Review of the Delivered Price of Natural Gas in Wagga Wagga, Albury, Moama and the NSW Murray Valley Towns

Issues Paper

INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES

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Issues Paper

Gas 97-3 **August 1997**

Submissions

Great Southern Energy and Albury Gas Company are required to forward submissions by **Friday 19 September 1997** (copies will be available to interested parties).

Submissions to the Review addressing the issues covered in this paper and any other relevant issues should reach the Independent Pricing and Regulatory Tribunal at the address below by **Friday 17 October 1997.**

All public submissions will be placed on the Tribunal's home page - *www.ipart.nsw.gov.au*

A public register of submissions is available for inspection at the Tribunal Office.
Copies of submissions will be mailed on request for a small fee.

Any information provided in submissions that is considered to be "commercial in confidence" should be marked accordingly. This information will not be made public.

Public Hearings

Public Hearings will be held in November 1997 in Wagga Wagga and Albury.

Comments or enquiries relating to this report should be directed to:

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1 INTRODUCTION

In keeping with commitments made in 1994 by the Council of Australian Governments, the NSW Government is introducing competition into the supply of natural gas. Reforms have paved the way for suppliers[1] of gas who are not reticulators[2] to enter the NSW gas market. This has occurred through the development of a third party access regime for reticulation systems. Once suppliers have third party access to pipeline networks, they will be able to access existing reticulation systems and in so doing, compete for customers.

Although customers will eventually be able to choose their natural gas supplier, tariff customers[3] are not yet able to and it can therefore be argued that these customers are being supplied by a monopoly provider . This review, by the Independent Pricing and Regulatory Tribunal (IPART), considers the regulation of tariff market prices in the lead up to effective retail competition in the tariff market. It will investigate whether a gas pricing order should be made for prices charged to natural gas tariff customers in Wagga Wagga, Albury, Moama and the NSW Murray Valley towns.

1.1 Purpose of this review

The Tribunal is conducting a review of the tariff market in Wagga Wagga, Albury, Moama and the NSW Murray Valley towns[4] in order to determine:

- whether the gas tariff market should be regulated?

and if so,

- how prices should be regulated?

If it is established that there is a need for regulation, the Tribunal wishes to determine whether:

- gas is being delivered at least cost
- current prices are reasonable
- satisfactory service is being delivered to customers
- suppliers are receiving an appropriate return.

These questions raise particular issues relevant to Wagga Wagga and Albury. These are discussed in section 3.

Tariff customers served by AGL (95 percent of the tariff market in NSW) currently pay a delivered price for gas which is regulated through a "Price Control Formula". This formula was established as part of AGL's authorisation in 1986, which was granted under the auspices of *NSW Gas Supply Act 1986*. There are currently no formal price control mechanisms in place in Wagga Wagga and Albury.

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1 A ***gas supplier*** is a person who supplies natural gas to other persons, whether to end-user customers or other suppliers.

2 A ***reticulator*** owns or controls a natural gas transportation system within a region.

3 ***Tariff customers*** in NSW are those that use less than 10 terajoules of gas per year. These customers include residential customers (households), commercial customers (eg supermarkets) and industrial customers (eg. small scale industrial process plants).

4 All further references to Albury include Moama and the NSW Murray Valley towns.

Under the *NSW Gas Supply Act 1996*, the Tribunal is able to establish a pricing mechanism for delivered gas to tariff customers. Known as a ***gas pricing order***, this is developed pursuant to section 27 of the Act.

Essentially the Section 27 of the *NSW Gas Supply Act 1996* states a gas pricing order can:

- establish a methodology within which tariff customer prices for delivered gas must be set
- establish maximum tariffs or maximum average tariffs
- prohibit the imposition of certain charges.

Section 27 of the *NSW Gas Supply Act 1996* is reproduced in Appendix A.

1.2 Review Process

In conducting a full public review, the Tribunal is required to follow the process set out in section 32(2) of the *NSW Gas Supply Act 1996* and Part 4 of the *Independent Pricing and Regulatory Tribunal Act 1992*.

Part 4 of the *Independent Pricing and Regulatory Tribunal Act 1992* details the procedure for conducting investigations. This procedure involves requesting information, holding hearings and registering and disseminating information and submissions furnished to the Tribunal.

In accordance with Part 4, the Tribunal will:

- call for submissions from interested parties
- conduct a public hearing
- issue a report giving the Tribunal's findings.

The method and duration of any gas pricing order will be determined through a consultative process as discussed in sections 3.7 and 3.8.

The Tribunal welcomes comments from parties interested in any aspect of the delivery of gas to tariff customers in Wagga Wagga, Albury, Moama and the NSW Murray Valley towns, and specifically, on the issues outlined in this paper. Submissions from Great Southern Energy and Albury Gas Company are due to be received by the Tribunal on 19 September 1997. These will be available to interested parties who wish to address them in their own submissions. All other submissions must reach the Tribunal by 17 October 1997.

All public submissions will be available on the Tribunal's Internet home page - *www.ipart.nsw.gov.au* and from the Tribunal's offices. Public hearings will be held during November in both Wagga Wagga and Albury. It is envisaged that the review will be completed by early 1998.

2 BACKGROUND

The three natural gas reticulation networks in NSW, in order of size, are owned and operated by:

- AGL Gas Networks Limited (Wollongong, Newcastle, and various regional centres)
- Albury Gas Company (Albury, Moama, NSW Murray Valley towns)
- Great Southern Energy (Wagga Wagga network, formerly owned and operated by Wagga Wagga County Council).

AGL supplies most of the NSW natural gas market (about 96 percent), while Great Southern Energy supplies 1.6 percent and the Albury Gas Company supplies the remaining 2.4 percent.

The following table presents a profile of gas sales in Wagga Wagga and Albury:

Table 1 Gas Sales: Wagga Wagga and Albury

	Wagga Wagga	Albury
Population	57,000	48,150
Total number of customers	14,000	15,387
Sales of gas (TJ)	1,600	2,700
Network (km)	525	300
Average prices ($/GJ)		
Residential	$9.98	$9.41
Commercial/industrial	$9.70	$8.15

Source: Great Southern Energy and Albury Gas Company

2.1 Wagga Wagga

Situated half way between Sydney and Melbourne, Wagga Wagga is a significant regional centre with a population of approximately 57,000. The largest inland city in NSW, it is the commercial centre of the Riverina district. It is also strategically located on the route of the soon to be constructed Wodonga to Wagga Wagga pipeline connection between the Victorian and New South Wales gas networks.

Gas has been available in Wagga Wagga since the late 1880s. Manufactured gas was used until natural gas from the Cooper Basin became available in 1981. The supply and reticulation of gas has been a business of the Wagga Wagga City Council since the introduction of gas. Wagga Wagga City Council resolved to sell the business in October 1996. Great Southern Energy won the tender process and officially assumed responsibility on 27 June 1997.

The Wagga Wagga system currently serves about 14,000 customers who purchase approximately 1.6 petajoules of gas each year.

Most of the gas consumers in Wagga Wagga are tariff customers. They consume about 45 percent of total gas sold. The tariff market can be separated into residential and industrial/commercial sub-classes. Residential customers account for 96 percent of all natural gas customers in Wagga Wagga and consume about 34 percent of the total Wagga Wagga load.

Average residential consumption in Wagga Wagga is about 40 gigajoules per year. This compares to average consumption in Sydney of about 20 gigajoules per year, 58 gigajoules per year in Victoria, and 24 gigajoules per year in South Australia.

Of all households in Wagga Wagga with access to gas mains, 85 percent are connected to gas. By comparison, about 50 percent of households with access to the gas mains are connected in Sydney and 80 percent in South Australia. Customer connections in Wagga Wagga have increased by about two percent per year in the past few years. This growth has been driven by increased residential connection.

The other tariff customer sub-class is industrial/commercial customers. There are over 400 industrial/commercial customers in Wagga Wagga who use 11 percent of total gas sold.

The Wagga Wagga network also serves 12 contract customers.[5] These customers account for the remaining 55 percent of gas consumed. Commercial uses range from board processing, wool combing and hospital services to plywood manufacture and asphalt production. Gas is also used by large Army and Airforce establishments and Charles Sturt University.

Although this review does not cover contract market prices, contract customers are an important consideration when allocating costs. This aspect is discussed in section 3.4.1. Of particular importance are the "Bomen" customers. These customers are located very close to the city gate[6] on the Bomen Industrial Estate. These customers utilise very little of the reticulation network, but consume a large proportion of the total load.

2.2 Albury, Moama, the Murray Valley

The Albury Gas Company Ltd supplies gas in Albury, Moama and the Murray Valley towns. It is a wholly owned subsidiary of the Victorian Government public authority, GASCOR, previously trading as Gas and Fuel. Operationally, the Albury Gas Company trades as the gas reticulator, Stratus Networks, and the gas supplier, Energy 21. The Victorian Government has proposed that the business be sold.

Situated on the north bank of the Murray River across the bridge from Wodonga, Albury has emerged as a regional growth centre with a population of about 48,000. In 1883 it was legislated that Albury Gas Company could construct gasworks within the town and suburbs of Albury. In that same year, gas mains were laid in the principal streets of Albury. The Company operated as a private local company until 1928 when "The Gas Supply Company" assumed control. In 1963 the company became a subsidiary of the Boral group. Gas and

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5 ***Contract customers*** are gas users that consume more than 10 terajoules per year.

6 ***City gate*** refers to the connection of a town's reticulation system to the long haul transportation system used to transport gas from its source to the town reticulation system.

Fuel Corporation was authorised to purchase the business for approximately $801,000 in 1974. Natural gas was officially turned on at the Albury City Gate on 2 June 1977.

Reticulation of natural gas into the village of Jindera commenced on 29 August 1995 and into Moama two days later. In early 1996, the Company was authorised to provide delivered gas to the Murray Valley towns: the Shires of Berrigan, Conargo, Corowa, Deniliquin, Jerilderie and Murray. Natural gas was delivered to the first town of the Murray Valley project, Howlong, on 10 December 1996.

The Albury Gas Company network comprises of 300 kilometres of gas mains. Nine additional Murray Valley towns await connection. Approximately 95 percent of Albury Gas Company customers are residential. A further 4.5 percent are industrial and commercial customers. Average residential consumption in Albury is approximately 40 gigajoules per year. Total purchases from the Albury Gas Company system amount to approximately 2.7 petajoules of gas each year.

Gas market penetration in Albury is comparable to Wagga Wagga with 84 percent of household customers on the gas mains connected to gas.

Although contract customers represent less than one percent of customers, they consume about 68 percent of all natural gas sold by Albury Gas Company. Commercial uses include brickworks, dairying, textile manufacturing and newsprint milling.

3 MAJOR ISSUES FOR CONSIDERATION

The major issues for consideration in this review are:

- should the gas tariff market be regulated?

and if so,

- how should prices be regulated?

If it is established that the tariff market should be regulated, this would require the consideration of:

- the components of the price of gas
- the allocation of costs amongst customers
- the quality of service and customer satisfaction.

Each of these issues is discussed below.

3.1 Should the gas tariff market be regulated?

Regulation protects the interests of consumers from potential abuse by a monopoly supplier. The only supplier of a good or service, a monopoly supplier, may use its unique position to charge high prices and generate high profits.

Whether gas supply is a monopoly or a competitive business is often disputed. On the one hand it is argued that gas competes with electricity and other fuel sources. As households are already connected to the necessary electricity infrastructure and gas infrastructure is a choice for the customer, it can be argued that this exerts a sufficient competitive discipline. However, it can be argued that the competition between gas and electricity is not effective. For instance, the capital costs involved in switching energy sources, or inability to switch sources (eg for renters) mean that a user is a captured customer in the short term.

Reforms in the gas industry will lead to a more competitive natural gas market. In time, all customers will be able to choose their gas supplier as third party access to gas networks becomes available to all customers. Third party access is essential to the introduction of effective competition in natural gas.

Arrangements for access to the Albury and Wagga Wagga gas networks will be the subject of separate reviews.[7] The process leading to the declaration[8] of the Wagga Wagga network for access has already commenced. Currently in Albury, alternative gas suppliers are unable to transport gas to the Albury network through the Victorian Gas Transmission Company (GTC) pipeline. This will only occur once third party access on the GTC pipeline

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[7] An ***access review*** is a process for reviewing the terms and conditions under which a gas reticulator will allow third parties to use their pipeline network. Customers will have access to the reticulation networks in NSW in line with a phased timetable spanning approximately 5 years. The timetable phases access according to customer load, largest to smallest (see third party access timetable on page 1).

[8] If a reticulation system is ***"declared"*** it is considered to be a "covered" system. The Tribunal is conducting a consultation process to determine whether the distribution system in Wagga Wagga should be declared (subject to third party access) and, if so, recommend to the Minister that it be covered. This means that the owner or operator of the reticulation system must prepare terms and conditions, including prices, on the basis of which, third parties will be able to use the system to transport gas.

is available. As the benefits of third party access within Albury will only be realised when this occurs, the access review will commence accordingly.

The transitional timetable for retail competition throughout NSW has been established by regulation under the *NSW Gas Supply Act* 1996. This timetable indicates those customers that will have the right to access gas networks, once access regimes are in place. Having this right will enable customers to choose from whom, and how, they will purchase gas. Initially only larger customers will be able to choose their supplier, however by 1 July 1999 all customers will be able to do so. This timetable is summarised in Table 2.

Table 2 Timetable for Introduction of Retail Competition in NSW

Year	Load category
30 August 1996	New and existing loads ≥ 500 TJ pa
1 July 1997	New and existing loads ≥ 100 TJ pa
1 July 1998	New and existing loads ≥ 10 TJ pa
1 July 1999	Tariff market

Notes: 1. From 1 July 1997, aggregation of contract load sites consuming 10 terajoules or more will be permitted between end users that can demonstrate the same corporate ownership and consume a combined total equal to or in excess of 100 terajoules.
2. From 1 July 1998 any form of aggregation of the contract market will be permitted.

Tariff market controls may be more important in the lead up to competition because Great Southern Energy and Albury Gas Company have ongoing market power while small users are not contestable. Strategically, Great Southern Energy and Albury Gas Company could use this market power to favourably position themselves in the market before contract customers can choose their supplier. This could be done by adjusting prices in the tariff and contract market to recover a larger proportion of costs from the tariff market. Some reallocation of costs may be necessary (see section 3.4). However, reallocation can impose an inappropriate burden on smaller customers. It may also provide the incumbent supplier with an 'unfair' advantage in the competitive market.

In other similar markets (eg electricity in the UK) concern has been expressed about the effectiveness of competition for the smaller customers. The existing supplier may still enjoy significant market power. This has led OFFER[9] to consider whether some form of 'safety net' price control is required. This involves the regulator setting constraints to provide an upper limit for price increases to customers. Even without this step, there may be a pre-existing regulated tariff which can serve as a pre-competition benchmark, constraining the incumbent's use of market power.

Non-price regulation could be an important safety net for protecting small users. For example, in the UK, the Regional Electricity Companies (RECs) are required to adopt codes of practice, approved by the regulator, which govern the way in which business is undertaken with tariff customers. These include: guaranteed standards of service provision, bill payment options, services for elderly and disabled customers, and complaints procedures.

The Tribunal seeks comments on whether the delivered price of gas to the tariff market should be regulated.

[9] The UK electricity regulator.

3.2 Components of the price of gas

If the Tribunal decides that a gas pricing order should be issued, the next step would be to determine the regulated price. In order to do this, the Tribunal must consider the efficient cost of delivering gas to customers in Wagga Wagga and Albury. This includes the consideration of the different components of the cost and how these are to be passed through to customers in the price.

Several cost components make up the delivered price of gas: the field price and transmission (or haulage) of gas, reticulation and retail costs. These are the costs incurred by a supplier in delivering gas to a customer's door. The supplier incurs the cost of purchasing the gas from the field, transporting the gas from the field to the city gate through a transmission pipeline, transporting the gas through the reticulation system within the town, and running the supply business (retail costs).

The field price of gas and the haulage cost of gas can be considered separately. It is difficult to consider the reticulation and retail costs separately as Great Southern Energy and the Albury Gas Company have been operating as a bundled reticulator and supplier. This is because expenses in the past have been recorded for the business as a whole rather than specifically for the retail or the reticulation activity of the business.

In considering the pass through of costs to the customer, a regulator has two options. Firstly, costs may be passed directly through to the customer. This option may limit a supplier's incentive to reduce these costs. Alternatively costs may be set at a certain level by the regulator and the supplier then must then work within this level. This option allows the supplier to benefit from efficiencies or be disadvantaged by inefficiencies.

The following sections discuss the various components that comprise the price of delivered gas and associated issues that the Tribunal may need to address in this review.

3.2.1 Field price of gas

Both Great Southern Energy and the Albury Gas Company buy gas under contract from a single source. Alternatives may become available as pipelines are built linking the regions to alternative supplies of gas.

Great Southern Energy purchases gas from AGL under a take-or-pay contract.[10] The gas comes from the Moomba Basin in South Australia, which is operated by Santos. The Albury Gas Company sources its gas exclusively through the recently disaggregated Gas and Fuel Corporation of Victoria whose supplies are obtained from the BHP Petroleum-Esso producers in Bass Strait.

At issue is how the purchase cost of gas should be passed through to the customer. As the cost is currently beyond the control of the gas supplier, there is an argument that it should be simply passed directly to the customer. However, in the future, Great Southern Energy and Albury Gas Company may have alternative supply options, and may be able to negotiate cheaper purchase costs. If the cost was passed through directly to the customer, the gas supplier would have little incentive to negotiate a better deal and to reduce these costs.

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[10] A ***take-or-pay contract*** between a gas producer and a supplier is an agreement for the supplier to pay for a minimum volume of gas, regardless of whether it is taken.

The Tribunal invites comments on:

- ***the cost of gas in Wagga Wagga and Albury***
- ***passing through the cost of gas to customers.***

Great Southern Energy's take-or-pay contract may complicate matters. The Tribunal needs to consider the implications of who should bear any additional cost resulting from this contract; the remaining captive customers, or Great Southern Energy? An important consideration will be the ability of Great Southern Energy to maintain existing contract customers as well as attract new loads.

Take-or-pay contracts were considered in the recent AGL access review. Various parties in their submissions argued that the take-or-pay problem could be resolved commercially and should not require regulatory intervention[11]. Options available to the supplier were: renegotiating, diverting gas interstate, or growing the market. The Tribunal decided that these options were sufficient and that it was appropriate not to intervene. However, the Tribunal understands that the take-or-pay contract inherited by Great Southern Energy may be different to AGL's take-or-pay contract. This may need to be considered by the Tribunal.

The Tribunal seeks comments on:

- ***take-or-pay contracts***
- ***the methods and implications of passing through the cost of take-or-pay contracts.***

3.2.2 Cost of haulage

Gas to Wagga Wagga is hauled through the East Australian Pipelines Limited (EAPL) system. Gas to Albury is hauled through the Gas Transmission Corporation (GTC) pipeline.

At issue is how the cost of haulage should be passed through to the customer. There is arguably limited opportunity for the gas supplier to negotiate haulage costs. In that case, it may be appropriate to pass the costs directly through to customers. However, as the price of haulage is based on the demand Great Southern Energy or Albury Gas Company place on the transmission system, there may be scope for the supplier to reduce haulage costs by managing demand. The gas supplier could do this by providing customers with an incentive to reduce their consumption at peak times. Therefore in this context, directly passing through the cost of haulage to the customer may not be appropriate, as it removes the incentives for the gas supplier to reduce haulage costs.

The Tribunal seeks comments on:

- ***the ability of the supplier to reduce haulage costs***
- ***whether costs should be directly passed through to the customer***
- ***methods and implications of passing through these costs.***

3.2.3 Cost of reticulation

The efficient cost of transporting gas through the reticulation systems in Wagga Wagga and Albury should be reviewed in the assessment of the delivered price of gas. Reticulation

[11] Gas Council of NSW, January 1996, *An Inquiry into Access to the Natural Gas Distribution Networks of New South Wales*, pp 69-70.

costs are made up of operating and maintenance costs, return on assets employed, depreciation, capital expenditure, unaccounted for gas, and general administrative expenses.

The outcome of the access reviews will be to establish an 'arms length' price for transportation through the reticulation system which will apply to all users of the system.

For the purposes of this review, the Tribunal will assess whether current prices reconcile with a reasonable level of reticulation costs for the tariff market. The Tribunal will assess the level of the cost components and the pass through of these costs to customers.

Operating and maintenance costs

Operating and maintenance (O&M) costs are the expenses incurred in maintaining and operating the reticulation network. These costs consist largely of labour costs. Because O&M costs are largely controllable, there may be considerable scope for efficiency gains in this area.

In order to examine the extent to which Great Southern Energy and Albury Gas Company have scope to improve their efficiency, the Tribunal will examine current O&M expenses and the cost trends of the gas reticulation business. Where possible, the Tribunal will benchmark the relative performance of the business.

The Tribunal seeks comments on:

- ***current levels of O&M expenses***
- ***the most relevant indicators for benchmarking a gas reticulator***
- ***the validity of comparing Albury Gas Company and Great Southern Energy.***

A related issue is the change of ownership of gas reticulation in Wagga Wagga, and potentially in Albury. This is likely to change corporate objectives and incentives for improved efficiency. The change may also raise the issue of economies of scope[12] and scale. As this may impact on costs of the business as a whole, this aspect is discussed separately in section 3.3.

If there appears to be scope for future cost savings, the Tribunal will need to consider the extent to which and how quickly the benefits should be passed through to customers.

The Tribunal seeks comments on:

- ***the sharing of the benefits of cost efficiency between the customer and the gas supplier***
- ***the impact this may have on the incentives of the gas supplier.***

Unaccounted for gas

Unaccounted for gas (UAG) is gas lost during the transportation of gas through the pipeline network.

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[12] ***Economies of scope*** refers to a potential cost saving that a business may achieve by combining the production of two or more products rather than operating several separate businesses, each producing a single product.

The customer could pay for the actual UAG or a standard benchmarked level. How the cost is to be passed through will determine whether there are incentives for the reticulator to reduce gas losses. If the cost is a direct pass through to the customer, the reticulator may have little or no incentive to fund improvements to the system in order to reduce losses. If the cost of UAG is passed through at a benchmarked level, there is an incentive for the reticulator to reduce these costs.

The Tribunal invites comments on:

- ***the level of UAG to be passed through***
- ***how this is to be passed through***
- ***the impact this is likely to have on the incentives of the gas reticulator.***

Profit margins and return on assets

It is appropriate for the owner of a business, in this case a gas reticulator, to be able to earn a reasonable return on its investment and for this to be reflected in prices. In the case of a competitive business, the appropriate return is determined by the market. In the case of gas reticulation, which is a monopoly, the regulator must determine an "appropriate" return or profit margin.

Two broad elements need to be determined in assessing a prospective profit margin which may be reasonable:

- asset value
- rate of return.

Asset value represents the value of the owner's investment in the business. *Rate of return* reflects the cost to the investor of tying up investment funds in the business. Each of these is discussed below.

Importantly, with respect to asset value and rate of return, the Tribunal noted in its recent access determination relating to AGL Networks:

> "… it does not favour a strict application of a rate base/rate of return model. Accordingly, the target rate of return is not the determining factor of the revenue requirement, but it is one of a suite of financial indicators to which the Tribunal refers to in assessing the reasonableness of the regulatory outcome."[13]

The Tribunal clearly signalled in the determination that an approach that put undue emphasis on asset value and rate of return may lead to unreasonable expectations in the market place.

Asset value

Of several methods of asset valuation, the most common are:

- historical cost
- replacement cost
- depreciated optimised replacement cost (DORC)

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[13] IPART, July 1997, AGL Gas Networks Ltd Access Undertaking (as varied) – Determination, p 63.

- deprival value
- net present value (NPV) of future revenues.

Historical cost
The historical cost of assets (ie book value) reflects the original cost of constructing the assets, less accumulated depreciation. No adjustment is made for inflation or technology. Supporters of historical cost argue that if regulation is to act as a surrogate for competition, the asset valuation methodology should be the same as that used for competitive industries. Therefore, as most listed companies in Australia use historical cost as a basis for recording asset value, historic cost should be used by regulators. On the other hand, it can be argued that historical cost generally bears little resemblance to the value of the cash flows generated by an asset in its normal use and that it therefore is an irrelevant measure of asset value.

Replacement cost
Replacement cost reflects the cost of reconstructing the system today. A benefit of using replacement cost, is that prices reflect more closely the cost of additional capacity. An argument against replacement cost is that it leads to an over recovery for the utility as it allows the utility to earn a return on capital it never invested.

Depreciated optimised replacement cost
DORC is the replacement cost of an "optimised" system, less accumulated depreciation. An optimised system is a reconfigured system designed to serve exactly the current load. This method excludes any unused or under utilised assets and allows for potential cost savings that may have resulted from technological improvement. Calculating depreciation for this valuation approach is often a contentious issue.

Deprival Value
Deprival value is determined by making an assessment of the revenues that would be lost if the business were deprived of the asset.

Net present value
The NPV approach values an asset as the net present value of the cash flows that are expected from the use of the asset. This method suffers from judgemental considerations of an appropriate discount rate, forecast of revenues and residual value. This is further complicated as revenues are dependant on the asset value, yet in this instance, the asset value depends on future revenues, creating a circular argument. It is argued that the benefit of this approach is that it best represents the market value of the asset.

The NPV approach played a major role in determining AGL's asset value in the recent access determination. The asset value was determined after considering the regulatory price path. The value fell within the range of DORC and historical cost.

The issue of asset valuation is further complicated in the instance of Wagga Wagga (and potentially Albury) where the business has been sold. It has been argued that the amount that was paid for the business is its current market value and that this should be used as the basis for setting the price of delivered gas. The Tribunal is of the view that such an asset valuation is not appropriate as it gives a guaranteed rate of return on the sum of money the investor is willing to invest. This creates a spiral effect and sends the wrong signals to investors.

The Tribunal is mindful of the benefits of a consistent approach across the gas utilities it regulates. In this context the Tribunal seeks comments particularly in regard to the application to Wagga Wagga and Albury gas systems of the approach adopted for AGL.

A further consideration is the issue of capital contributions and how past customer capital contributions should be considered when determining an appropriate return on a regulatory asset value.

The Tribunal seeks comments on:

- ***the extent of past capital contributions***
- ***the treatment of past capital contributions.***

Rate of return

There are several models available to estimate the appropriate rate of return of a business. These include: the capital asset pricing model (CAPM), the discounted cash flow model, and a comparable earnings test. Generally, the Tribunal has adopted CAPM.

CAPM relates the required return of the asset to the risks associated with that asset. The approach requires several inputs to the model to be determined: the rate of return on a risk free asset (eg Commonwealth bonds), the rate of return on the equities market as a whole, and a measure of the riskiness of the utility relative to that of the equities market.

CAPM is then used to determine a utility's rate of return based on the weighted average cost of capital (WACC). WACC is based on the utility's cost of debt plus cost of equity. The utility's cost of debt can be readily determined by reviewing outstanding debt and any discount or premium on its issue. The rate of return on equity is derived through the CAPM model.

As noted above, one of the determinants of the return on equity is the business risk. With the introduction of third party access, a customer's ability to bypass[14] the reticulator's network can be considered a risk of the business. It may be appropriate to reflect this uncertainty in the reticulator's rate of return.

One potential risk with respect to Great Southern Energy is its inheritance of an existing contract for the supply of gas to Wagga Wagga. The take-or-pay contract is valid until 2006. This means, once larger contract customers are able to switch to an alternative supplier of gas (see section 3.1), Great Southern Energy will face the risk of having to pay for the original contracted amount of gas, despite the fact that it may have a smaller customer base. One could argue that Great Southern Energy should be compensated for this risk. However, Great Southern Energy may have already factored this risk into the purchase price of the Wagga Wagga gas business.

The Tribunal seeks comments on:

- ***the risks associated with the gas reticulation business in Wagga Wagga and Albury***
- ***an appropriate weighted average cost of capital.***

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[14] ***Bypass*** refers to a gas user/supplier physically building and operating its own gas pipeline instead of using the reticulator's system to transport gas. A customer may bypass a reticulator's whole system or a part of that system.

3.2.4 Retail costs

As noted earlier, retail costs are those expenses incurred to run the retail component of the gas business. These may include: expenses such as billing, marketing, customer advisory services, advertising, promotions, time spent handling customer inquiries and negotiating gas, haulage and reticulation. Again, the issue of relevance here is the pass through of costs. The Tribunal would like to avoid sending signals which could encourage gas suppliers to provide customers with services they do not want.

The Tribunal seeks comments on the retail costs incurred by gas suppliers.

Retail margin

One way of considering retail costs in the delivered price of gas is to assume a retail margin. A retail margin is designed to cover a reasonable level of costs necessary to run the retail business plus a return to make the business worthwhile.

London Economics completed a consultancy about retail margins for the Tribunal when it was considering the electricity industry. Results suggested that the retail margin was somewhere between two to three percent of sales revenue.

Taking into account the public consultation process, the Tribunal concluded in the access review that a retail margin component should be taken from AGL Network's allowable revenue. For the business as a whole, the retail margin was to be two percent of gas sales revenue. The Tribunal then allocated 70 percent of the retail margin to tariff market customers and the remaining 30 percent to contract customers. This resulted in a margin of three percent for tariff customers and one percent for contract customers.

The Tribunal seeks comments on:

- ***an appropriate retail margin for gas supply in Wagga Wagga and Albury***
- ***an appropriate allocation of the retail margin between contract and tariff customers.***

3.2.5 Metering costs

Metering costs are incurred in providing meters to measure customers' gas consumption, to service the meters and in reading the meters.

The metering questions relevant for this review are how to determine an efficient level of metering costs and then whether the current costs of metering in Wagga Wagga and Albury are reasonable.

The Tribunal seeks comments on:

- ***the current level of metering costs in Wagga Wagga and Albury***
- ***an appropriate level of metering costs.***

3.2.6 Growth

The following table outlines market penetration in Wagga Wagga and Albury compared to other states.

Table 3 Tariff Market Penetration 1996

Households connected to gas as a % of:	Wagga Wagga	Albury	South Australia	Victoria
All households	80	n/a	51.1	77.2
Households with access to gas mains	85	84	80.0	90.4

Source: Australia Gas Association, 1997, Gas Statistics Australia

Most costs of serving the tariff market are fixed. These costs are spread over the number of customers served, and built into the per gigajoule charge. Therefore, if the number of customers, and the volume of gas consumed per customer increases, the share of fixed costs to be recovered from each customer and per gigajoule is reduced. At issue are the scope for market growth and whether any cost reductions should be passed on to consumers.

The Tribunal seeks comments on:

- ***the potential growth in gas consumption and connection in Wagga Wagga and Albury***
- ***the pass through of cost reductions to consumers.***

3.3 Scope for cost savings

As Great Southern Energy is also a distributor and a retailer of electricity in the Wagga Wagga region, it may be able to reduce its costs by combining resources to operate similar functions in each business (gas and electricity) instead of requiring two separate resources. This could include costs such as field maintenance teams, billing systems, meter reading, system planning and marketing. At issue is the extent to which, and how quickly these benefits should be passed through to the customer. Passing all benefits to the customer may discourage the utility from pursuing economies of scope.

This could also be an issue for Albury Gas Company, depending on who purchases the business.

The Tribunal seeks comments on:

- ***the size of savings that are likely***
- ***the extent to which these benefits should be passed through to the customer.***

3.4 Allocation of costs

Allocation of costs is critical to determining prices for services such as gas supply. An "appropriate" allocation is not always easily achieved and is often subject to judgement. Where costs[15] are incurred to supply two or more customer classes (eg. tariff and contract) or two or more services (eg, gas and electricity), it is difficult to calculate the proportion of costs that each customer or service should pay.

Firstly, the cost of supply and the cost of delivery must be allocated appropriately to the contract and tariff markets and also to customer classes within these markets. If the

[15] These are often referred to as common or joint costs.

allocation is not appropriate, a cross subsidy may occur. This is discussed below in section 3.4.1.

Secondly, the costs incurred by the electricity and gas businesses must be allocated appropriately. This issue is becoming increasingly important as utilities diversify their core business to become **energy** providers as opposed to being providers of *just* gas or electricity. Cost allocation is essential in ensuring utilities do not double count costs and is a pre-requisite for effective competition. This issue is discussed in section 3.4.2.

3.4.1 Cross subsidies

A cross subsidy results when a group of consumers pay prices below the cost of supply and the difference is funded by a higher price paid by another group of consumers. However, as noted in the previous section, what constitutes the cost of supply may not be easy to identify. The cost of supply may be the fully distributed cost, the standalone cost, or the avoidable cost[16].

Cross subsidies result in distorted prices because the price ceases to reflect the cost. This leads to over or under production, and over or under consumption. This is an inefficient use of resources. For efficiency, prices should not include cross subsidies.

The Tribunal views the under recovery of avoidable costs as the most appropriate measure of a cross subsidy. However it is not always practical to measure avoidable costs. In the electricity industry, a fully distributed analysis was used initially as a benchmark. However the Tribunal's Secretariat requires electricity distributors to undertake studies of avoidable costs. For AGL Networks in the recent access review, standalone costs were used to identify and measure the size of the cross subsidy in the absence of reliable estimates of avoidable costs.

If a cross subsidy is found to exist, an appropriate strategy will be needed to address the problem. In previous determinations, the Tribunal has embedded the cross subsidy in the transportation charge and then unwound it as quickly as possible, consistent with broader objectives. This was the case with electricity and in the most recent AGL third party access review.

The Tribunal understands that concerns may be expressed regarding:

- the possible cross subsidy from contract customers, particularly the "Bomen" customers, to tariff customers in Wagga Wagga.
- the possible cross subsidy from tariff customers in Albury to other more remote Murray Valley towns.

The Tribunal seeks comments on:

- ***an appropriate cost allocation between tariff and contract markets***
- ***the existence of cross subsidies in Wagga Wagga and Albury***

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[16] Briefly, ***fully distributed costs*** are the resultant costs after allocating total costs using an arbitrary cost driver eg allocation according to customer consumption of gas or demand on the system. ***Standalone costs*** are the costs that would be incurred if a customer was served in isolation. ***Avoidable costs*** are the costs that would not be incurred if a particular customer were no longer supplied gas. For a more detailed discussion please refer to Independent Pricing and Regulatory Tribunal, July 1997, AGL Determination.

- ***a relevant indicator of cross subsidies***
- ***the strategy that should be adopted to address cross subsidies if they are found to exist.***

3.4.2 Ring-fencing and accounting separation

Great Southern Energy's operation of both gas and electricity businesses raises issues of accounting separation and information sharing that could affect competition in both the electricity and the gas market. On this basis, the Tribunal considers that it may be relevant for the review to address the following two issues:

- cross subsidisation across the gas and electricity businesses
- treatment of cost savings achieved through operating both businesses.

These are significant issues as:

- cross subsidisation distorts prices and may lead to the inefficient consumption of electricity and gas and the distortion of future investment in infrastructure
- inappropriate cost allocation / ring-fencing could allow Great Southern Energy to "double dip" by claiming the full cost of running both businesses despite the savings that this has achieved
- inappropriate ring-fencing and cost allocation may erode competitive neutrality between Great Southern Energy and other gas or electricity utilities. This situation is exacerbated by variations in the timetables for open access and contestability of customers.

This could also be an issue for Albury Gas Company if it is purchased by an electricity or gas utility.

A related issue is the need to separate contestable and non-contestable elements of the gas business (see in section 3.1). Great Southern Energy and Albury Gas Company could use market power to position themselves favourably before contract customers can choose a supplier. This could be done by adjusting prices in the tariff and contract markets to recover a larger proportion of costs from the tariff market. For these reasons, the Tribunal considers that it may be relevant to address cost allocation between customers that will soon be contestable (contract) and non-contestable (tariff) to ensure there is no cross subsidisation between these customers.

The Tribunal recognises that ring-fencing requirements impose costs on the gas supplier. The Tribunal may need to consider the costs imposed on Great Southern Energy and Albury Gas Company and whether these costs should be passed through to the customer.

The Tribunal seeks comments on:

- ***the need to ring-fence***
- ***the allocation of costs in a combined gas and electricity utility***
- ***allocation of costs between soon to be contestable and non-contestable customers***
- ***potential disadvantages for competitors.***

3.5 Prices

Prices provide signals to users about the costs they are imposing on the community by consuming a particular good or service. This means that prices should:

- reflect the efficient costs of providing a good or service
- be equitable, in providing for a fair and reasonable sharing of common costs between consumers
- be easily understood
- be easy to administer.

In assuring the price of gas meets these objectives, the Tribunal may consider the structure and the level of prices.

Price structure refers to issues such as the most appropriate mix of fixed ($ per year) and consumption ($ per megajoule) charges. Arguments for minimum charges as opposed to supply charges are relevant here.[17] To date, the Tribunal has been of the view that price structuring should be the responsibility of the utility.

With respect to the price level, the Tribunal has previously set side constraints to limit price increases as a 'safety net' for customers. This has been the approach taken for both electricity and AGL.

In electricity[18], domestic price increases are limited to the greater of:

- CPI[19] increase for the year or
- $5 per quarter ($7 per quarter for those with off-peak tariffs).

Industrial/commercial prices are limited to the greater of:

- 5 percent real increase[20] for the year or
- $50 increase per quarter.

AGL's Voluntary Tariff Setting Guidelines limit tariff increase per year to the greater of:

- 5 percent per year in real terms or
- $5 per quarter.

The Tribunal seeks comments on:

- ***an appropriate price structure for the price of delivered gas in Wagga Wagga and Albury***
- ***the appropriateness of setting side constraints in Wagga Wagga and Albury.***

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17 ***Minimum charges*** are a fixed charge for a block of consumption. A ***supply charge*** is independent of consumption and reflects the fixed costs incurred in supplying customers.

18 See Independent Pricing and Regulatory Tribunal, March 1996, Electricity Prices.

19 ***Consumer Price Index*** as measured by the Australian Bureau of Statistics.

20 ie, excluding inflation as measured by current year CPI.

3.6 Quality of service and customer satisfaction

Customer satisfaction is an indicator of business performance in Wagga Wagga and Albury. The Tribunal will assess recent performance in meeting customers' needs, keeping in mind the recent change of ownership in Wagga Wagga, and potentially, Albury.

The Tribunal is keen to ensure that increasing commercialisation and customer service are not competing objectives.

The Tribunal seeks comments on:

- ***gas customers' satisfaction with past service in Wagga Wagga and Albury***
- ***the gas suppliers' view of how well they have met customers' needs***
- ***relevant indicators for the Tribunal to use to measure customer satisfaction.***

3.7 Method of regulation

As discussed in the Introduction, the gas pricing order may either:

- fix maximum tariffs or maximum average tariffs and any other charges
- or fix the methodology by which maximum gas tariffs or maximum average gas tariffs and other charges are calculated
- or prohibit the imposition of any specified charges or class of charges.

In issuing a gas pricing order, whether it be the imposition of a maximum price or other constraint, the Tribunal needs to base its decision on a general approach.

In other reviews, the Tribunal has generally adopted a price or revenue cap. Price or revenue capping is a method of passing costs through to customers on an "inflation minus efficiency gains" basis. Hence, the frequent reference to CPI-X, CPI representing inflation, and X the efficiency factor. Price caps encourage the efficiency of a business, while ensuring customers receive a portion of the benefits from efficiency gains. This approach still requires the regulator to establish an initial, commercially sustainable revenue base. In doing so, the regulator may consider the return on assets, along with a range of financial indicators.

AGL tariff prices are currently controlled using a price cap: the "Price Control Formula". The Price Control Formula is specified in AGL's current authorisation. It calculates the maximum average price for delivered gas in each year based on CPI-X. The X factor is currently set at 1.5 percent. Side constraints are also imposed. AGL's Price Control Formula is due for review in early 1998.

For electricity, the Tribunal has adopted a revenue regulation approach. This determines the overall level of revenue earned by the utility, using a combination of a revenue formula derived from financial modelling and a CPI-X formula. In addition, to safeguard the interests of customers from drastic price changes, side constraints are set (as noted in section 3.5).

The Tribunal seeks comments on why a different approach should be adopted to determine gas prices in Wagga Wagga and Albury, if the Tribunal determines that regulation is necessary.

3.8 Duration of determination

Another consideration for this inquiry is the duration of the gas pricing order, if one is made. At issue is the need to strike a balance between establishing certainty for the customer and the utility, and the ability to reliably forecast crucial elements such as future loads and competitive outcomes.

The electricity determination in 1996 was set for three years. AGL's Price Control Formula was set for four years.

The current timetable for tariff market contestability should be taken into consideration. If tariff market customers become contestable in 1999 as currently scheduled (see section 3.1), it may be appropriate for the determination to cover prices until that time.

The Tribunal seeks comments on the most appropriate duration for a gas pricing order, if one is made.

APPENDIX A

Section 27 of the *NSW Gas Supply Act* states that:

1) The Tribunal may make an order (a *gas pricing order*) establishing a pricing mechanism according to which charges for natural gas supplied to tariff customers are to be fixed.

2) A gas pricing order:

   (a) may fix maximum gas tariffs or maximum average tariffs and other charges, or the methodology by which maximum gas tariffs or maximum average gas tariffs and other charges are to be calculated, whether in relation to tariff customers generally or in relation to any specified class of tariff customers, and

   (b) may prohibit the imposition of any specified charges or class of charges for any specified service or class of services provided to tariff customers generally or to any specified class of tariff customers.

3) It is a condition of a supplier's authorisation that the supplier must not impose charges on a tariff customer otherwise than in accordance with any relevant gas pricing order, subject to any other condition imposed on the authorisation with respect to the implementation of Government policy on community service obligations to tariff customers (such a condition requiring the granting of discounts or rebates).

4) At any time after the expiry of 12 months from the date on which the current gas pricing order was made, an authorised supplier may apply to the Tribunal for a new gas pricing order on the basis that changes in circumstances (such as general inflationary trends) mean that the current gas pricing order is now out of date.