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Economics of retail competition in Australia's natural gas industry

*Adam Roberts and Julie Harman**

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There has been considerable reform of the Australian natural gas industry. An element of this reform has been the introduction of 'contestability' — allowing customers to select their retailer of natural gas. The potential benefits and risks associated with this policy are presented and the key issues involved in the implementation of contestable natural gas market are explored. Aside from the potential risks, the policies that have been introduced in order to prevent potential difficulties are examined. It is found that, while increased retail competition is an important element of the reform process, the potential benefits are limited in the absence of further upstream reform.

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GPO Box 1563 Canberra 2601 Australia
Telephone +61 2 6272 2000 • Facsimile +61 2 6272 2001
www.abareconomics.com

Introduction

Natural gas is becoming increasingly important to the Australian economy. In 2001, Australia is estimated to have produced 34.3 Gm³ of natural gas and 4558 ML of LPG, earning \$3.5 billion (Haine 2001). Australian (domestic) primary energy consumption of natural gas is also expected to increase dramatically, with an expected average annual growth rate of around 3.5 per cent (Dickson et al. 2001).

The reform of the gas market in Australia has seen a move from traditionally government owned, vertically integrated monopoly transmission/distribution/retail firms (typically with a long term exclusive contract with a producer of natural gas), to privately owned vertically desegregated firms. Those firms operating in market segments that have the potential to be natural monopolies are regulated through access arrangements, ensuring that third parties are allowed access to these firms infrastructure with reasonable terms and conditions. This has been accompanied by the construction of an interconnection between the natural gas systems in New South Wales and Victoria, allowing competition between two natural gas basins and their associated transmission pipelines.

ABARE has undertaken significant research in gas market reform. This has included upstream issues (Harman and Melanie 1999) and regulation of the transport segment of the market (Harman and Roberts 2001). This paper continues this series of research, by examining the retail segment of the Australian natural gas market.

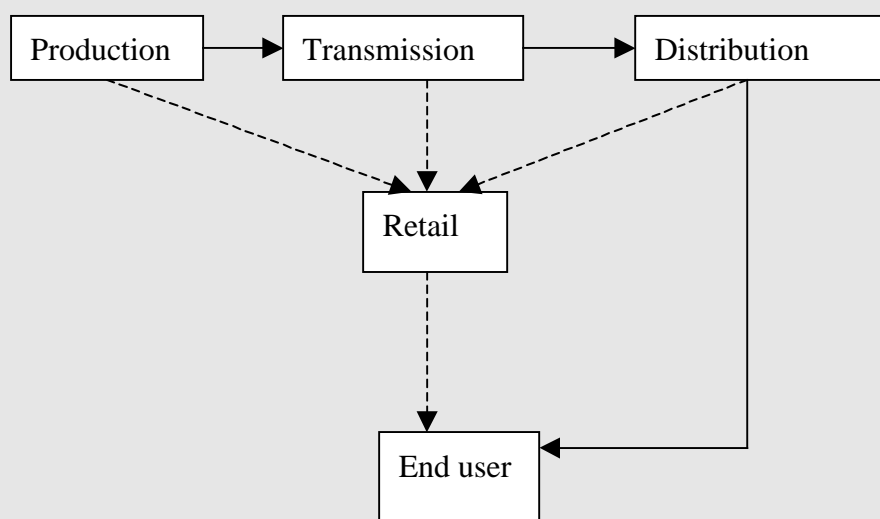
The natural gas market consists of four sectors, including the retail sector. Gas producers extract and refine natural gas. Gas transmission companies transport the gas from the processing plant to the city gate using high pressure pipelines while distribution companies transport gas locally from the city gate using low pressure pipelines connected to end users' premises. Gas retailers create a range of products which co—ordinate and combine the products of upstream market participants. A lack of competition in any one sector of the gas market can impact on the competitiveness of other sectors. Competitive outcomes in all segments of the natural gas market will ensure that end users receive the full benefits of reform.

Natural gas users may serve as their own retailer by participating directly in the market for natural gas, coordinating upstream products and accepting the risks — such as the risks of incurring penalty payments — which are usually accepted by the retailer. However, the costs involved in this process typically preclude it from being a viable option, for all but the largest end users.

A retailer creates a range of products by varying the terms on which it offers natural gas such as the firmness of supply and the time of delivery. Consideration of both the operations of a retail firm and the regulations surrounding this and other segments of the market provides insight into the effect of the reforms of the natural gas industry on end

users, and in particular on smaller end users. Although retail costs and retail margins are a relatively small proportion of the end user price, the importance of the retail sector in providing an interface with end users makes competition in the retail sector an important overall component of competition in the natural gas industry. The structure of the natural gas market is shown in box 1.

Box 1: The structure of the natural gas industry



The introduction of retail contestability involves the removal of two barriers to entry into the retail market. The first of these is government restrictions on the licensing of natural gas retailers, while the second is third party access being granted to pipelines. The removal of these barriers to entry does not imply the absence of other barriers to entry, which may include market power issues. A key element of the deregulation program should be the continuing assessment of remaining barriers to entry, with a view to removing them.

Government involvement in the retailing of natural gas is a result of the market power historically enjoyed by a vertically integrated (and typically government owned) gas companies. As these companies were privatised, regulation was required to ensure that the market power of these firms was not misused. However, the separation of vertically integrated companies into businesses that are natural monopolies (for example distribution) and potentially competitive activities, such as retailing was required to ensure that these firms do not exercise market power derived in a monopolistic segment

of the market. An example of this would be an integrated firm using its ownership of a distribution network to discourage entry into the retail segment of the market. Given the competitiveness, or contestability of these markets, there is less need for regulation of the retail market.

This paper provides analysis of developments in the retail sector and their implications for competition in that sector.

Contestability of retail gas markets

As part of the continued reform in the natural gas industry, natural gas users have progressively been declared 'contestable' (able to select their natural gas retailer) in a process that began in 1996. The date that a customer becomes contestable is determined by their state or territory authority and by their level of natural gas consumption.

The introduction of contestability reduces the need for regulation of the market, as the potential for entry into the market is expected to encourage competitive behavior by incumbent natural gas retailers. It is expected that any abnormal profits earned by a retailer would encourage entry into the market, which would place downward pressure on the retailers' margins.

In New South Wales, retail contestability became possible on 1 August 1997 when IPART released a Determination on AGL's access arrangement covering its distribution system. Prior to this, AGL did not have any arrangements for competing retailers to access their distribution pipelines (AGA 1998). The legal framework for granting natural gas retail licenses in New South Wales is contained in the *Gas Supply Act 1996*.

In Victoria, the vertically integrated government owned gas monopoly was separated into a transmission business and a distribution retail business in December 1994. In November 1997, the distribution/retail business was separated into three new gas retailers and three gas distributors (AGA 1998). The current licensing regime began on 11 December 1997 when the incumbent natural gas retailers (TXU, Origin and Gascor) were issued with licenses along with Esso. Further natural gas retail licenses were issued in late 1999.

Full retail contestability (where all gas consumers are contestable) is expected in all states by January 2003. The timetable for contestability is set out in table 1 below.

Table 1: **Timetable for contestability**

Annual consumption	Victoria	New South Wales	Queensland	South Australia	Western Australia
>500 TJ	1 Oct 1999	30 Aug 1996			1 Jan 1997
>250 TJ					1 Jan 1998
>100 TJ	1 Mar 2000	1 Jul 1997	1 Jul 2001	1 Apr 1998	1 Jan 2000
>10 TJ	1 Sep 2000	1 Jul 1998		1 Jul 2000	
>5 TJ	1 Sep 2001				
>1 TJ		1 Oct 1999			1 Jan 2002
All non—domestic customers				1 Jul 2000	
All remaining customers	1 Oct 2002	1 Jan 2002	1 Jan 2003	1 Sep 2002	1 Jul 2002

Source: Department of Industry, Science and Resources

Full retail contestability requires the development of market rules and procedures governing the operations of the firms in the market. These rules, which replace more direct government involvement, cover operations such as the procedure for customers changing retailers, transactions between retailers, the allocation of load between retailers and other factors necessary to facilitate trade in natural gas.

Regulation of the Australian natural gas market varies according to the respective market segment and jurisdiction. Transmission pipelines are regulated by the Australian Competition and Consumer Commission (ACCC). State authorities regulate the distribution and retail segments of the market. Regulations covering natural gas pipelines — both distribution and transmission — have a common source, with similar legislation being passed in each jurisdiction, the lead act being the *Gas Pipelines Access (South Australia) Act 1997*.

The reforms necessary to allow entry of additional natural gas retailers have been carried out independently by each state and territory. This has led to concerns by some industry participants that inconsistent regulations may impede retailers from operating in multiple jurisdictions.

The relative lack of active retail competition, despite the removal of these barriers to entry, may be partly explained by potential entrants awaiting the development of market rules prior to commencing active competition. When developing market rules, regulators need to consider the trade—off between the costs arising from an imperfectly functioning market and the costs imposed on retailers from complying with additional or more complex market rules.

Features of the retail market

In order for a retail market to operate effectively and deliver efficient pricing outcomes, several features are essential. These prevent an individual entity from exercising market power and include the facilitation of customer movement between retailers and security of supply.

Mechanism to change retailers

To facilitate the development of a competitive market, the process for customers to change retailers needs to be well defined in order to remove barriers to customers changing retailers. The retailer relies on either the distributor or system operator, to update the relevant systems and to act upon a customer request to change retailer.

Customers, especially in the initial stages of retail contestability may be reluctant to change retailers due to a perception of high transaction costs, uncertainty, inertia and the difficulty in obtaining and assessing information about competing retailers (Hinchy, Naughten, Donaldson, Belcher and Ferguson 1991). In the electricity market, small electricity customers in Victoria and New South Wales were less likely to change retailers than large customers, whose fixed transaction costs would be lower relative to total expenditure on electricity (ESAA 1999). In the Victorian gas market, the number of retailer changes and the number of customers for each tranche since contestability is shown in table 2. It can be seen that there are a relatively higher number of retailer changes in tranche 1, which consists of the largest gas consumers.

Table 2: Customer churn, Victoria

	No. of Customers	No. of Transfers	Transfers (%)
Tranche 1	46	32	70
Tranche 2	125	44	35
Tranche 3	602	125	21

The time between when a customer elects to change retailers and when that change is carried out may impact on retail competitiveness. Undue delays may provide an advantage to the incumbent retailer. In response to this concern, the Victorian Draft Rules (VENCorp 2001) contain a timetable covering the mechanics of the change which is imposed on market participants, and which sets deadlines for carrying out various components of the procedure to change retailer.

In New South Wales, there is a cooling off period between a retail customer entering into a contract and the contract taking effect. This feature is designed to reduce the incentives for potential retailers to engage in high pressure marketing techniques and to increase the confidence of natural gas users in changing retailers.

Security of supply

A retailer's obligation to supply

An obligation to supply requires a gas retailer to continue to supply customers in all but exceptional circumstances. This arrangement sets out the terms and conditions - —including prices — on which the retailer is required to supply gas to customers, as well as revenue protection measures available to a retailer, such as security deposits. In New South Wales, the obligation to supply applies both to existing customers at the time of contestability and to new customers connecting after the introduction of contestability. In the presence of default tariffs, the issue of recovery of the costs of connection arises (IPART 2001). A customer is given a choice between paying the costs of connection up front, and then being free to select their contract from those offered by competing retailers; or to sign up with a retailer providing a connection under an initial supply contract (where the tariff rate would presumably reflect the costs of connection). After the expiry of this contract the customer would then be free to choose between all retailers.

At the time of contestability, the obligation to supply in New South Wales falls on the incumbent retailer. Default supply contracts (Ministry of Energy and Utilities 2000) effectively create an obligation to supply on all retailers. Similar obligations to supply are contained in the Victorian franchise license (Office of the Regulation General 2001b).

Obligation to supply issues are a trade off between the relative interests of the consumers and retailers. While consumers seek surety of access to gas supplies, retailers may find themselves obligated to supply customers who fall outside their desired customer profile. This may discourage entry into the market, increasing market concentration.

In the absence of an obligation to supply, gas retailers may choose not to provide their services to those customers they deem unprofitable. In New South Wales, it is estimated that 70 per cent of residential customers do not meet the cost of supply (IPART 2001). This indicates the presence of a cross subsidy, where the retailers do not charge each customer group a price reflective of the costs involved in providing natural gas to that group of customers.

Retailer of last resort scheme

The retailer of last resort is the retailer assigned to take over the customers of a natural gas retailer who exits the market. This may be due to insolvency, or being suspended from trading. A company exiting the market voluntarily is likely to make arrangements for its customers in an orderly fashion, limiting the need for a retailer of last resort.

The New South Wales default service contract (Ministry of Energy and Utilities 2000) requires each retailer to contribute to the cost of a 'retailer of last resort' scheme and to enter into an agreement with another retailer to act as retailer of last resort. The retailer of last resort can charge tariffs no higher than the regulated tariff. The retailer of last resort is obligated to accept the customers from a retailer exiting the market.

The incentive for a retail company to accept a role of retailer of last resort may be the potential benefit by becoming the incumbent retailer of an additional tranche of customers. However, if the previous retailer is exiting the industry due to insolvency, their customer base may have been unprofitable, and this may in turn reduce the retailer of last resorts' profitability.

Market power issues

Vertical integration

The relatively small number of firms participating in the Australian gas market creates opportunities for a single company to hold interests in different sectors of the gas market and in different jurisdictions, giving that company considerable potential market power. Regulators have expressed concerns over a company owning both a retail and distribution business in a single jurisdiction. Almost all of the licensed distributors in the Victorian market have affiliated entities licensed to retail both electricity and gas (dual fuel retailers), be they single or multiple sector distributors.

The emergence of dual fuel retailers in the energy market raises additional market issues. These include relationships with a distributor, through a common brand name, or a large market share of contestable customers (Office of the Regulator—General, Victoria, 2000). These features may confer a strategic advantage on incumbent retailers (who may be better positioned to become energy marketers) compared to new entrants.

There are several methods by which an integrated firm may use its integration to obtain a competitive advantage:

- **Cross subsidisation:** By transferring costs from its retail to distribution business, an integrated firm may be able to increase its regulated (distribution) tariff — and therefore its regulated return by having an apparently higher regulated cost base.

This higher tariff could be applied to ‘captive’ users. It could also then offer a lower price in the more competitive retail segment of the market, thereby increasing its market share.

- **Preferential treatment:** An affiliation between a retailer and a distributor may provide an environment of cooperation. Outcomes of such behavior may include:
 - **Refusal to provide services:** In this case, the integrated firm refuses to deal with competing retailers. However, such an outcome would be likely to attract regulatory attention and is not expected to occur widely.
 - **Active preferential treatment:** The upstream firm actively prioritizes provision to the affiliated retailer. An example of this would be providing the service more promptly, or at a higher quality than is available to non affiliated retailers.
 - **Circumstantial preferential treatment:** While there is no conscious attempt to provide preferential treatment, the nature of their relationship leads to preferential treatment being given to the affiliated retailer. An example of this would be common access to information or joint marketing. For example, the distribution arm of an integrated firm is likely to hold commercially sensitive information — such as market shares, and consumption records. The retailer could use this information to enhance its marketing activities and to identify prospective potential customers.

Ring fencing of integrated businesses

To reduce opportunities for an integrated retailer to engage in cooperative behavior, taking advantage of its (combined) market power, there is a requirement that the two segments of the firms operations are ‘ring fenced’, or separated. Apart from being imposed at the time of privatisation or deregulation, this ring fencing is required to be maintained. There are four types of separation that may be imposed by Australian regulators (Office of the Regulator General, Victoria, 2000).

- **Ownership separation:** Requires divestiture of the retail business by the distribution business, removing incentives for cooperation between these companies. This has been used in Australia in the privatisation of government owned industries — such as the sale of Victorian natural gas companies.
- **Financial separation:** Requires separate accounting for distribution and retail businesses but does not require separation of personnel, systems, facilities or information. This is designed to eliminate cross subsidisation within the company.

- **Legal separation:** Extends financial separation to require distinct incorporated companies for distribution and retail activities, while allowing these entities to operate under the same corporate umbrella. While this may require the transfer of assets between entities within the group, it does not require divestiture of assets. Legal separation is required for gas distribution businesses in Victoria and New South Wales.
- **Physical separation:** This requires that the upstream and downstream activities be undertaken at different locations, and that there be either separate or partitioned systems, depending on the imposed level of physical separation. There are no restrictions on ownership of these physically separated companies. Regulators (VENCorp 2001) have indicated that some of the advantages enjoyed by an integrated firm arise through the proximity of the operations of the divisions of that firm, facilitating the sharing of resources and information as well as joint development of products.

Separation of the retail component from the other arm of the gas business is important in achieving the main benefits from retail contestability, which may be gained upstream. The importance of ring fencing in achieving desirable market outcomes is illustrated in the liberalisation of the British gas market. In this case, British Gas was privatized as a vertically integrated firm — covering production transmission, distribution and retail activities in 1986. No ring fencing provisions were introduced. This led to the creation of a privately owned natural gas monopoly, which required a series of regulatory interventions over a period of ten years, including vertical separation and close regulatory oversight of the firms operations to enhance more competitive market outcomes.

Pricing issues

The price, or tariff received by a natural gas company can be separated into a number of components. The first of these is recovery of the cost of the products that are sold to consumers, including the price of natural gas, and pipeline services. The second of these is the recovery of additional costs incurred by the retailer. The remainder is the profit of the firm.

Tariffs

The price charged by a retailer for natural gas is typically a two—part tariff — a fixed and a variable component — which varies according to the size of the customer. Large volume customers are typically charged a higher fixed component and a lower variable component. The converse is usually true for lower volume customers.

Retailers typically offer products with varying delivery times and security of supply. These products are available to large volume gas customers with more sophisticated metering equipment. This may allow a retailer to increase profits by more closely matching the price charged to a group of consumers to that group's willingness to pay. The significant costs of switching between gas and other fuels, together with the use of average pricing mean that the short run demand for gas is relatively inelastic. This feature may allow retailers in the short term to earn higher than standard profits through the retailing of natural gas.

Current IPART pricing regulations set a limit on retailers increasing a customer's total charges for a given consumption of natural gas (greater of \$15 or CPI + 3 per cent). However, there is uncertainty as to whether or not incumbent retailers will be permitted to pass on the costs of preparing for contestability to end users. This issue is likely to raise regulatory attention (IPART 2001).

Retailer costs

As they do not provide infrastructure, retailers of natural gas, tend to have low fixed costs. The costs of the retailer are a small part of the total end user cost of natural gas. The capital used in the retail sector is typically neither sector specific nor prohibitively expensive, reducing any barriers to entry or exit.

An indication of the average retailer costs in New South Wales is (IPART 2001):

- Supply price of gas and transport costs to the city gate — 30 per cent
- Local distribution and metering costs — 60 per cent
- Retailing cost — e.g. billing and marketing — 8 per cent
- Net retail profit margin — 2 per cent

The majority of costs incurred by a natural gas retailer are upstream costs, of which the largest is the cost of distribution.

This cost structure illustrates the importance of upstream competition in obtaining significant future price reductions to end users. One purpose of the implemented access arrangements for gas transport tariffs is to mimic competitive market outcomes. Access arrangements have typically seen reductions in overall tariff levels. If the tariffs set by access arrangements to date approximate competitive tariffs, future price reductions in the transport sector may be more limited. Given retail margins are only around 2 per cent of the end user price, future price reductions may then be largely dependent on decreases in the supply price of natural gas and the availability of efficiency gains reducing the costs of natural gas retailers.

There are regulatory controls on the pricing behavior of natural gas retailers. In New South Wales, AGL is required to obtain IPART's approval prior to changing the fixed component of the tariff (IPART 2001). The New South Wales default gas supply contract (Ministry of Energy and Utilities 2000) sets out a single maximum retail tariff for natural gas, providing assurance to natural gas customers who switch retailers or pricing plans.

A commonly used measure of the profitability of a retail company is the retail margin, or the difference between the price that is charged and the cost of the product to the retailer. This markup is used to cover the costs of the company apart from the cost of purchasing the natural gas and associated services (such as transmission and distribution) — and to provide a profit margin. The margin of a firm is related to the volume traded and the firm's cost structure in a number of ways. First, a high volume business is able to charge a low margin on a high quantity of goods in order to meet its other costs, while a low volume business will require a higher markup in order to meet costs. Second, the higher the other costs incurred by the firm, the higher the margin required to meet these costs.

One issue is whether the level of retail margins is considered adequate for the level of retail risk. It has been proposed that a net retail margin of between 1.5 to 2.5 per cent is an acceptable risk adjusted return for electricity suppliers (IPART 2001).

The reported margin of retail firms in Australia varies. Great Southern Energy, (operating in regions surrounding Wagga Wagga, New South Wales) reports margins of 4.1 per cent of sales turnover (Great Southern Energy 2001).

In New South Wales, (IPART 2001) AGL's net retail margin (defined as the margin on gas sales before interest and tax but after all other costs, including retail costs) on customers consuming less than 10 TJ of natural gas a year is between 2 and 3 per cent. AGL Retail Energy's overall gross margin (retail costs plus profit margin) is around 9.6 per cent.

At present, Australian retail markets are characterised by a small number of dominant firms, together with a fringe of smaller retailers, serving fewer customers, and operating at lower volumes than the more established retailers. These lower volumes may mean that new retailers would typically require a higher margin to cover their fixed costs.

Retail competition

To date incumbent retailers continue to supply the majority of the market. Reasons for this include the limited number of upstream supply sources in Australia and the presence of long term contracts between incumbent wholesalers/retailers and natural gas suppliers. In the transmission sector, the majority of pipeline capacity is also contracted

by incumbent wholesalers/retailers. It would be expected that, as alternative supply and transport options develop, greater opportunities are expected to arise for new retail entrants.

The entry of retailers is expected have several effects.

- An overall increase in the level of competition in the gas market.
- An increase in competition would provide downward pressure on gas prices if retailers undercut each other's prices in a bid for market share. Incumbent retailers will lose market share if new retailers can provide competitive products. The size of the gas market may grow, as retailers engage in marketing activities, which encourage a wider use of natural gas. However, it has also been argued that the bulk of marketing is done by distribution companies seeking to increase the size of the market, and thus reduce average fixed costs (Envestra 2000). Depending on relative fixed and variable costs, retailers may have an incentive to increase their margins, in preference to increasing their customer base. This outcome may limit the market growth attributable to retail contestability.
- The formulation of the market rules and procedures impose costs on market participants. Any price reductions associated with retail competition are likely to be concentrated on market participants who actively select their retailer. As such, these gains are more likely to be captured by larger end users. Potential gains from retail competition (reduced gas prices) are also limited given the retail component of the end user price is only around 10 per cent and by relatively low retail margins.
- Retailers have an incentive to develop new products. For example, there is expected to be growth in 'energy products' from dual fuel retailers, providing more flexible products for end users.
- An increase in the number of retailers seeking access to alternative supplies may enhance the development of alternative sources of supply and transport options. This could increase the level of inter and intra basin competition, and the construction of additional pipelines, enhancing the level of upstream competition.

Conclusion

This paper has examined the reforms in the retailing segment of the Australian natural gas market.

The main points of this paper can be summarised as:

- The relatively small number of firms participating in the Australian gas market creates opportunities for a single company to hold interests in different parts of the gas market, giving that company potential market power.

- Given the retail component of end user price is around 10 per cent, with retail margins around 2 per cent, future price reductions may be largely dependent on decreases in the supply and transportation price of natural gas.
- Customers, especially in the initial stages of retail contestability may be reluctant to change retailers due to a perception of high transaction costs, uncertainty, inertia and the difficulty in obtaining and assessing information about competing retailers.
- An increase in the number of retailers may enhance the development of alternative sources of supply and transport routes.

The introduction of full retail contestability, along with enhanced competition in other sectors of the market is expected to promote additional sources of supply and transport of natural gas. This will provide opportunities for new natural gas retailers to enter the market and provide competition to incumbent retailers. A contestable retail market will access the cheapest gas available, encouraging upstream competition in — supply.

In order for retail competition to result in positive outcomes for end users of natural gas, continued reforms leading to decreasing market power and increased upstream competition are also required in the supply and transport sectors, ensuring that competitive market outcomes occur in all segments of the market for natural gas.

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