 year regulated delivery price (volume, access and excess flow) forecast at representative nodes; and
- Water Contracts 'bought back' by GAWB in that year (including source, year and price).

The purpose of disclosing spare capacity, demand forecasts, proposed supply augmentation (or demand-side solutions) and price is to allow customers and alternative solution providers to assess the economics of their projects. Ten year forecasts are considered appropriate because many supply side solutions and customer investments have both long lead-times and long lives.

Where capacity is bought back by GAWB, the capacity buffer is increased: it is equivalent to GAWB building new capacity. In this case price is disclosed because it effectively signals the marginal cost of capacity to interested parties (the price is likely to be public anyway as significant buy-backs would be managed through the open IRP process).

Information disclosure is a cornerstone of regulatory regimes adopted for electricity and gas utilities throughout Australia and New Zealand. Disclosures are generally reviewed for consistency and completeness by regulators. GAWB would support any QCA recommendation that required reasonable disclosure of relevant information as part of GAWB's regulatory regime.

3.5 Alignment with Standard Contracts

Under the propsed regime a customer may potentially enter into the following contract arrangements around GAWB's regulated product offerings:

Water Contract

A Water Contract would:

- allow the customer to take a particular volume of water from a particular GAWB source in a specific year (subject to any restrictions imposed under the Drought Management Plan);
- oblige the customer to pay the Water Access Charge for that volume in that year.

Delivery Contract

We propose that customers with Water Contracts enter into back to back Delivery Contracts. Delivery Contracts allow the customer to take delivery of the volume of water specified in the Water Contract

Contract for Differences (CFD)

A CFD provides a mechanism whereby a customer can obtain a fixed price (or any other non standard pricing arrangement) so as to manage uncertainty around the price of the regulated product (section 4.6).

GAWB would like to align its standard contracts (Water Contracts, Delivery Contracts) as much as possible with the regulatory regime. The objective of alignment is to:

- reinforce incentives designed into the regulatory regime; and
- ensure maximum transparency.

In particular, GAWB intends to work with current customers to:

- restructure current contracts into a standardised form - Water Contracts and Delivery Contracts (with non-standard supply conditions included in separate agreements to reflect existing pricing arrangements where appropriate);
- link pricing mechanisms in the standard contracts to outcomes of price reviews; and
- align contract reviews with a 5 year regulatory period.

3.6 Incentive Mechanisms

In the issues paper for this investigation, the QCA requests comments on the form of any incentive mechanism that might be adopted.[18]

> The Authority invites comment on:
>
> 22. whether expected efficient costs based on expert opinion should be incorporated in cash flows;
>
> 23. whether a CPI-X type of mechanism be adopted to promote further efficiency gains;
>
> 24. whether a mechanism for sharing unanticipated efficiency gains should be adopted and, if so, how to:
>
> - distinguish between efficiency gains (attributable to management initiatives) and windfall gains (as a result of favourable external conditions);
> - avoid the potential for gaming related to over inflation of initial cost estimates, substituting between operating and capital categories, or trading off of service quality;
> - validate efficiency gains – either by self assessment by GAWB, third party certification, ex-ante business case submissions by GAWB, detailed assessment by the Authority, or another approach; and
>
> 25. the appropriate specification of CPI for annual indexation of prices.

Before responding to the specific aspects of the incentive mechanism raised by the QCA, GAWB would like to reinforce that it is focused on balanced outcomes: ensuring that the long and short term water needs of the current and future customers in the Gladstone region are met in a way that is environmentally, socially and commercially sustainable. We are not simply a profit maximising utility and submit that any incentive mechanisms adopted must consider both commercial and resource management outcomes.

Additional X-Factor Adjustment

In general, GAWB supports the conclusion reached by the QCA in its 2001 investigation:[19]

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[18] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p16

[19] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p16

> The Authority's previous investigation of GAWB recommended that expected savings in operating costs be directly reflected in allowed operating expenditures rather than via an X-factor adjustment. It was considered that as GAWB's operating cost base was relatively small, costs savings not explicitly identified were likely to be insignificant in pricing terms.

That is, the operating expenditures built in to GAWB's allowed revenue should be based on expert opinion of the efficient level of expenditure. No additional X-factor adjustment for speculative unanticipated efficiency improvements is justified.

Moreover we note that the "CPI-X type of mechanism" does not of itself promote "further efficiency gains" as implied in the QCA's point 23 above. The incentive is created by decoupling the allowed operating costs from those actually incurred. A project that saves $1 adds $1 to the utility's profit (or reduces a loss by $1) irrespective of the level of allowed costs. That is, the incentives to make efficiency gains (and the number of efficient projects that have positive net present value to the utility) are dependent on other aspects of the regime (most notably the duration of the regulatory period and benefit sharing mechanism) and not on the magnitude of 'X'.

Benefit Sharing

GAWB supports, in principle, the concept of sharing efficiency gains across several regulatory periods. These mechanisms effectively make a greater number of efficient projects profitable from the regulated business' perspective and lead to lower prices for customers in the long run. However, we are cognisant that quantifying efficiency gains has proved time consuming and contentious in other industries and jurisdictions.

GAWB proposes that:

- no efficiency gains be claimed for the current period; and
- that GAWB works with the QCA to define a simple and transparent methodology for calculating efficiencies achieved during the upcoming regulatory period.

As a starting point GAWB proposes that the methodology should:

- not attempt to differentiate between efficiency gains and windfall gains (because this adds too much complexity);
- consider both operating expense and revenue implications of capital investment (by examining forecast price against the price that would be achieved using actual capital and operating expenses) to ensure that incentives are not biased toward operating or capital solutions; and
- consider service outcomes (either in the form of thresholds or a scale factor) to ensure that GAWB cannot be rewarded for cost savings that are achieved at the expense of reduced reliability.

Price Indexation

Where CPI-based price indexation is required, GAWB prefers that the Brisbane All Groups March Quarter CPI be used. Using March quarter data allows price changes to be communicated to customers prior to the change becoming effective on 1 July.

Note that the above paragraph should not be interpreted to represent a preference for a price path with annual CPI increases.

3.7 Review Triggers and Cost Pass-Through

The QCA has requested comments on the review trigger mechanisms and eligible costs pass-through items in the regulatory regime. [20]

> The Authority invites comment on:
>
> 26. whether additional review trigger mechanisms or eligible cost pass-through items are necessary.

GAWB submits that the current arrangements are adequate for most contingencies. However, GAWB considers that one new review trigger and one new cost pass-through item should be added to the current suite.

Where significant unanticipated investment is required a limited review of the revenue cap should be triggered. Conditions for triggering a review should include:

- investment of more than $5m;
- investment not contemplated at the previous regulatory review (or brought forward by two years); and
- investment recommended as appropriate by the IRP.

An additional pass-through provision is justified where reasonable costs are incurred as a consequence of a government-declared emergency, disaster or extraordinary circumstance. In particular, if the QCA adopts GAWB's proposal for an Emergency Circumstances Review Panel[21] (ECRP), then any operating costs incurred to comply with an ECRP recommendation should be passed through to customers (in the same way that ECRP-recommended investments would be roll-in to the Regulated Asset Base).

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[20] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p17

[21] Refer to GAWB's submission to the QCA Investigation of Pricing Principles for Infrastructure Investments made in response to Extraordinary Circumstances. The submission is available on the QCA website. The ECRP is effectively the extraordinary circumstance version of the IRP.

3.8 Assessment of Proposed Regime against Objectives

The following table summarises GAWB's assessment of the proposed regime against GAWB's objectives and the current regime.

GAWB Objective	Assessment of Current Regime	Assessment of Proposed Regime
Financial Viability	GAWB subject to volume risk under the price control regime.	Financial viability improved through revenue cap operation, lower investment risk, more certainty over regulatory period and scope of regulatory reviews.
Returns related to business risk	GAWB submits that the current combination of regulatory framework and commercial environment exposes GAWB to more risk than is faced many other utilities. Moreover we do not believe that we are adequately compensated for in our total regulated return.	GAWB de-risked through revenue cap form of regulation, investment review panel, and 5 year pricing horizon.
Incentives for innovation	Uncertain treatment of any efficiency gains significantly reduces incentives to innovate.	Revenue cap provides strong incentives to reduce costs. More certainty over treatment of any efficiency gains enhances incentives to innovate.
Incentives to achieve optimal outcomes for customers and society	We argue that optimal outcomes for customers occurs when customers are delivered a highly reliable supply at the minimum sustainable price. Price caps, revaluation, and investment roll-in uncertainty are unlikely to result in the lowest possible prices.	Proposed regime gives greater certainty around how capacity is reserved and relinquished and how penalties for exceeding agreed capacity are calculated and applied. Customers make their own investment decisions on the basis of better information about future prices. De-risking the regime should facilitate lowest possible sustainable prices.
Free flow of information	GAWB attempts to facilitate efficient information flow through contract provisions and an open relationship with customers. However, there is no requirement for future price and capacity forecast information to be made public.	Annual disclosure statements and investment review panel improves quantity and quality of information available to customers and proponents of alternative water sources.

GAWB Objective	Assessment of Current Regime	Assessment of Proposed Regime
Incentives for construction of sufficient spare capacity	Frequent revaluations and the associated threat of optimisation of the asset base creates uncertainty and lead to under-investment. Under investment is exacerbated by lack of a mechanism to ensure that initial low returns are able to be recovered in later periods.	IRP improves probability of investment roll-in. Revenue cap 'unders and overs' account provides mechanism for inter-period regulatory consistency. These factors significantly enhance incentives for prudent investment.
Incentives to sustainably manage the allocated water resource	Price cap provides incentives to sell additional water without regard to the scarcity of the resource.	Revenue cap does not encourage unsustainable sales nor is it biased against demand management.
Incentives to adopt the best solution to future capacity needs	The price cap theoretically biases the regulated business against pursuing efficient demand management solutions	Revenue cap is not biased against demand management. IRP provides independent forum to ensure best solution is adopted.
Incentives for efficient pricing	Price cap regimes generally considered to provide incentives for efficient pricing.	Theoretical weakness of fixed revenue cap mitigated in GAWB's case because GAWB will price at LRMC to all customers.

Table 7 - Assessment of Proposed Regulatory Framework

4 Proposed Pricing Arrangements

In its 2001 investigation, the QCA recommended that GAWB adopt two-part tariffs:[22]

> The Authority continues to recommend that GAWB adopt two-part tariffs as they provide for volumetric pricing based on marginal costs while ensuring revenue adequacy through the access charge component.

GAWB agrees with this recommendation. Because the storage and delivery network components of GAWB's business have different cost drivers, GAWB proposes to implement separate two-part reference tariffs for water availability and the water delivery.

Moreover, because all customers currently use the same storage, separation of common water supply from the spatially specific delivery system facilitates water access trading.

4.1 Water Availability Pricing

GAWB proposes to set a two-part reference tariff for water availability. Water availability charges would comprise:

- Water Access Charge; and
- Water Volume Charge.

The Water Access Charge ($/ML) would be payable on the aggregate volume of water set out in the Water Contracts held by a customer for that year.

The Water Volume Charge ($/ML) would be paid on the actual volume consumed from storage in that year. We propose to set the volume charge based on the LRMC of new storage capacity using a QCA-agreed methodology.

An Excess Volume Charge ($/ML) would apply to all volume consumed in excess of that specified in a customer's Water Contracts. The Excess Volume Charge would be greater than the sum of the Water Access Charge and Water Volume Charge. The purpose of the Excess Volume Charge is to encourage customers to obtain sufficient Water Contracts to meet their needs, thereby assisting GAWB to plan for future capacity requirements.

Tradability

We propose that the Water Contracts be tradable.

Water Contracts would be for one year but GAWB would issue forward contracts for many years. As indicated earlier a Water Contract:

- allows the customer to take a particular volume of water from a particular GAWB source in a specific year (subject to any restrictions imposed under the Drought Management Plan); and

[22] QCA, Gladstone Area Water Board: Investigation of Pricing Practices Final Report, August 2002, p27

- obliges the customer to pay the Water Access Charge for that volume in that year.

The Water Contract does not provide price certainty. However customers can achieve a fixed price by negotiating a contract for differences (CFD). CFDs are discussed in Section 4.6 .

Water Contracts may only be traded amongst GAWB-approved parties. This restriction is required because the contract carries the obligation to pay the Water Access Charge. Allowing trading only between approved parties avoids the situation where a customer sells its forward Water Contracts (and payment commitment) to a '$1 shelf company' which then defaults on future year payments. We propose that the criteria for approval include:

- the purchasing party must have executed a Delivery Contract with GAWB;
- delivery of the additional water to the purchaser of the Water Contract must be practical and reasonable; and
- at the time of the trade, meet a minimum credit worthiness threshold (the specific credit criteria are yet to be developed).

GAWB will only contractually commit to supply water up to GAWB's allocated amount under a resource operating licence or other regulatory instrument (GAWB's current allocation is related to the HNFY of the Awoonga Dam). In the event of a drought of record severity the HNFY will be reduced. Similarly GAWB's allocation from a particular storage may be decreased to facilitate increased environmental flows. If the available yield were reduced for whatever reason, GAWB has several options for managing the effect on customers' Water Contracts. Options include:

- augmenting supply or implementing a demand management alternative;
- 'buy back' of some Water Contracts (which is really just another demand management alternative); or
- a pro-rata reduction in the face value of all Water Contracts.

Buying back Water Contracts from customers has the attractiveness of efficiency (those customers that least valued capacity or had cheaper alternatives would relinquish capacity first). The costs of any buy-back would be treated as a capacity investment and, if sufficiently significant, the buy-back would be subject to IRP scrutiny. The cost of the buy-back would increase the reference tariff on all capacity.

The actual mechanism adopted to rebalance GAWB's available yield with Water Contracts issued would depend on the specific circumstances (cost of augmentation options, forecast demand, customer value of capacity, etc.) applying at the time.

In summary, Water Contract trading:

- ensures that the committed capacity does not exceed GAWB's allocated water under a resource operating licence or other regulatory instrument;
- provides an economically efficient method of rationing capacity whereby the owners of capacity that value it least release capacity;

- does not disincentivise GAWB from re-evaluating the HNFY; and
- allows GAWB (or third parties) to construct alternative products with different reliability or other characteristics.

End of Year Flexibility

Some flexibility in the use of contracted water availability is reasonable.

We propose that customers be able to carry forward limited amounts of fully paid but undelivered water from their Water Contract from one year to the next. That is, customers wishing to carry forward water from one year to the next would be required to pay the Water Volume Charge on the volume carried forward.

Water balances carried forward would 'decay' over time.

GAWB yet to determine details of the quantity that could be carried forward and the basis and rate of decay.

4.2 Delivery System Pricing

As indicated earlier (setion 3.1) a delivery contract allows the customer to take delivery of the volume of water specified in the Water Contract. GAWB also proposes to set a two-part reference tariff for delivery capacity. Delivery capacity charges would comprise:

- Delivery Capacity Access Charge; and
- Delivery Volume Charge.

The Delivery Capacity Access Charge ($/ML/s) would be payable on the maximum instantaneous flow rate specified by the customer in its Delivery Contract.

The Delivery Volume Charge ($/ML) would be paid on the actual volume of water delivered to the supply point. We propose to set the volume charge based on the LRMC of new delivery capacity using a QCA-agreed methodology.

An Excess Instantaneous Flow Charge ($/ML/s) would generally apply to instantaneous flows in excess of that specified in the customer's Delivery Contract. The purpose of the Excess Instantaneous Flow Charge is to encourage customers to accurately specify their instantaneous flow requirements, thereby assisting GAWB to build and operate the delivery system optimally.

Gas pricing regimes generally include the concept of 'authorised' and 'unauthorised' over-runs. GAWB proposes to adopt a similar approach: where customers inform GAWB of their requirement to exceed their contracted instantaneous flow rate and the additional consumption imposes no cost on GAWB or other customers, we will not apply the Excess Instantaneous Flow Charge. However, where GAWB was not informed before the event or the customer repeatedly exceeds its contract instantaneous flow rate, the Excess Instantaneous Flow Charge will be applied.

We propose to retain geographically differentiated pricing for the delivery infrastructure.

Delivery of potable water will be priced on the same basis as delivery of raw water allowing for recovery of the operating costs and capital costs of the additional infrastructure associated with treatment to potable standards and delivery.

Because water delivery assets are spatially unique, it is not possible to define a generic tradable delivery contract equivalent to the proposed Water Contract (except perhaps at important delivery hubs). However GAWB proposes to facilitate exchanges of contracted delivery capacity on a case-by-case basis to support trading of Water Contracts and any other changes in customers' requirements.

4.3 Dedicated Asset and Metering Pricing

Where assets are dedicated to a particular customer (for example on-site storage, meters) they will be treated as a competitive, that is non-regulated product or service. Accordingly the pricing and other commercial terms and conditions including payment provisions will be negotiated with the customer.

As discussed in Section 3.1 , we propose that such contestable activities be excluded from the revenue cap.

4.4 Price Differentiation between Customers

In its 2001 investigation the QCA recognised that commercial differences between customers could give rise to valid reasons for differentiating prices:[23]

> Any differences between individuals' prices should only reflect differences in their use of the monopoly infrastructure (dams, pipelines and treatment plants) and any commercial differences (e.g. quantity demanded, long term vs short term contracts and the like).

We propose that GAWB differentiate between customers/contracts on two bases:

- counter-party risk; and
- year of off-take.

Counter-party Risk

Customers with a poor credit rating should pay higher prices to reflect the greater probability of them not fulfilling their obligations to pay the future capacity charges.

Options for normalising charges for counter-party credit risk include:

- higher annual charges (that is, including the cost of insuring against default in GAWB's cashflows);
- prepayment of charges;
- lodgement of a bond.

We propose that customers should have a choice between these options.

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[23] QCA, Gladstone Area Water Board: Investigation of Pricing Practices Final Report, August 2002, p39.

We propose to develop a sliding scale of price premiums (and prepayment or bond equivalents) based on credit ratings. Customers with poorer ratings will pay higher rates or be required to prepay for water or lodge payment bonds.

Where customers do not have a public credit rating, GAWB will appoint an expert to make an assessment of counter-party risk.

Year of Off-Take

GAWB agrees with the QCA recommendation that pricing should not differentiate between new and existing customers. However, customers that signal their capacity requirements several years in advance are of value because they assist GAWB in making investment decisions. Moreover, long term contracts provide foundation revenue for GAWB. Therefore we propose that the pricing arrangements should reward customers that purchase long-dated Water Contracts.

Prices for standard contracts will be based on 20 year contracts. Where customers require a shorter contract duration, a price premium will apply. Where customers commit to contracts for more than 20 years, a price discount will apply.

4.5 Protection for Residential Consumers

The needs and position of residential consumers are different in some respects from industrial customers and as such GAWB will work with retail water suppliers to ensure that they understand the proposed Water Contract and Delivery Contract arrangements and are informed of potential capacity constraints.

4.6 Price Certainty for Customers

We propose that the standard Water Contract specifies only that the customer shall pay the then prevailing reference tariff for a particular service. Some customers will desire additional price certainty.

We propose that GAWB offer ‘contracts for differences’ or CFDs to customers. This mechanism can be used to provide a fixed price (or any other non-standard pricing arrangement) for GAWB and the customer for the term of the contract.

We have adopted the term CFD from the electricity industry. Electricity generators sell energy into the market at the ‘spot’ price and retailers purchase from the market at the spot price. However, neither party wishes to be exposed to excessive price risk so generators and retailers contract around the spot price uncertainty using CFDs to achieve a fixed price.

The term CFD is relevant for water industry application because the contracts can be used to contract around the regulatory uncertainty of the reference tariff.

We propose that CFDs be handled outside the revenue cap. That is, for the purposes of determining compliance with the revenue cap, GAWB would report all receipts at the reference tariff (adjusted as permitted under the differentiation provisions discussed in Section 4.4). Any profit or loss on CFDs would not be accumulated in the ‘unders and overs’ account and therefore would not affect other customers’ prices.

Example of CFD.

Customer A enters into a standard Water Contract with GAWB. That is, Customer A contracts to pay the reference tariff in each year.

Separately, Customer A and GAWB enter into a CFD whereby:

- if the reference tariff exceeds $200/ML, GAWB pays Customer A the difference between $200/ML and the reference tariff; and
- if the reference tariff is less than $200/ML, Customer A pays GAWB the difference between the reference tariff and $200/ML.

If the reference tariff in year 1 of the contract is $150/ML then contract cashflows would be:

Water Contract	Customer A pays GAWB (Regulated Revenue a/c)	$150/ML
CFD	Customer A pays GAWB (Unregulated a/c)	$50/ML
Net	Customer A pays GAWB	$200/ML

If the reference tariff rises in year 7 of the contract to $220/ML then contract cashflows would be:

Water Contract	Customer A pays GAWB (Regulated Revenue a/c)	$220/ML
CFD	GAWB (Unregulated a/c) pays Customer A	$20/ML
Net	Customer A pays GAWB	$200/ML

This simplified example provided a fixed price with no inflation adjustment. Actual contacts are likely to be more complex: perhaps with price paths, separate treatment of water access, water volume, delivery access and instantaneous flow tariff components. These contracts can be structured to give an almost infinite variety of pricing options (simple fixed price ,caps, floors, collars, etc) .

However, the most important points illustrated by the example are that:

- customers obtain price certainty; and
- because CFD cashflows are quarantined in GAWB's unregulated accounts, other customers' tariffs are not impacted by the quality of GAWB's forward price contracting decisions.

The CFD is a purely financial arrangement, independent of physical supply arrangements or other contracts. The CFD does not affect GAWB's or customers' rights under other contracts. The customer could theoretically sell the underlying Water Contract and still make or receive payments under the CFD.

As a government-owned business there may be restrictions or conditions placed on GAWB's ability to enter into contracts which have the characteristics of financial instruments. GAWB will work through the potential issues with government stakeholders before finalising the structure of these contracts and the methodology for pricing them.

4.7 Setting the Level of Price Components

Setting the Variable Prices

GAWB supports the QCA recommendation that variable prices should be based on estimates of LRMC.

> The Authority invites comment on:
>
> 10. the most appropriate approach for estimating LRMC.

Two methods of estimating the LRMC are discussed by the QCA: Average Incremental Cost (AIC) and the Turvey Method.

GAWB does not have a strong preference for either method. We are willing to work with the QCA to model both methodologies to ensure that the pricing methodology adopted sends appropriate signals over the range of likely supply and demand outcomes.

Setting the Access Prices

The Water Access Charge and Delivery Capacity Access Charge would be calculated to recover the 'residual' target revenue (target revenue less expected revenue recovery through the respective volume) over the 5 year regulatory period.

As we understand the methodology proposed by the QCA, the average price paid by customers (assuming no change in consumption behaviour) would not change in real terms over time. This effect occurs because the access charge reduces whenever the volume charge increases. We believe that an unchanged average price significantly weakens any price signal provided by increasing the volume price.

As discussed above, GAWB proposes to set access charges to recover capacity costs over the 5 year regulatory period. Because the access charges are held constant, GAWB's proposed methodology results in an increase in both the volume charge and average charge as LRMC increases. When there is little spare capacity (the next capacity increment is close and LRMC is high), GAWB will over-recover its target revenue in the years immediately prior to augmentation. Where there is sufficient spare capacity (next capacity increment is distant and LRMC is low), GAWB will under-recover its target revenue in the years immediately following augmentation. Over several years (we propose to target 5 years) GAWB will recover the present value of its annual revenue targets through the operation of the 'overs and unders account'.

We believe that the proposed methodology is more likely to deliver price signals that are effective.

Moreover, GAWB has serious reservations about introducing water access trading if access prices fall when the LRMC and variable price rise. If GAWB is successful in migrating all customers to standard Water Contracts, a logical basis for rationing access to water would be on the basis of the quantity of Water Contracts held. However, where a customer recognised that a drought was developing, the customer could request additional Water Contracts when the price (annual access charge) was very low. If access was subsequently rationed, the customer would effectively obtain additional water at very low cost. In addition, by releasing the additional Water Contracts, GAWB is pushed closer to augmentation (and indeed the access charge would be further suppressed).

The customer could trade out of the additional Water Contracts following the drought, avoiding the high access charges associated with the post augmentation phase. This would be neither an efficient or equitable outcome.

GAWB is not concerned about risk-averse customers acquiring capacity additional to their normal requirements where they pay reasonable access charges over a long period of time. This effectively signals that the customer requires water with reliability higher than GAWB's standard product (which is currently based on the allocation limits contained in the Resource Operating Licence) Provided the access charge reflects the cost of reserving the additional capacity, the outcome is efficient.

Setting the Excess Use Prices

The purpose of the Excess Volume Charge is to encourage customers to obtain sufficient Water Contracts to meet their needs, thereby assisting GAWB to plan for future capacity requirements. Therefore, the Excess Volume Charge must be greater than the sum of the Water Access Charge and Water Volume Charge. We propose to set the Excess Volume Charge based on the maximum of:

- an assessment of the Short Run Marginal Cost (SRMC) of capacity (which may be higher than the LRMC in low rainfall years);
- an assessment of the LRMC of capacity; and
- the effective total tariff for water availability based on a 50% load-factor.

That is, the minimum Excess Volume Charge would be calculated as:

$$\text{Excess Volume Charge} = \frac{\text{Water Access Charge}}{50\%} + \text{Water Volume Charge}$$

Similarly, the purpose of the Excess Instantaneous Flow Charge is to encourage customers to accurately specify their instantaneous flow requirements, thereby assisting GAWB to build and operate the delivery system optimally. Therefore, the Excess Instantaneous Flow Charge must be greater than the Instantaneous Flow Charge. We propose to set the Excess Instantaneous Flow Charge based on the greater of:

- an assessment of the LRMC of delivery capacity; and
- 3 times the Delivery Capacity Access charge.

That is, the minimum Excess Instantaneous Flow Charge would be calculated as:

$$\text{Excess Instantaneous Flow Charge} = 3 \times \text{Delivery Access Charge}$$

4.8 Equalisation of Price to Councils

In its 2001 investigation the QCA recommended that geographically differentiated prices be applied based on different delivery assets utilised. Despite this methodology showing significant differences in the cost of providing potable water to Gladstone City Council and Calliope Shire Council, the QCA recommended that the two councils should be priced as one class.

The QCA has now invited comments on this issue because "the greater focus upon commercial management of risks associated with the supply of these may warrant a reconsideration of this approach"[24].

> The Authority invites comment on:
>
> 12. the appropriateness of treating Gladstone City Council and Calliope Shire Council as one customer class.

GAWB submits that the most appropriate method of delivering price equalisation across the councils is for the councils to manage the equalisation process outside GAWB's price model and the regulatory process.

At the time of this submission this is the arrangement in place with the councils, as at least an interim arrnagement. GAWB proposes to continue to price to councils in exactly the same way as other customers (with geographically differentiated prices at four off-takes based on specific assets employed). Councils can then equalise the prices based on specific volume mix in that month. GAWB will work with councils to provide an invoicing arrangement that facilitates this process.

This methodology delivers the councils' desired equalised price outcome with:

- complete transparency;
- preservation of cost-reflective pricing and price signals;
- no additional risks imposed on GAWB; and
- no flow-on affects for the prices paid by other customers.

4.9 GAWB's Queuing Policy

GAWB will not commit to providing future water availability or delivery capacity without compensation for:

- the development costs of providing the additional resource; and/or
- the opportunity costs of not selling the water availability or delivery capacity to other customers.

Therefore customers will not be able to obtain Water Contracts or Delivery Contracts starting at their preferred time in the future without paying access charges in the intervening period.

Customers wanting access to future water availability or delivery capacity would have two options:

- enter into Water Contracts and Delivery Contracts for the period required and pay the associated access charges; or

[24] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p9

- lodge a formal request for water availability or delivery capacity which will be entered in a queue.

Priority in the queue will be based on the order in which requests for water availability or delivery capacity are received by GAWB.

When GAWB:

- is required to spend money to develop additional water availability or delivery capacity to service requests for capacity; or

- has a request for access from another customer willing to pay the access charges for the capacity;

customers in the queue will be invited to convert their requests for water availability or delivery capacity into Water Contracts or Delivery Contracts in order of priority by a particular date.

Customers that choose not to enter into contracts will be removed from the queue. The customer may lodge another request for water availability or delivery capacity which will be placed at the bottom of the queue.

GAWB has not come to a firm view on the preferred methodology for pricing these options to take up Water Contracts and Delivery Contracts utilising the queuing process. Where there is no spare capacity, we envisage that there should be no charge for queuing.

However, where spare capacity exists, it may be important to make a charge for queuing. In the absence of a charge, customers would have the incentive to lodge speculative requests for future capacity that has a very low probability of actually being required. For this reason most gas networks do not form a queue where spare capacity exists.

GAWB's current view is that to avoid the situation where existing customers can take speculative free options over future capacity (and increase uncertainty about actual future requirements for capacity) some charge for queuing will be necessary. We envisage that the charge may be structured as a proportion (perhaps 25%) of the associated access charge.

5 Supply and Demand

5.1 Demand Projections

The QCA has requested comments on several matters related to demand forecasts.[25]

> The Authority invites comment on:
>
> 3. appropriate approaches to projecting GAWB's demand including how to deal with uncertainty regarding prospective customers and the timing and magnitude of their demand;
>
> 4. the permanent impact of demand management measures adopted by customers in response to the recent drought;
>
> 5. the appropriateness of the length of the planning period; and
>
> 6. implications of alternative demand scenarios.

This section provides a summary of GAWB's forecasting methodology, latest forecast and GAWB's assessment of the demand reductions made by customers in response to the recent drought.

Historic Approaches to Forecasting Demand

Unlike many other utilities where demand is a relatively predictable function of local economic activity and population and/or dwelling growth, GAWB's demand is dominated by large projects. Therefore aggregate demand forecasts must be based on estimates of the demand of specific future projects.

Historic approaches to forecasting demand for GAWB have relied upon Government development agencies' and project proponents' estimates of future requirements. This approach has significantly overestimated actual usage.

Figure 3 overleaf compares actual demand outcomes to several previous demand forecasts. Note that even before the 2002/03 restrictions the demand growth is persistently lower than that forecast. Indeed actual demand is lower than the 1996 "Minimum Case" and 1998 "Lower Bound" forecasts.

Some caution must be applied to analysis of historic forecast inaccuracy. Most of the forecasts were constructed for planning purposes (as opposed to pricing purposes). The forecasts were not speculative; they included real projects that were expected to proceed.

Moreover, it is generally better to ensure that a conservative view of future water demands can be satisfied than constrain the region's growth through lack of infrastructure provision. Therefore a conservative (over-forecasting) approach to demand forecasting is justified for planning purposes.

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[25] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p6

From a pricing point of view a conservative approach to forecasting volumes is of serious concern. In general, pricing models based on planning forecasts yield prices that are too low to be commercially sustainable. Under the current price control form of regulation GAWB has systematically under-recovered target revenues.

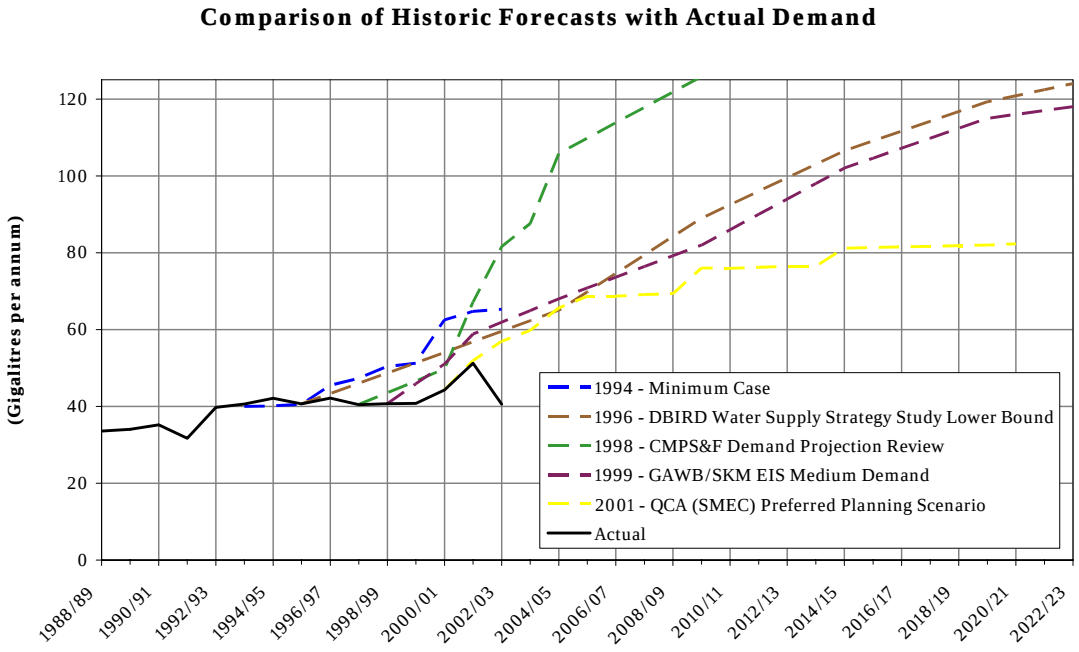

Figure 3 - Historic Forecasts versus Outcomes

We believe that Figure 3 highlights two important lessons:

- that GAWB demand is very difficult to forecast and that 5-year forecasts may be in error by 50%; and
- planning scenario forecasts should not be adopted as expected volume forecasts for pricing purposes.

Current Demand Forecasting Methodology

As part of the Strategic Water Plan project (discussed in more detail in Section 5.2 below), extensive work has been carried out in conjunction with GAWB's customers and key government agencies to develop an understanding of likely future demand. Whilst we have looked out into the long (50 year) term there has been a specific focus on demand over the next 20 years. This work has led to the development of a preferred planning (or base case) forecast plus upper and lower bound forecasts. As discussed above, these forecasts represent a snapshot as at mid 2004. They can change rapidly.

Meetings were held with GAWB's customers during October and November 2003 for technical discussions regarding water usage (both current and projected) in terms of quantities, qualities and reliability, and to gather information regarding customers' use of water and the drought mitigation projects they implemented (or considered implementing) in 2002/03. During these meetings, customers were initially asked to provide information regarding their current water usage. This information has been used as a starting point for GAWB's updated demand forecasts, and to construct water balances for each customer and for the region as a whole.

Customers were subsequently requested to provide information regarding:

- expected demand for water for use in current operations for the period 2003/04 to 2022/23; and
- the expected impact on that demand of future developments (including de-bottlenecking projects and expansion projects) which:
  - are practically certain to occur;
  - are likely to occur; and
  - might possibly occur.

The Gladstone Economic and Industry Development Board (GEIDB) was similarly requested to provide forecasts of the expected demand for water for use by possible new customers in the period 2003/04 to 2022/23.

Detailed (per customer) forecasts have been provided to the QCA on a confidential basis. The aggregate demand forecasts are presented in Figure 4.

GAWB's Base Case forecast comprises expected demand for use in current operations and future developments (from existing customers) and from new customers (from GEIDB) which are said to be **likely** to occur.

The Maximum Demand Case forecast is a forecast of expected demand for use in current operations and developments which **might possibly** occur.

The Minimum Demand Case forecast is a forecast of expected demand for use in current operations and developments which are **practically certain** to occur.

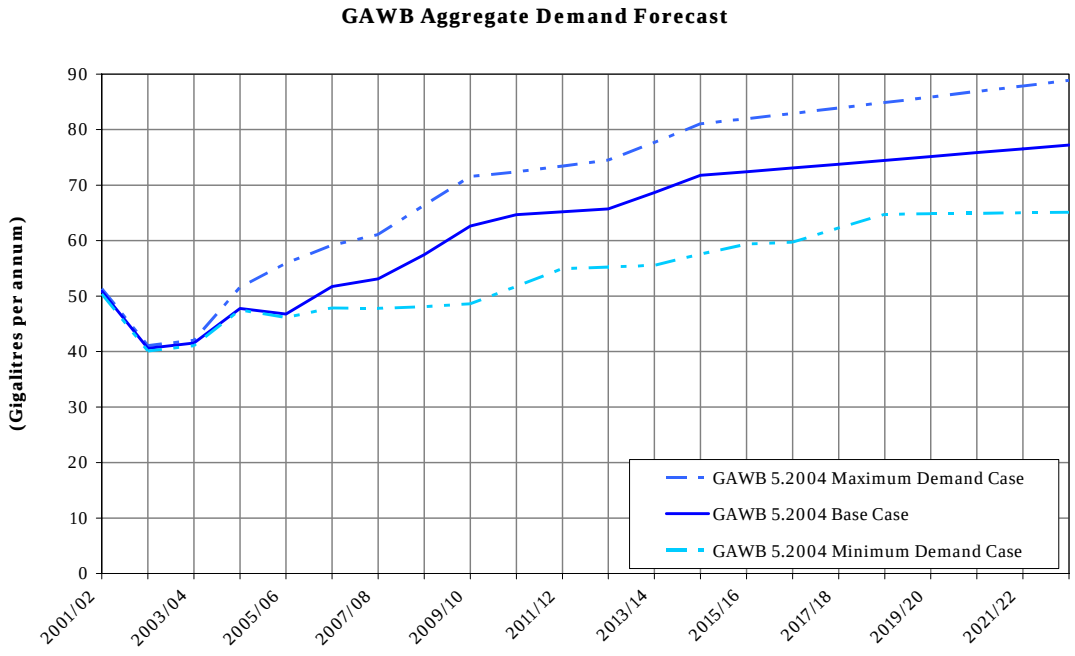

Figure 4 - Aggregate Demand Forecast (May 2004)

We believe that this methodology is rigorous because customers are formally consulted, customers are requested to provide probability weights for new projects, and project demands are subject to technical review. However, GAWB remains concerned that the inherent optimism of project proponents (and appropriate support for these projects by government agencies) will lead to an overstating of likely future demand.

GAWB's strong preference is to adopt a revenue cap form of regulation under which commercial outcomes are not highly dependent on demand forecasts. If a price control regime is retained, GAWB will investigate modifying its forecasts by an empirically calibrated scale factor (that is a statistical or probabilistic factor reflecting past difference between planning forecasts and demand outcomes) to further reduce the over-forecasting associated with planning forecasts.

Effect of the Recent Drought on Forecast Demand

GAWB submits that the recent drought induced restrictions have had a significant and permanent effect on future consumption by existing customers.

Until 2001 demand growth was closely tracking that forecast by SMEC. Following introduction of restrictions, customers have made significant on-site capital investments to permanently reduce demand. Local potable demand remains well down as a consequence.

The magnitude of the forecast demand reduction is illustrated in Figure 5. GAWB's forecast demand has decreased by some 10 GL p.a. for the medium term (or approximately 20% of 2001/02 volumes).

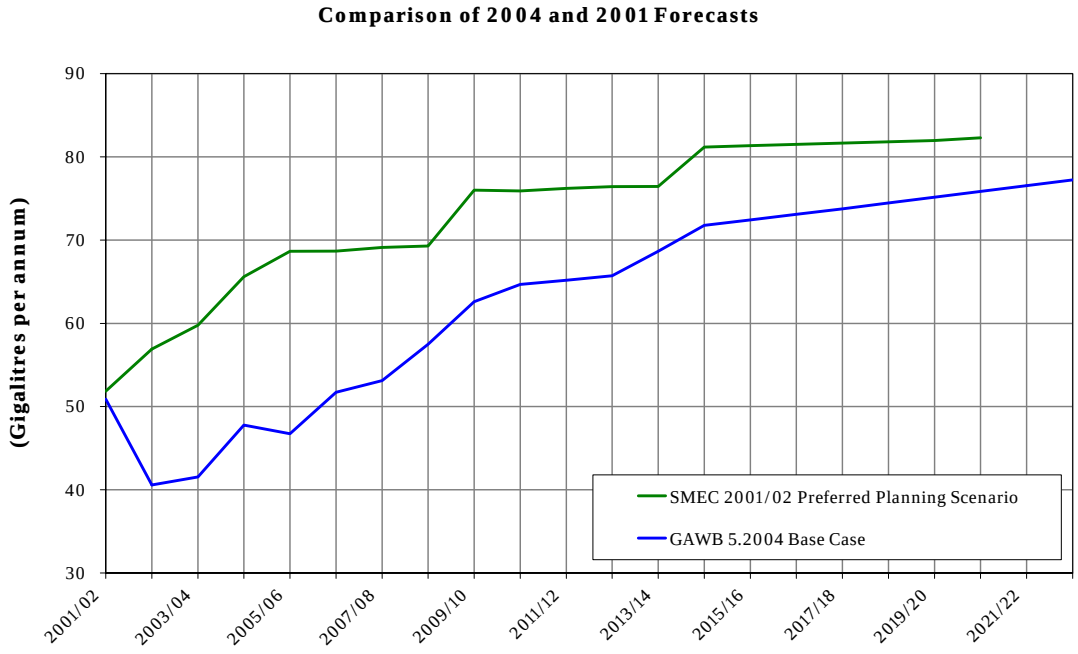

Figure 5 – Effect of Demand Management on Forecast Demand

Planning Period

GAWB's business involves making investments in assets with very long technical lives. We continue to believe that a minimum 20-year perspective is appropriate for planning purposes.

As illustrated in Figure 2(b), if prices are held constant over a significant period, the rate of return fluctuates significantly throughout the investment cycle. GAWB has a low risk propensity and would prefer that returns were commensurate with risk throughout the investment cycle. However, if it is not practically achievable, the pricing arrangements should at least limit the difference between the high and low returns over the cycle.

Moreover, as discussed in previous sections, aggregate demand is very difficult to predict over the medium to long term.

Therefore GAWB proposes a 5-year pricing horizon. That is, prices should be set so that (the present value of) costs and revenue are balanced over 5 years. Any longer period exposes GAWB to significant revenue risk and raises the potential for considerable intergenerational inequity in cost recovery. The historic over-forecast of demand (and therefore low prices) has already resulted in a value transfer from the Queensland Government (in the form of lower than commercially sustainable returns to our shareholder) to existing customers. Future customers may also contribute to this transfer in the form of higher future prices.

5.2 Supply Projections

Awoonga Dam

GAWB's annual allocation of water from the Awoonga Dam is currently capped at 67,000 ML. As the new dam capacity fills GAWB's allocation will increase to a maximum of 78,000 ML (the current rated HNFY when the full supply level of 40m is reached).

The QCA has requested comments on the reliability of GAWB's supply: [26]

> The Authority invites comment on:
>
> 1. the reliability of GAWB's supply and its implications for consumers; and
>
> 2. the likelihood of further downgrades in Awoonga Dam hydrology, and the implications for alternative sources of supply.

GAWB's water allocation is not guaranteed. The HNFY reflects the supply availability under the worst recorded drought in the catchment. The Department of Natural Resources, Mines and Energy (DNRME) has revised downwards the HNFY of Awoonga Dam three times since 1985. If Gladstone experiences a drought of record severity, then the HNFY will be revised downward again: It is therefore practically certain that the HNFY of Awoonga Dam will be revised downward again sometime in the future.

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[26] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p5.

Following the experiences of both GAWB and its customers in the 1996 – 2003 drought and the consequential downgrading of the HNFY of the Awoonga Dam, GAWB instituted a Strategic Water Planning Project. The project's purpose is to identify the need for changes to water management practices and alternative water supply sources, and then to identify and evaluate the range of viable water supply development options which are practical, economical, and commercial.

As a key outcome of the project GAWB has developed and refined its methodologies for demand forecasting and its understanding of the operations of current customers. The review and revision of forecasts will now become an on-going GAWB business process.

Our work to date indicates that if:

- the preferred planning scenario demand emerges; and
- the Awoonga Dam has filled (making the full yield of 78,000 ML pa available; and
- a drought requiring restrictions does not re-emerge;

then the region will not face a supply constraint until approximately 2023.

However, capacity augmentation is not triggered by expected demand but by contracted capacity. GAWB does not expect to augment supply (or require demand reductions) for purely capacity reasons during the next 5 year regulatory period.

GAWB will constantly monitor each of the Strategic Water Plan variables (level of demand, available yield and emergence of drought). Where variables diverge from the assumptions in the implementation plan, the Strategic Water Plan will be altered as required.

Customers Desire Improved Reliability

Whilst demand forecasting currently demonstrates that there is not likely to be a pure capacity issue in the medium term, most customers have quite clearly articulated a desire for improved reliability if this can be achieved at an acceptable cost.

To that end GAWB has been examining a range of options to significantly or marginally improve the reliability of the supply. This work is well progressed with a number of consultancy studies currently underway to identify specific costs and benefits of some of the key options.

All options to gain a significant overall (as opposed to customer specific) improvement in reliability (that is the decreased likelihood of future restrictions) will involve the development of an additional water resource to supplement the current Awoonga Dam. An additional resource will be required because;

- a more conservative utilisation of the current Awoonga dam capacity will bring forward the need for new capacity; or
- the second source itself will be inherently more reliable than the Awoonga Dam; or
- the diversity effect of multiple sources will improve reliability.

These projects have different characteristics in terms of cost, environmental impacts, scalability, flexibility and lead-time. The particular solution adopted in future will depend on the specific circumstances of the supply constraint.

GAWB has sought input from all customers regarding the perceived priorities for evaluation of options under the study.

Evaluation of options will follow a three tiered approach:

- assessment of the benefit of the project in a particular situation (for example, as a part of the Drought Management Plan) considering factors such as lead times and water quantity;
- detailed evaluation against the weighted evaluation criteria, which include water quality, reliability, customer price, social impacts and environmental impacts;
- evaluation against GAWB's business test to determine whether an otherwise favourable proposal is investment positive for GAWB.

The original aim was to have the preferred GAWB strategy developed by the end of June 2004. However the options assessment work is slightly behind schedule (mostly due to more time than expected being required to tie down future demand and risk propensity). It is expected to be completed in late June/early July for assessment and incorporation within the plan. We expect to complete the Strategic Water Plan in late September / early October.

A period of customer and stakeholder negotiation will follow before the preferred option is adopted.

5.3 Drought Management Plan

The QCA has requested comments on GAWB's Drought Management Plan:[27]

> The Authority invites comment on:
>
> 13. the appropriate arrangements to be incorporated in a Drought Management Plan including:
>
> - thresholds at which restrictions are triggered;
> - the basis for allocating supplies of water (including administrative arrangements, relevant standards of service, pricing for priority access and provisions for customers to determine their own responses); and
>
> 14. the approach for incorporating the costs of GAWB's Drought Management Plan in prices including any adjustments to pricing practices applying otherwise.

[27] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p10.

As a key component of the current GAWB Strategic Water Planning Project, the GAWB Drought Management Plan is being revised reflecting the lessons learnt in the recent drought and the shifts in circumstances that have occurred. This review is not yet finalised but as mentioned above is expected to be completed and available for input into the current QCA price investigation in the next few months.

The new version of the Drought Management Plan will incorporate a number of key principles, including:

- warnings and restriction levels will take as much account as practical of the lead times required by the customers to respond (the 1996 -2003 drought has meant that the majority of options available to customers with low cost and short lead times have been permanently implemented and would not be available again should restrictions be imposed);

- the Drought Management Plan must provide clarity but at the same time remain flexible and dynamic therefore the warning and restriction levels will be based on forward looking projections of water availability, they will therefore reflect time of year (seasonal) considerations; and

- the Drought Management Plan will be consistent with the contractual and regulatory regime, including information disclosure requirements;

One of the key issues to be determined through the GAWB Strategic Water Planning Project for the revised Drought Management Plan is whether the plan will contain a contingency response that is triggered by the various drought declarations or warnings. If so, then preparatory expenditure is likely to be required so that that contingency response is able to be implemented in the short timeframes available in drought. Any such preparatory expenditure should be included in operating or capital expenditures (as appropriate) for pricing purposes.

It is quite possible that one of the outcomes of the Strategic Water Plan will be to define different reliability products, at different prices. The imposition of differentiated restrictions in the Drought Management Plan is likely to be the primary way in which differentiated reliability will be delivered to customers. The regulatory and contractual framework must provide sufficient clarity and certainty to enable customers to purchase differentiated reliability products with confidence.

Under a perfect scenario supply would be rationed on the basis of a customers' contracted, and paid for, water access under a Water Contract. One means of implementing rationing will be to sell differentiated reliability product which effectively means that for more or less cost customers exchange access to volume but overall the total rationed amounts do not change.

6 Revenue Requirement

6.1 Asset Value

The QCA's 2001 investigation recommended that Depreciated Optimised Replacement Cost (DORC) be used for establishing asset values as a basis for setting maximum prices for customers. DORC is currently the standard methodology for valuing regulated infrastructure assets in Australia.

Proponents of DORC valuations argue that tariffs based on DORC reflect those that would be charged in an efficient market. DORC represents the highest value of the regulated asset base (RAB). Prices based on valuations in excess of DORC would theoretically attract new entrant service providers.

The DORC methodology (whilst always subject to interpretation 'grey areas') removes costs associated with excess capacity and 'gold plating'. DORC also considers changes in technology that have occurred since construction by valuing the asset with reference to modern equivalent assets. That is, customers pay a price based on the least cost asset capable of delivering the same service potential.

GAWB supports the use of DORC for determining an initial value of the RAB.

The QCA must now determine how to value the RAB at the beginning of the next (and subsequent) regulatory periods:

> The Authority invites comment on:
>
> 15. the value of GAWB's asset base for pricing, including:
>
> - the approach to establishing an opening asset value;
> - the net impact of revised hydrology and demand on the appropriate asset base for pricing purposes; and
> - the impact of recent circumstances on the utilisation of the Mt Miller and Hansen Road pipelines.

The QCA has essentially two options for calculating the opening value of GAWB's asset base for the next regulatory period:

- revaluation of the asset base (using a DORC or ODV methodology); and
- roll-forward of the 2001 valuation using a cost index.

GAWB supports roll-forward of the asset base for this investigation. Re-optimisation after only 3 years is unusual from an Australian regulatory perspective and provides poor incentives for future investment.

Experience from other Jurisdictions

The ACCC does not revalue regulated assets in the gas industry and is proposing to change its stance in the electricity transmission industry from infrequent revaluations (every 10 years) to a roll-forward approach.

The ACCC's current policy on revaluations is articulated in its Draft Regulatory Principles statement:[28]

> The long term nature of network assets and stability of associated markets makes it unlikely that rapid change would unexpectedly strand common assets in less than a five year time frame. Therefore, the Commission may not need to consider a full DORC every regulatory period although there may well be a case for every 10 years.
>
> The potential triggers for reassessment of the RAB include:
>
> - a major advance in technology such as the development of new materials;
> - mergers or change of ownership of transmission assets;
> - major expansions or contractions of the network such as may arise due to the development of a by-pass option;
> - evidence that the [regulated business] is unable or unwilling to recover the full cost of service calculated for some sub-system; and
> - a request by the [regulated business] facing by-pass for a significant economic write-down of part of its asset base.

However, following four years' experience in regulating electricity transmission businesses, the ACCC has proposed 'locking in' current valuations. In particular, the ACCC noted that frequent revaluations were likely to create uncertainty (for which the business must theoretically be compensated) and lead to less investment:[29]

> [Periodic revaluation] generates a high level of uncertainty for the [regulated business] and there is a strong possibility it could deter new investment. If the Commission considered revaluing the asset base on a periodic basis, the [regulated business] might face an unpredictable revenue stream. Volatility of revenue increases the value of the "option to wait" and thus, all else equal slows the rate of new investment. In addition to deterring investment, there is a possibility that the [regulated business] might lose some value of its capital expenditure. Given the risk that the [regulated business] might not be compensated for all of its capital expenditure, this might result in the [regulated business] reducing its capital expenditure.

Sinclair Knight Merz (SKM) also identified disincentives for efficient investment as one of three negative features of revaluations:[30]

> Without any additional ameliorating elements, revaluation at periodic intervals… has several negative features:
>
> - a significant disincentive for efficient investment in those types of capex that do not result in an ODRC value increasing by the amount of the actual expenditure,
> - higher calculation costs, although it is noted that forms of ORC and ODRC may nevertheless need to be calculated on an ongoing basis anyway, and

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[28] ACCC, Draft Statement of Principles for the Regulation of Transmission Revenues, 27 May 1999, pp 49 – 50.

[29] ACCC, 2003 Review of the Draft Statement of Principles for the Regulation of Transmission Revenues Discussion Paper, August 2003, p v

[30] Sinclair Knight Merz, Review of Re-valuation versus Roll-Forward, May 2002, p28

> - reduced robustness and transparency caused by the dependence on the skill, judgement and experience of the practitioner and the inevitable grey band of uncertainty and variance in the value calculated using the method.

The ACCC considered that the principal relevant reasons for revaluation were:

- to improve allocative economic efficiency outcomes; and
- to address concerns in regard to possible over-investment.

Allocative efficiency occurs when firms employ resources to produce the mix of goods and services that provides the maximum benefit to society. For allocative efficiency prices for services should reflect the marginal cost of resources used in their production. As discussed in Section 3.3, GAWB supports setting variable rates based on an externally-verified estimate of the LRMC of supply. That is, GAWB is committed to providing efficient price signals irrespective of the asset valuation adopted.

Moreover, SKM noted that the requirement for revaluation is affected by factors such as the rate of change of electricity transmission technology and probability of bypass. For electricity transmission, the slow rate of change of technology and costs and the minimal bypass risk reduces the importance of revaluations in ensuring that the RAB represented an economically efficient level of cost. In the absence of economic alternative supply options, we believe that the factors identified by SKM (stable technology and cost, low risk of bypass) also apply to GAWB.

We conclude that adopting a roll-forward would not result in a loss of pricing efficiency in GAWB's case.

The ACCC specifically noted that prevention of over-investment could be achieved through an ex-ante roll-in test similar to that which GAWB proposes should be undertaken by the IRP. GAWB submits that an ex-ante review of investments provides far superior incentives and risk allocation (and lower prices) than periodic revaluation.

The ACCC concluded that the benefits of rolling forward a "locked in" valuation outweighed the costs and benefits of revaluation:[31]

> The Commission recognises that the Code gives it discretion to revalue the asset base in the next regulatory reset. The Commission's initial view is to consider each revenue cap on a case by case basis but with the preferred position to lock-in ...

[31] ACCC, 2003 Review of the Draft Statement of Principles for the Regulation of Transmission Revenues Discussion Paper, August 2003, p25

The ORG argued that the minimum long run price to customers is achieved by removing all exogenous risks (including revaluation risk) from the regulated entity:[32]

> Consultation Paper No. 2 noted that, when considering whether certain risks should be allocated to the licensees or to customers, the appropriate question to ask is: which approach is likely to lead to the lowest long term cost to customers? In that paper, the distinction was made between the risk that is associated with exogenous events, or events beyond the control of the licensee, and controllable events, or events where the licensee is considered to exercise some influence. The Office stated its preliminary view that the allocation of exogenous risks to customers is likely to lead to the lowest sustainable charges for customers because:
>
> - customers may be able to manage those risks very efficiently themselves through decentralised action; and
>
> - [if] licensees are required to bear these risks, then they would need compensation – the difficulties with calculating such compensation may lead the regulator to provide a higher level of compensation than it would cost the customers to manage the risk themselves.
>
> Many of the risks associated with the recovery of the capital-related elements after the investment decision has been made are likely to be risks that are better classified as exogenous. The major influences on this risk are movements in demand and supply, and technological change, many of which are largely outside the control of the licensees…
>
> Accordingly, it would appear that the Office should seek to establish a predictable regulatory framework that includes clear principles for the recovery of the capital costs over the life of the assets. In addition, the decisions made under this framework should ensure that such commitments remain credible. The allocation of risks implicit in such a framework should lead to a lower cost of financing in the industry against other possible approaches, and lead to the lowest sustainable charges to customers (including the implicit cost associated with bearing the risks discussed above).…
>
> It would appear consistent with the objective of providing a return on and of capital that the focus of the methodology for assessing the capital-related costs should be on returning the value of the investment. This would imply that once a dollar is spent on capital equipment (and accepted as an efficient investment), the regime should focus on the return of the value of that dollar – irrespective of the actual assets that are in place.

IPART has also recently expressed a preference for roll-forward for electricity distribution assets:[33]

> the Tribunal does not favour periodic revaluations of the RAB based on changes in DORC values. It will therefore calculate the 2004 opening value for the RAB [of NSW electricity distribution businesses] by rolling forward the 1998 RAB value.

Moreover IPART rolled forward the regulated asset bases of Sydney Water, Hunter Water, and the water businesses of Gosford City Council and Wyong Shire Council.[34]

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[32] ORG, 2001 Electricity Distribution Price Review Consultation Paper #04 (Cost of Capital Financing), May 1999, p5 - 6.

[33] IPART, NSW Electricity Distribution Pricing 2004/05 to 2008/09 Draft Report, p198.

[34] IPART, Sydney Water Corporation, Prices of Water Supply, Wastewater and Stormwater Services from 1 July 2003 to 30 June 2005, May 2003, p65; IPART, Hunter Water Corporation, Prices of Water Supply, Wastewater and Stormwater Services from 1 July 2003 to 30 June 2005, May 2003, p62, etc.

Conclusion

GAWB accepts that the 'lumpy' nature of demand and the systematic changes in demand resulting from infrequent application of restrictions means that GAWB's business may not be as stable as typical electricity and gas transmission businesses regulated by the ACCC. Therefore periodic revaluation (at perhaps 10 year intervals) may be appropriate.

However, revisiting valuations after just 3 years would introduce significant disincentives for investment given GAWB's inherent demand forecasting challenges. We do not believe that a further review of the Mt Miller pipeline or other delivery assets is justified so soon after they were accepted by SMEC and the QCA as prudent.

GAWB proposes roll-forward of the 2001 valuation with appropriate adjustments for cost inflation, capital expenditure and depreciation. We propose that capital expenditure between in 1 July 2001 and 30 June 2005 be rolled-in at the minimum of the 2001 forecast spend and actual spend (except where GAWB makes a specific case to justify higher expenditure than was forecast).

We propose that future major investments (perhaps greater than $5m) are reviewed by the IRP for efficiency before construction using criteria similar to the ACCC's 'regulatory test'. Assets would be rolled-in at an ex-ante approved value to ensure that GAWB, rather than its customers, bear the project management risk (and so that GAWB has the maximum incentive to reduce its costs).

Adopting a roll-forward approach (especially just 3 years after the last valuation) is consistent with:

- the approach adopted in other jurisdictions; and
- delivering the lowest long-run sustainable prices.

6.2 Treatment of Historic Capital Contributions

In its 2001 investigation, the QCA examined the treatment of historic capital contributions.[35]

> The Authority recommends that capital contributions be accepted where there is evidence that the contribution was made with the intent of obtaining future price benefits - unless there is further evidence that the contribution was a pre-payment for services, has been returned to the contributor through explicit pricing arrangements or applies to assets that have since been consumed and replaced. The Authority observed that there was general agreement among stakeholders on these principles.
>
> The Authority recommends that, if recognised, assets be included in the asset base for the purpose of determining the revenue requirement, with rebates incorporated in the prices for the relevant customers equivalent to the return on capital, and deducted from GAWB's revenue requirement.

GAWB supports this recommendation. However, several important methodological questions remain. For example, how should capital contributions depreciate over time (as the contributed assets are consumed, augmented or replaced)?

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[35] QCA, Gladstone Area Water Board: Investigation of Pricing Practices Final Report, August 2002, p58

The proposed treatment of capital contributions should be consistent with the general RAB valuation and depreciation methodology. If a 'physical' view of the RAB is retained then capital contributions should be valued in terms of the service potential of the relevant contributed assets, and be subject to depreciation over the economic life of those assets. If a 'financial' view is adopted then the value should be consistent with the purchasing power of the original contribution.

Depending on the proposed treatment of contributions, there may also need to be an allowance for the tax implications of recovering costs through capital contributions. For example, Western Power's allowed revenue includes adjustments for:

- return on capital applied to capital contributions;
- depreciation of capital contributions; and
- the tax effect of capital contributions.[36]

The treatment of capital contributions is critical to the overall revenue adequacy of GAWB and the methodologies should be transparent as such GAWB proposes that QCA revisits the methodology used to:

- value each current capital contribution;
- determine the current price impact of each capital contribution;
- determine a mechanism for regulatory (asset base and pricing) treatment of each capital contribution going forward.

6.3 Return on Capital

The QCA intends to retain the WACC / CAPM approach and has requested comments on specific model parameters:

> The Authority invites comment on:
>
> 16. the rate of return, including determination of the WACC/CAPM parameters applicable to GAWB from 1 July 2005.

Notwithstanding its limitations, GAWB supports the use of WACC / CAPM to determine an appropriate return on capital.

In most regulatory determinations the WACC adopted by regulators is the single most important factor affecting the profitability of the regulated business. Therefore methodologies for calculating WACC and rationale for selecting values for various parameters have been widely debated. Most of the WACC parameters for regulated businesses throughout Australia are now stable and entrenched by regulatory precedent. GAWB does not propose to argue for significantly different treatment of parameters than that provided by the QCA in its 2001 investigation.

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[36] Western Power, Triennial Review Position Paper Capital Contribution Policy for the purpose of Network Revenue Determination, Revision 1, May 2001, p9. See also Western Power Networks Price Publication – Part A available at www.westernpower.com.au/html/networks/network_access/network_prices/network_access_current_prices.html for details of the allowed revenue calculation.

However, GAWB submits that the current combination of regulatory framework and commercial environment exposes GAWB to more risk than is faced by many other utilities. Moreover, we do not believe that we are adequately compensated for the systematic risk borne by the business.

CAPM provides for systematic (or non-diversifiable) risk through the equity beta, a measure that indicates the riskiness of one asset or project/business relative to the whole market. This is the risk that cannot be eliminated through holding a diversified portfolio of investments. A higher beta value is associated with a more risky investment (a higher variance of returns, more highly correlated with market returns).

For the purposes of determining the WACC of a regulated business, equity betas are usually estimated by benchmarking the firm against values derived from similar listed firms or other regulatory decisions. To compare the risk associated with other businesses, independent of the financial structure employed, asset betas are used. An asset beta can be estimated by 'de-leveraging' observed equity betas.

Water businesses are generally considered to be inherently less risky than other industries because of low technology risk, the absence of substitutes and the essential nature of water as a commodity. GAWB is somewhat different. For example:

- only a miniscule proportion of GAWB's sales are used for sustaining life – everything else is essentially discretionary and dependent on economic factors; and

- more than 50% of water supplied by GAWB is used in cooling processes for which substitutes do exist and for which technology risk of stranding is much higher than that which applies to potable water reticulation.

We submit that GAWB is fundamentally different from many of the utilities that we are benchmarked against because:

- the regulatory regime provides a higher risk (threat of asset optimisation, uncertain regulatory period, uncertain scope of future regulatory intervention);

- there is higher demand and cashflow uncertainty;

- there is a higher correlation of returns with market returns.

Whilst it may be true that water businesses in general have lower risk than other utilities, it is important that comparisons consider the specific businesses and their commercial and regulatory environments. As discussed in Section 2.1 above, 'incremental' utilities such as urban electricity, gas or water distributors have low risk because of the economic characteristics of the business – small investments, diverse customer bases.

Moreover these urban distribution businesses have lower systematic risk because their returns are dependent on migration, birth rates and local economic performance (and other specific factors such as take-up rates of air-conditioning, etc.). Returns are therefore likely to be uncorrelated with market returns. By comparison, GAWB's industrial customer activity varies more directly with changes in international markets.

In this respect, GAWB's business risk is more similar to the electricity generator providing energy to Gladstone's industrial customer base than with urban water distribution utilities.

Similar arguments were put to the QCA by GAWB and the QTC during the 2001 investigation. GAWB agrees with the QCA's conclusion:[37]

> This [future revenue] uncertainty would tend to suggest that the upper bound of the range is more appropriate for GAWB. CPM and Comalco's observations that the Authority's estimated asset beta for GAWB puts it in a higher risk league than the major NSW water supply businesses and ACTEW is consistent with the Authority's view. By comparison with these water businesses, GAWB is smaller, less diversified and is exposed to a proportionately higher level of excess capacity and medium term demand risk. GAWB is therefore more exposed to non-diversifiable risks than other water businesses not so reliant on lumpy industrial demand uptake.

However, GAWB believes that an asset beta in excess of 0.45 is justified.

Again we point to the ACCC's decision in the CWP case. The CWP shares many similarities with GAWB including uncertain future revenue and a regional industrial customer base. The ACCC's determination for the CWP highlighted the fact that the asset beta is dependent on (amongst other things) the regulatory regime, level of demand uncertainty and the nature of the customer base:[38]

> AGLP's comparisons with the [Victorian gas transmission network] ignore one crucial factor – the regulatory framework. If the regulatory frameworks applying to the Victorian transmission system and CWP were the same then the arguments put forward by AGLP regarding its greater relative risk may be valid to some extent. However, the frameworks are not the same. AGLP has proposed a NPV framework with economic depreciation. If the framework is retained over the longer term, as understood by the Commission, much of the demand uncertainty is removed by the fact that forecast shortfalls in revenue are capitalised into the regulatory asset base. Thus, the shortfalls are likely to be fully recovered by natural growth in the market even if it is slower than expected…
>
> On balance, the Commission considers that an asset beta of 0.60 is appropriate for the CWP. This value incorporates substantial allowance for the asymmetric and self-insurance risks claimed by AGLP as discussed earlier. It also reflects the risk faced by businesses in the Central West region insofar as that is dependent on the systematic risk of the whole market.

Notwithstanding that the ACCC provided a regulatory framework that is substantially less risky than that currently faced by GAWB (see Section 3), it selected an asset beta of 0.60 in this case.

GAWB submits that the QCA should adopt an asset beta for GAWB of at least 0.60.

If the QCA intends to retain an asset beta in the range of 0.45 then GAWB submits that it is reasonable that the QCA also de-risks the regulatory framework to the maximum extent possible to better align GAWB's regulated business risk with the allowed return.

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[37] QCA, Gladstone Area Water Board: Investigation of Pricing Practices Final Report, August 2002, p88

[38] ACCC, Access Arrangement by AGL Pipelines (NSW) Pty Ltd for the Central West Pipeline, June 2000, p 42

6.4 Return of Capital

Under the QCA's current 'physical' view of the RAB, return of capital is a component of the allowed revenue that represents the reduction in service potential of the RAB.

In its 2001 investigation, the QCA recommended that straight-line depreciation be used for all GAWB's assets. The QCA further stated that, in principle, it would prefer to apply a renewals annuity approach to long-lived infrastructure. This was not possible at the time as GAWB did not have the necessary asset management plan to provide the basis for such an approach.

In its Issues Paper, the QCA raised several questions related to the return of capital:[39]

> The Authority invites comment on:
>
> 17. return of capital, and in particular whether renewals annuities should be implemented;
>
> 18. which components of GAWB's network are more suited to the application of a renewals annuity;
>
> 19. the standards against which the comprehensiveness of annual maintenance, replacements and capex should be assessed and how to ensure that GAWB does not over maintain the assets; and
>
> 20. the manner in which GAWB would manage a renewals annuity account to ensure a capacity to fund major refurbishments over time.

GAWB is yet to finalise its asset management plan.

Moreover, while GAWB agrees that the use of a renewals annuity may have advantages over other forms of depreciation allowance for some utility assets (particularly if the expected asset life is greater than that of its components), we believe that the approach may not be valid for much of GAWB's asset base.

A typical example of the application of 'infrastructure accounting' and renewals annuity is an electricity distribution pole line. Every year the asset owner carries out work that renews the service potential of the line: replacing insulators, cross-arms, conductors and even entire poles based on the condition of individual components. The pole line might have been in the same place with the same service potential for 100 years even though no component is more than 40 years old. Provided the asset owner prudently 'renews' the line, the asset effectively has infinite life. In this situation a renewals annuity approach is much more intuitive than straight line depreciation based on a nominal weighted average 'remaining life' of components.

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[39] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p13

However, GAWB is increasingly of the view that the economic life of its investments (particularly storage investments) may be shorter than the physical life. Specifically sea water technologies and alternatives to fresh water cooling processes have the potential to significantly reduce the remaining economic life of GAWB assets (or at the very least their value). That is, adopting an accounting depreciation regime based on an infinite remaining life would not represent a more intuitive or accurate approach.

Instead GAWB proposes to maintain the current straight line depreciation approach for existing assets and minor new assets. The straight line approach is simple and well understood.

However where GAWB identifies particular assets that are likely to face shorter economic lives (because they are dedicated to industrial processes or projects with short lives or are at risk of stranding from alternative technology), GAWB will make a case for accelerated depreciation. Accelerated depreciation is advocated by the ACCC for regulation of redundancy threats for electricity transmission businesses (called Transmission Network Service Providers or TNSPs in the National Electricity Code):[40]

> the Commission's preferred approach is for the TNSP to anticipate potential asset redundancy as it believes that the TNSP is in the best position to identify such redundancy. The Commission will then appropriately provide for the redundancy of the identified assets via depreciation allowances. Provided that the regulatory rate of return is adequate there will be no incentive for deception on the part of the TNSP directed towards achieving a faster return of capital.
>
> Those assets that have been identified by the TNSP will receive accelerated depreciation allowances, and once fully depreciated will be removed from the regulatory asset base.
>
> The opportunity to identify redundant assets will only be provided at the start of each regulatory review period…

Moreover, to de-risk new investment and ensure a consistent treatment of investments over several regulatory periods, GAWB proposes to use 'economic depreciation' (similar to that approved by the ACCC for the CWP access arrangement) for significant new investments.[41]

6.5 Operation and Maintenance

As part of the price investigation, GAWB will provide QCA with a forecast of operating and maintenance expenses. We presume that this forecast will be subject to expert review to ensure that only efficient costs are included in the allowed revenue for the next regulatory period.

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[40] ACCC, Draft Statement of Principles for the Regulation of Transmission Revenues, 27 May 1999, pp 25.

[41] refer ACCC, Access Arrangement by AGL Pipelines (NSW) Pty Ltd for the Central West Pipeline, June 2000, p 70

In its Issues Paper the QCA raised two issues related to treatment of operating and maintenance costs in the regime:[42]

> The Authority invites comment on:
>
> 21. GAWB's operating expenditure, particularly in relation to:
>
> - the allocation of general administration costs; and
> - insurance costs, including those associated with extraordinary circumstances.

These issues are discussed below.

Allocation of Administration Costs

Whilst general administration costs represent around 30% of operating expenditure, this corresponds to less than 8% of GAWB's AARR. Therefore we do not believe that the allocation of administration costs within GAWB's pricing model is critical for efficient or equitable pricing outcomes.

In the absence of better information (GAWB has yet to consider the benefits of the activity based costing model discussed by QCA), we propose to retain the cost allocation methodology recommended by SMEC in 2001.

That is, 10% of general administration cost (representing billing, customer contract administration, etc.) will be allocated directly to customers on a per customer basis. The remaining 90% will be allocated between the Awoonga Dam, raw water delivery and treated water delivery assets based on the SMEC estimates of a typical relative administrative cost burden.

Allowance for Specific Risk in Cashflows

The QCA and other utility regulators have consistently argued that businesses facing high non-systematic risks should not be rewarded through a higher WACC. Instead the effects of this higher total risk position should be recognised in the businesses allowed cashflows.

One way to think about this is as 'insurance' for non-systematic or company specific risk events. Insurable risks such as those related to property fire and theft and public liability are insurable and the QCA includes the insurance premiums paid to third parties in the allowed operating and maintenance expenditure. Current insurance premiums total approximately $0.6m per annum excluding government fees and charges and the terrorism levy.

Some of GAWB's risks are currently not insured. Generally, these risks are either:

- not insurable (such as those relating to dishonesty or wilful default); or
- do not demonstrate value to GAWB having regard to the cost (e,g. Business Interruption insurance).

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[42] QCA, Gladstone Area Water Board: 2004 Investigation of Pricing Practices Issues Paper, April 2004, p14.

Uninsured risks include:

- uncertainty and asymmetry in volume forecasts;
- effect of drought (direct cost and loss of revenue); and
- loss of large customer(s)

In its 2001 investigation the QCA recommended that:

- the cost of insurance premiums for insurable events should be incorporated into the cashflows; and
- the potential cost of uninsurable events not be incorporated into the cashflows (because they cannot be estimated with any degree of accuracy or certainty).

The QCA further proposed that when an uninsurable event occurred prices would be adjusted to reflect the cost of the event. That is, the actual cost of uninsurable events would be recovered on an ex-post basis.

In general GAWB supports this approach.

The effect of adopting a revenue cap with an 'unders and overs' account is to reduce the volume risk and achieve precisely the ex-post cost recovery of the lost revenue associated with drought and/or the bankruptcy of a major customer: In Section 3.3 we argue that adopting a revenue cap form of regulation provides a better allocation of risks between GAWB and its customers. If a revenue cap were adopted, there would be no loss of revenue to GAWB from drought. Only the expected annualised direct cost of a drought would need to be included in the allowed cashflows. If direct drought related costs were included as a pass-through in the regime, then no ex-ante allowance for drought need be made in the cashflows.

If QCA proposes to retain price control then GAWB will engage actuarial advice (in conjunction with QCA if appropriate) to determine:

- which risks are insurable and should therefore be treated on an ex-ante basis (including where appropriate the value of self insurance premiums that should be included in the business's operating cashflows to compensate GAWB for these non-systematic risks); and
- which risks are uninsurable and therefore should be treated on an ex-post basis.