

monopolist may pad his costs by claiming excessive managerial remuneration, inflating asset values or excessive payments to affiliated supplier companies.

The classic problem faced by regulators of utilities is that of controlling excessive prices charged by natural monopolies. Simple approaches based on utility costs are now seen to suffer from deficiencies similar to those made notorious by US defence department “cost plus” contracts. As Smith (1998, p 26) notes “Usually prices are set on the basis of cost plus a return so price increases are justified by and related to cost increases. This provides little incentive to increase productivity and efficiency. Linking prices to the inflation rate less a discount factor to encourage productivity improvements, is one way of addressing this problem. Alternatively, instead of directly setting prices, the authorities might set a maximum rate of return which can be earned: anything above this would incur a tax surcharge of 100%. Each of these approaches has problems”. In the absence of natural competition, regulators are thus forced to a variety of ad hoc pricing interventions in order to prevent private infrastructure owners from exploiting monopoly positions.

Price cap regulation has inherent difficulties. While it may appear successful in forcing productivity gains to be found and passed on to consumers (in contrast to cost plus regulation) in the long run it may induce cuts in service or lack of investment.

King (1998, p 49) observes, for example, that “if the regulator seizes profits created through productivity gains in an opportunistic way, then this will simply reduce the incentive for these gains to be made in the future, making both the firm and the consumers worse off in the longer term. Even if the regulator evaluates profits and consumer benefits equally, it is still desirable to have a positive X factor and to adjust the cap at regular reviews so that excess profits are eventually returned to the consumer. Pricing above true marginal cost (or above a minimum sustainable price) will lead to a loss of allocative efficiency by eliminating potentially mutually beneficial trade.”

It should also be noted that price cap regulation does not in itself ensure producers and consumers are charged economically efficient marginal cost and that price cap regulation is very much a feeling of one’s way towards lower prices, but only at the risk that too low a price will lead to infrastructure rundown or non-provision.

But as Carpenter and Lapuerta (1999) point out, the antithesis between price cap regulation and cost of service regulation is a false one. While CPI - X regulation can give incentives in starting a regulatory regime where there is “fat” in the system, in the end there is no avoiding of the question of costs and rates of return if one wishes to avoid abuses of monopoly position. Real world regulation is messy. Quiggin (1996, p 195) comments that “the CPI - X approach has merits in its transitional role. In the long term, however, the approach is untenable and must be replaced by some form of direct price surveillance or rate-of-return regulation.” In practice, real-world price regulation eventually has to look at the capital costs of utilities. This is where the focus of regulatory action is emerging in Australia.

While the British adoption of “light handed” regulation was intended to avoid the litigious United States regulatory procedures, Carpenter and Lapuerta (1999), drawing on the experience of British gas regulation, conclude that “First, light-handed regulation has not worked as anticipated to avoid the need for lengthy regulatory proceedings. Second, light-handed regulation has unintentionally created inefficient incentives for regulated companies. Third, light-handed regulation has not successfully constrained the monopoly power of incumbents.” They argue that the United Kingdom “did not adequately anticipate the complexities of regulating private companies with monopoly power” and that other countries “would do well to avoid the extremes of either heavy-handed or light-handed regulation.” The basic problem is that “British regulators have found that reasonable prices cannot be determined without an inquiry into the costs of the regulated company. British regulatory practice has had to respond by becoming more heavy-handed, performing similar cost analyses to those traditionally performed by United States regulators. Unfortunately the regulated companies have the advantage of knowing their costs far better than the regulator, and have systematically used their advantage to the detriment of consumers. Light handed regulation has also created inefficient incentives and allowed regulated companies to abuse their market power.” Their comments are supported by the views of Beesley and Whittington who both note that, in gas and water, UK regulators have had to move onwards from price cap regulation to scrutiny of costs and capital bases.

The reality has been that “RPI - X regulation as originally proposed is not sustainable without an analysis of costs. ... RPI-X regulation in the United Kingdom has since evolved into a cost analysis quite similar to United States regulatory practice. Regulators assess the value of existing investment that should be recognized in the determination of prices. They also estimate a reasonable rate of return on this investment, and project its depreciation over the 'control period', which refers to the number of years before the question of reasonable prices will be revisited. Projections of operating costs and capital expenditures for the control period are also involved. Prices are then set at levels which, when adjusted over the control period by RPI -X and accounting for projected changes in volumes, will compensate for operating costs and a reasonable rate of return on investment.”

Faced with this system, regulated companies in United Kingdom abuse their information advantage by spending less than projected by the regulators. This “underspend” becomes a source of monopoly rents as companies are paid by users for investment never undertaken.

The intent of Hilmer and Part IIIA was effective regulation (as opposed to “heavy-handed” or “light-handed” regulation). “Light handed” regulation in the UK and NZ (as a reaction to USA- type regulation) has worked against consumer interests and investment expansion. UK experience since privatisation shows that the UK has had to move away from a strict price cap regulatory model (CPI - X) to one which incorporates rate of return regulation and informed regulation which has to look at assessed costs (see Whittington and Beesley).

Case Study 6 Light-Handed Regulation

Light-handed regulation is a term that is often used, but is very rarely defined. To some, it means New Zealand style of regulation (hands-off regulation). To others, it means UK style regulation, or anything provided its not US style regulation. A critique of light-handed regulation is (by Paul Carpenter and Carles Lapuerta) is included in Appendix 3. They conclude "Although attractive in theory, the implementation of light-handed regulation in the United Kingdom has faced several problems:

- *First, light-handed regulation has not worked as anticipated to avoid the need for lengthy regulatory proceedings*
- *Second, light-handed regulation has unintentionally created inefficient incentives for regulated companies.*
- *Third, light-handed regulations has not successfully constrained the monopoly power of incumbents."*

BHP suggests that the debate should move on from 'heavy-handed' versus 'light-handed'. It should focus on 'Effective Regulations':

- *Is it effective in removing monopoly rents and providing access at fair and reasonable prices?*
- *Is it cost effective (cost versus benefits)?*
- *Is it effective in supporting new investment, best practice operating and capital cost efficiency?*

Emotive labelling of regulation is adding no substance to the debate of whether regulation is delivering the desired policy outcomes.

Case Study 7 The Necessary Elements of Effective Regulation

Effective regulation requires that a number of key elements be in place. The key elements have been proposed by NERA in a paper "Rocks on the Road to Effective Regulation" (see Appendix B) NERA propose the following are essential:

- *Strong primary legislation.*
- *Credible and comprehensive administrative procedures for making regulatory rules and adjudicating disputes.*
- *Accounting regulation.*
- *Independent regulators.*
- *Clear pathways for judicial review of regulatory decisions.*

BHP Petroleum's assessment of the current position of gas access regulation against these elements is shown in

Table 2.

Table 2 BHP Assessment of Gas Access Reform

Element	Rating (Max 5)	Comment
Primary Legislation	4	Implemented in all major states. Diminished somewhat by derogations (eg. Qld).
Administrative Procedures	3	Some regulators (eg. NSW) not subject to administrative law.
Account Regulation	1	Not effectively addressed by the Gas Code, or by regulators.
Independent Regulators	4	Generally good, but the political preference for State-based regulation raises concerns. Some entitled 'regulators' are challenged by the requirements.
Judicial Review of Decisions	3	Appeal rights within Code are biased in favour of service providers.

Information disclosure is essential for efficient and informed economic regulation. Information disclosure is needed to protect against regulatory capture, to allow cross-checks on the regulators, and to enable bench-marking to be used. As Edwards (1998) notes, unless there is transparency, stability and proper ring-fencing one cannot assess the success or failure of regulation nor can one limit sensibly practices such as regulatory gaming.

For example, where demand forecasts are understated and there is a regulatory windfall secured by asset owners over the access period, there should be audit and a requirement to credit users with a charge rebates in the next access period. Otherwise owners have every incentive to understate future demand estimates.

Information and resource asymmetries require adequate funding of regulators and users' advocacy activities in the interests of informed regulation and a level regulatory playing field.

Regulation would be greatly improved if there were standard regulatory accounts (similar to tax accounting standards, company reporting standards). In this regard, adoption of DAC and nominal returns would make regulatory data more comparable with normal accounting data used by financial markets.

Case Study 8 Information Disclosure and Effective Regulation

The regulation of access to monopoly energy infrastructure can only be effective if the owner of the infrastructure is required to disclose detailed cost and energy flow information to both the regulator and users. Only when this information is freely available can all stakeholders engage in informed debate. The National Third Party Access Code recognises this and makes specific provision for public information disclosure. The law also provides for the regulator to obtain any information it considers necessary. Unfortunately some service providers appear to believe that the provision of adequate information to enable users to understand the derivation of the elements of the Access Arrangement is optional.

Perhaps the best example of a service provider not disclosing adequate information to the regulator and users is found in South Australia. The Draft Decision released by the SAIPAR in April 2000 makes it clear that SAIPAR believed that Envestra had not supplied enough information to users and the regulator.

We quote the following from SAIPAR's Draft Decision.

"SAIPAR must comment on the lack of information provided in the Access Arrangement documentation. As indicated by the wide-ranging nature of public submissions on issues pertaining to the Total Revenue, there was simply insufficient information to enable many interested parties to fully analyse the Envestra proposal." SAIPAR Draft Decision p87

"Whilst SAIPAR understands that Envestra may have concerns about the commercial sensitivity of some of the data provided and therefore request that it not be made publicly available, it is also the case that networks in other jurisdictions have made vastly greater amounts and more detailed levels of information available on a public basis. Attachment A of the Code, 'Information Disclosure by a Service Provider' indicates which information must be provided. In several cases, it has not been a case of information being too aggregated in nature but simply not supplied (a fact that was noted in the public submission phase of the approval process). Therefore, whilst SAIPAR respects the 'commercial-in-confidence' basis on which a large amount of supplemental information has been provided to the regulator, it cannot condone the extensive use of commercial concerns to minimise public information provision to the degree it has done. SAIPAR feels this has hindered evaluation of the proposed Access Arrangement and reduced the extent to which the public has been able to scrutinise the proposal." SAIPAR Draft Decision p87

"After discussions with Envestra, SAIPAR formed the opinion that Envestra had not been able to produce the information as required by the Code." SAIPAR Draft Decision p89

"Essentially, issues relating to allocation of revenues/costs were not raised because Envestra provided insufficient information in the Access Arrangement documentation to enable such a critique to be made ..." SAIPAR Draft Decision p95

"As with the allocation of revenue (costs) between Services, the allocation of revenue (costs) between Users was not specifically addressed in any detail by submissions. The limited information contained in the publicly accessible documents was no doubt a primary reason for this." SAIPAR Draft Decision p97

Since the Draft Decision, Envestra has made a small amount of additional information on the derivation of some tariffs publicly available.

It is unfortunate that some Australian regulators appear content to release opaque decisions and not require that service providers comply with the Code. In BHP's opinion, this can lead to the perception of regulatory capture and to the erosion of user's confidence in the regulator. We call on the Productivity Commission to endorse the release of cost and energy flow information for energy networks that are subject to open access.

8.3 Regulator Expertise

Given the complexity of regulatory issues, it is difficult for a country of Australia's size to find enough persons with specialist expertise who wish to make a career in regulation. While regulators try their best, it must be recognized that the weight of expertise is likely to gravitate to the utilities who can outbid regulators for resources. Regulators need to develop a shared pool of permanent expertise, both on salary and private sector experts on retainer to ensure they can match the regulated businesses in reviews.

Case Study 9 Flexible Regulation: NSW Cross Subsidies

The existence or otherwise of a significant cross subsidies in the NSW gas industry has been a contested issue over the past 10 years. From around 1990 until 1998, AGL claimed that a substantial cross subsidy existed (and access prices should be higher as a result). In 1999 AGL reversed its position, and claimed that no cross subsidy existed (and access prices should be higher as a result). The regulator's response to these inconsistent claims is a major concern.

Claim that cross-subsidies existed

In its submission to the Gas Council (the regulator of the NSW gas industry until 1995), AGL claimed the removal of cross subsidies between contract market and the tariff market was the most important issue to be addressed in the price review, and that it was vital that cross subsidies be resolved prior to the introduction of third party access.

This argument was repeated in many other fora, and was adopted by the Australian Gas Association as a critical 'transition issue' that had to be resolved as a pre-condition to third party access. The Gas Council in its January 1996 report concluded that a cross-subsidy existed, but did not estimate its magnitude.

Regulation switched from the Gas Council to IPART in 1996, and IPART reconsidered the AGL(GN) claim of a cross subsidy. Note that this claim was not substantiated by AGL on the public record. IPART also concluded that a cross subsidy existed in its 1996 draft decision because revenue from tariff market did cover the avoidable costs of servicing the tariff market. IPART's definition of avoidable costs included 'the opportunity cost of utilising the assets to supply the [tariff] market...'

On the basis of this conclusion, IPART approved the transfer of \$75 million from the Gas Customers Reserve Account¹ to AGL to boost profits, and a further \$10 million transfer to encourage growth in the tariff market. Further, IPART concluded that due to the existence of a cross subsidy, the price of access for the industrial market should be increased over cost by a 'transition amount'.

Submissions to IPART challenged the existence of a cross subsidy, and the definition of a cross subsidy used by IPART. Seeking to be diplomatic, London Economics noted the definition used by IPART was 'not in accordance with current economic thinking'. Notwithstanding these submissions, IPART pressed on with its conclusion that high prices to be the industrial market represented (substantially) a cross subsidy and not a monopoly rent. It therefore approved a phased reduction in revenue from the industrial market to be offset by the transfer from Gas Customers Reserve Account and an increase in revenue from the tariff market. IPART accepted AGL's evidence that tariff market prices could not be significantly increased due to pressures from competitive fuels (especially electricity). IPART also noted that if the tariff market was unable to pay its incremental costs (as claimed), it may signal the need to reduce the value attributable to the assets that supplied the tariff market.

¹ This account was established to hold capital gains made by AGL that were attributable to NSW gas customers. It could be used for the benefit of gas customers with the approval of the NSW government

This comment by IPART created a dilemma for AGL. On one hand, it could maintain its claim of a cross subsidy and hence high prices for the industrial market. However, it faced the prospect of a lower asset value for the tariff market system, which had the bulk of the assets.

On the other hand, it could drop its claim of a cross subsidy and maximise the tariff market asset value for regulatory purposes, but faced the prospect of lower prices for the industrial market.

Reversal of the Claim of Cross Subsidies

In 1999, AGL Gas Networks lodged its access terms with IPART for approval. There was no claim, or even mention of the famous cross subsidy which had dominated the NSW gas access debate for the previous 8 years.

Not unexpectedly, IPART appeared surprised by the sudden reversal of position. At the public hearing IPART noted the previous AGL Gas Networks' position that tariff market gas prices could not be raised due to electricity competition. IPART sought an explanation why this had changed. AGL Gas Networks responded that there had been 'a shift in perception' and 'this is simply the beginning and the end of it'. No further information was put on the public record on this matter by AGL Gas Networks.

IPART responded to this shift in position by AGL Gas Networks by shifting its definition of a cross subsidy. IPART noted that revenue from the tariff market, and defined avoidable as being operations and maintenance costs only. The 'opportunity cost of utilizing the assets' was dropped from previous IPART definition of avoidable costs. Using this new conclusion on cross subsidies, IPART concluded the value of the assets servicing the tariff market would not have to be written down as suggested in the 1997 decision, and instead approved a \$400 million increase in asset valuation. IPART also concluded, notwithstanding the disappearance of the cross subsidy, that AGL Gas Networks could continue to impose a 'transitional change' on industrial users.

The total value transfer from gas customers to AGL that was endorsed by IPART on the basis of a cross subsidy was:

<i>Gas customer reserve account</i>	<i>\$ 85M</i>
<i>Industrial market 'transitional charge'²</i>	<i><u>\$318M</u></i>
<i>1996-2002</i>	<i>\$403M</i>

Conclusions

IPART endorsed the transfer of \$400M from NSW gas customers to AGL Gas Networks on the basis that a cross subsidy existed.

IPART endorsed the revaluation of AGL Gas Networks' NSW assets by \$400M on the basis that a cross subsidy did not exist.

IPART changed its definition of a cross subsidy over time. This enabled the cross subsidy to appear, and then disappear.

Changing the definition of words may be acceptable for 'Alice in Wonderland'. It is not acceptable for the regulation of the gas industry, where it has cost gas customers more than \$400M.

Are independent State Regulators protecting State interests? Is this consistent with a national competition framework? A difficulty with the State-based regimes is that States have in some cases directed regulators on values to be used for State regulated businesses. This should be quite unacceptable.

² Calculated as permitted revenue less IPART final revenue for the industrial market (\$45M)

Case Study 10 Number of Regulators in Australia

In BHP Petroleum's view the proliferation of State based regulators administering energy industry specific access codes is inefficient and a result of State parochialism rather than catering to any need to deal with unique State specific issues.

The time has now come for the regulation of access to monopoly energy infrastructure to be centralised in a competent well resourced organisation. A rationalisation of this nature would enhance consistently across industries and States while increasing regulatory efficiency. Table below lists all the energy infrastructure access regulators that BHP is aware of within Australia. It is possible that we have missed some.

Based on the above table, Australia has one energy infrastructure access regulator per 1.7 million people. By way of comparison the UK has one well resourced energy infrastructure access regulator for a population of 60 million people.

Table 3 Australian Energy Infrastructure Access Regulators

Agency	State	Energy Infrastructure Regulated
ACCC	Fed	Gas transmission all states except WA Electricity Transmission
ORG	Vic	Gas Distribution Electricity Distribution
IPART	NSW	Gas Distribution Electricity Distribution
ICRC	ACT	Gas Distribution Electricity Distribution Electricity Transmission
SAIPAR	SA	Gas Distribution
SAIIR	SA	Electricity Distribution Electricity Transmission
Department of Mines and Energy	Qld	Electricity Transmission
Queensland Competition Authority	Qld	Gas Distribution Electricity Distribution
OffGar	WA	Gas Transmission Gas Distribution WA Electricity
Utilities Commission	NT	Electricity Distribution Electricity Transmission
Office of the Tasmanian Electricity Regulator	Tas	Electricity Distribution Electricity Transmission

8.4 Efficient Regulation – the Cost versus Benefits of Regulation

While costs of regulation are considerable, one has to bear in mind the enormous importance of the task. It is better, for example, for society to spend \$100 million on regulation than pay \$2,000 million in unwarranted monopoly rents that undermine international competitiveness.

Case Study 11 The Costs and Benefits of Natural Gas Pipeline Open Access Regulation

Some parties have suggested that the cost of open access regulation for natural gas pipelines outweighs the benefits obtained by free and fair access. BHP Petroleum believes that even a cursory review of the numbers show that this is clearly not the case. We use NSW as our example. The cash costs of regulation (apart from the loss of monopoly rent for the Service Provider) comprise the following:

- *The cost to the tax payer of funding the regulator;*
- *The cost to the Service Provider of preparing an access arrangement and administering open access;*
- *The cost to users of participating in the access arrangement approval process and any additional cost in administering an energy purchase agreement and an energy transportation agreement; and*
- *The benefit is the increased economic growth and consumer welfare that flows from users obtaining services at a fair and efficient cost.*

In the 98/99 year the total cost to NSW tax payers of funding IPART, that States independent regulator, was \$5.3 million. For their \$5.3 million tax payers got a regulator that:

- *Completed a major review of pricing for electricity networks and retail supply.*
- *Released a final access arrangement for Great Southern Networks gas distribution network.*
- *Investigated access arrangements for Albury Gas Company and AGL Gas Networks.*
- *Completed a review of gaming in NSW.*
- *Undertook a review of NSW Health for the Treasurer and the Minister for Health.*
- *Commenced a review of the Taxicab and Hire Car Industries.*
- *Released two reports on aspects of development control fees.*
- *Released reports on aspects of rail access and on rail safety.*

(Source: IPART Annual Report 98/99)

AGLGN has in publicly available documents stated that they view the cost to an efficient service provider of "maintaining a regulatory relationship" as being \$1.3 mill/pa (covering both AGL's NSW and ACT networks). This \$1.3 mill/pa covers a gas distribution system that serves in excess of 865,000 customers, transports in excess of 110 PJ/a and comprises over 25,000 km of pipe. The service provider is not "out of pocket" if its costs are efficient as the regulator allows these costs to be recovered from users via reference tariffs.

The costs of open access for a typical system end user are very low and in any case they are discretionary. The user can choose not to become involved in the process and leave it up to others and the regulator.

BHP Petroleum estimates that the total cash cost of gas pipeline open access regulation in NSW is approximately \$2.5 million/pa or less than 3¢/GJ.

The benefits delivered to consumers from open access are significant. In 1996 before the commencement of open access, large consumers (those consuming more than 10 TJ/pa) in NSW paid \$146 million for distribution and retail services. IPART determined that \$3.8 million of the \$146 million was the retail component. In 2000 IPART determined that large consumers in NSW should pay a total of \$46 million for distribution services on AGLGN's NSW system, a reduction of \$96 million/pa. In addition, small consumers continue to benefit from real declining prices for distribution services.

Another cost of not having effective regulation is the cost of inefficient duplication of infrastructure. The best example of poor open access regulation causing inefficient infrastructure duplication is the extension of the Eastern Gas Pipeline from Wilton to Hoarsley Park. This \$28 million section of pipe was built because there was no guarantee that the regulator would prevent monopoly pricing on the AGLGN network if it were not built.

Based on this example, it is clear that the benefits of open access regulation far outweigh the cost.

Recommendation 9 Establish a Single well-resourced specialist Energy Regulator

Establish a single well-resourced specialist energy regulator to regulate the energy industry with particular responsibility for administering the National Gas Code and the National Electricity Code.

Recommendation 10 A National Access Regime should specify that regulators promote and protect competition

The role of the regulator is not to choose between competing positions. Regulators must actively promote competition in the upstream and downstream and regulate the midstream to eliminate monopoly rents.

9 Other Issues

9.1 Encouraging Competition at the Margin

The Access Regime must preserve and defend competition at the margin in the “natural monopoly” sectors. This can be done if there is vertical separation *and* elimination of bottleneck monopoly rents.

Case Study 12 The Horsley Park Bypass Case

One of the objectives of the gas pipeline access under the Code was to make duplication of gas pipelines unnecessary. It was thought that effective application of the Code would make it unnecessary for an access seeker to build parallel pipelines. However, this has not worked in practice.

Duke Energy has spent approximately \$28 m to extend the Eastern Gas Pipeline into west Sydney, in parallel with an existing pipeline that is not fully utilised. Further details are provided in Appendix A 'Seeking Genuine Competition in NSW', a report by NERA.

This expensive duplication of infrastructure illustrates a number of points:

- The cost of not effectively regulating access to gas pipelines is high, in this case \$28 m. This must be borne in mind when considering the costs of effective regulation.*
- Notwithstanding regulation under the NSW Access Code (which was an early draft of the now current National Pipeline Access Code) a new pipeline was clearly more economic than the tariff approved by the regulator (IPART).*
- Commercial negotiation between the access seeker and the service provider clearly failed.*
- The right to build competing pipelines or bypasses, which is enshrined in the 1997 CoAG natural gas pipelines access agreement, provides a valuable test of both the regulator, the Code and the service provider.*

There are benefits for regional Australia if access regimes allow new infrastructure to “piggyback” at marginal cost on existing infrastructure. In many cases, it would be financially impossible to service regional Australia without access to existing infrastructure on reasonable terms.

Case Study 13 Benefits to Regional Australia from Open Access to Energy Infrastructure

Business and residential consumers in regional Australia have benefited from open access to energy infrastructure and the removal of monopoly rents that were previously sustained through exclusive retail and reticulation franchises. Gas distribution in the city of Wagga Wagga is a good example. The table below compares gas distribution charges determined by the regulator for 2003 the last year of the current Access Arrangement with those that applied prior to open access.

Dramatic reductions in distribution tariffs for large users such as those mandated in Wagga must assist regional Australia in its quest to become more competitive and develop value adding industry. The flow on effects to a regional economy of competitively priced inputs such as energy must over time lead to employment growth and enhanced regional economic welfare.

Table 4 City of Wagga Wagga Gas Distribution Charges

Market Segment	2 Year Average (96/97, 97/98) prior to open access	2003	Gas % Average
Large Users	1.86	0.72	39%
Small Users	5.59	5.63	100%

9.2 Price setting under revenue cap.

There have been few access undertakings given and there has been reliance on regulatory determinations. Part of the reason is that the Act and the Codes do not provide guidance in the form of pricing principles - there are too many indeterminate variables for an easy negotiated solution. Putting pricing principles in the Act and the Codes would set guidelines for negotiation.

Case Study 14 Price Setting Under a Revenue Cap

The Allocation of Joint Costs to Market Segments

Any regulatory approval of an Access Arrangement under an industry specific Code must go further than setting a revenue cap. The regulator must ensure that users are charged a fair and rational cost reflective price for the services they wish to purchase. To do otherwise can severely distort competition and reduce economic efficiency.

The best example of the dramatic affect different cost allocation methodologies can have on users is AGLGN's gas distribution network in NSW. This network is the only pipeline covered under the National Third Party Access Code that has been subject to two Access Arrangement approval cycles. During the first cycle, large users (those consuming more than 10 TJ/pa at a single site) had their reference tariffs set on the basis that a stand alone network was built to service them. The second Access Arrangement approval required that large users reference tariffs be set on the basis that they recover their share of fully distributed costs. Large users share the high pressure segments of the network with small users.

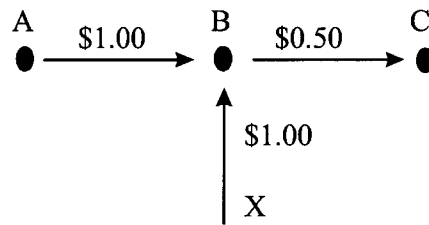
The required change in pricing between the two approvals leads to a dramatic reduction in reference tariffs. This is illustrated in below.

Cost allocation methodologies approved by regulators can have a dramatic affect on end users energy and investment choices. It is imperative that regulators ensure that cost allocation is consistent, rational and fair. Cost allocation methodologies should not be designed to burden one customer segment with an undue share of common costs.

A Vertically Integrated Firm and Revenue Shifting

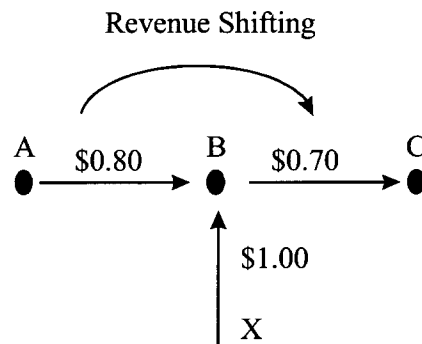
If the regulator only sets a revenue cap and does not specify that the prices charged for a service should recover the costs incurred in its provision then there is a significant opportunity for a service provider to engage in revenue shifting and have a significant impact on competition.

To illustrate this point we use the example of a vertically integrated gas pipeline owner and retailer that is under threat from a new build pipeline that interconnects with the vertically integrated firms network downstream of the retailers source of gas supply. As shown in the following diagram.



The existing retailer pays for transport from A to B plus the cost from B to C therefore it pays $\$1.00 + \$0.50 = \$1.50$.

If a new pipeline is constructed from X interconnecting at B, the new entrant retailer faces the cost of transport from X to B ($\$1.00$) plus the cost from B to C ($\$0.50$). The competitive position of the two retailers depends (apart from upstream and retailing costs) on the relative cost of A to B versus X to B, as the downstream cost (B to C) is the same. However, if revenue shifting is permitted, price reductions on the competitive component (A to B) can be recouped by price increases in the non competitive component (B to C).



The incumbent retailer faces no changes in total costs in reaching the end customer, which remain at $\$1.50$. Equally, the existing pipeline suffers no loss of revenue. However, the new entrant faces the price increase for B to C, but has no offsetting price reduction on X to B. The new entrant's costs now total $\$1.70$. This has two effects. In the short term the end customer is unlikely to benefit from the reduction of price on A to B, as the new entrant retailer does not have the same reduction and hence the ability to compete down to the lower price.

The incumbent retailer can expect to offer a small benefit to the end user over the competing retailer - say $\$0.05$ in the example, and win all of the business at $\$1.65$.

The medium term effect is a major deterrent to new entrant retailers. If the pipeline system owner can engage in revenue shifting, it has the ability to render the new entrant unprofitable at the stroke of a pen. The mere threat of this is sufficient to deter new retail entrants, as gas retailing can often be a low margin business, and entry costs are not insignificant.

This example illustrates how a vertically integrated gas pipeline/gas retailer can utilise its natural monopoly market power to benefit its associated businesses.

Table 5 Large User Trunk Charges on AGLGN NSW Network as Approved by IPART

Large User Trunk Charges on AGLGN NSW Network as Approved by IPART \$98 / GJ / MDQ / PA			
Segment of Pipe	96/97 Determination YE 30/6/98	99/00 Determination YE 30/6/01	01 as % 98
Wilton - Wollongong	108.163	50.397	46%
Wilton - Horsley Park	84.613	5.695	3%
Wilton - Newcastle	367.041	34.413	9%

Pricing of and terms of access are still issues. Notwithstanding the introduction of Part IIIA and access regimes, the price and terms of access are still issues after 5 years.

9.3 Non Price Barriers to Competition

Non price barriers to competition. Technical issues on inter connection also need to be addressed. Unreasonable technical requirements should not be allowed to act as non-price barriers to free trade over networks.

Case Study 15 Examples of Non-Price Barriers to Access

The principle issue that is debated regarding access is the price. However, there are a number of non-price issues that can be used to hinder or frustrate efforts to obtain access. Listed below are a number of non-price barriers that BHP has experienced while seeking access to pipelines:

Non-Price Barrier	Example
<i>Unduly restrictive gas specification.</i>	<i>\$70m of additional costs imposed on Griffin gas supply in WA.</i>
<i>Priority of transportation for existing contracts.</i>	<i>Moomba-Sydney pipeline. Now removed.</i>
<i>Gas balancing.</i>	<i>AGL(GN) proposed redistribution of gas balancing charges in a way that favoured the incumbent retailer (AGL). Now removed.</i>

Thus while access regulation is focussed on the price of access, it is essential that the other terms of access are also considered. It is necessary for the regulator to have sufficient expertise in the gas industry to differentiate between genuine technical issues, and technical issues that are being used as a disguise for barriers to access.

Recommendation 11 The Access Regime must address non price barriers to competition

Access should not be a choice between acceptable service at a high price and poor service at a regulated price. An effective Access Regime should prevent non-price barriers being used to preserve monopoly infrastructure charges.

10 Conclusion

The present system of access regulation in electricity and natural gas, although flawed, has delivered substantial benefits to users of networks. BHP estimates that the benefits delivered to NSW industrial gas users alone amount to around \$100 million per annum.

The existence of National Codes within the access regime has allowed real outcomes to be achieved in acceptable timeframes. Access arrangements are now in place for most major pipelines in Australia. Contrast this with the example of airport access where the resolution of a claim for access took so long that the applicant was out of business by the time the matter was concluded.

However, even with National Codes, infrastructure owners can act in ways that preserve monopoly rents and frustrate competition. Regulators have become captive of the regulated partly through lack of disclosure and partly because of unwillingness to enforce competitive outcomes against the interests of the regulated entities, especially State governments.

Complicity of regulators, or at best, inability to resolve conflicts between owners and users, has allowed massive revaluation of assets by owners. Consequently, users are paying many times over for the use of assets. Book valuations have little to do with the cost of service and less to do with enhancing international competitiveness of companies that must use these inputs.

"Light handed" regulation and a laissez faire approach to information asymmetries are not likely to produce the benefits that access regimes should provide for producers and consumers. The example of overseas countries where "light handed" regulation has been used is not encouraging in this respect. "Light handed" regulation appears to be little more than a sotto voce code for allowing the persistence of monopoly rents and resulting deadweight losses for the economy, to the detriment of consumers and other industries.

The emphasis of NCP upon securing commercial rates of return on infrastructure investment has generated an embedded bias against cost-benefit analysis and future provision of infrastructure by the public sector. The validity of the "user pays" principle has been accepted without critical examination of externalities to fund new investment, while replacement cost valuations of infrastructure assets have been accepted as a standard base upon which to construct price regulation (which often results in higher prices than otherwise might be the case and also reduces downstream competition and investment).

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Appendix A. Seeking Genuine Competition in NSW

SEEKING GENUINE GAS COMPETITION IN NSW

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I. INTRODUCTION / EXECUTIVE SUMMARY

Gas supply competition in New South Wales has failed to live up to expectations. The development of competition has been long and difficult, resulting in an underdeveloped entity that may not survive. The future of gas competition in NSW is uncertain because of the vertical integration of Australian Gas Light Gas Networks (AGLGN) and because no body in NSW appears responsible for ensuring a level competitive playing field. Neither the Australian Competition and Consumers Commission (ACCC), nor the Ministry of Energy and Utilities (MEU), nor the Independent Pricing and Regulatory Tribunal (IPART) fill this function.

The competitive prospects for NSW *should* be strong, as gas supplies flow into the state from at least two distinct sources through three pipelines. Yet barriers to competitive access, enhanced by the vertical integration of AGL (AGLGN's parent), exist on all three routes.

1. The access arrangement of Eastern Australian Pipeline (EAPL) from the Cooper Basin, controlled by AGL, does not present competitors with a level playing field.
2. The interconnection with Victoria (also controlled by AGL) is not a significant source of competitive supply to NSW, partly because of the prices and access terms available.
3. The new supply route from the Bass Strait has confronted at least \$28 million in competitive entry barriers, to date.

The common obstacle to competitive gas access in NSW is the vertical integration of AGL, which controls the trunk and reticulation networks (which virtually all customers in the Sydney region must use) as well as unregulated businesses and long-distance upstream pipelines. AGL has powerful incentives to prevent competition for two basic reasons:

- AGL has the major equity interest in the Moomba-Sydney pipeline with which the other routes compete.
- AGL sells gas to the great majority of NSW gas users and would compete with other open-access gas sellers if those others had fair access to gas users.

Faced with this potential for competition against its affiliates, AGLGN pursues actions that limit its exposure to competition and frustrate market entrants. AGLGN is raising the costs for the new entrants into NSW, proposing charging practices that give AGLGN the ability to

discriminate against competitors and blur the separation between its regulated and unregulated businesses.

AGLGN's incentives to frustrate entry come as no surprise. What does surprise, however, is that no NSW agency seems willing to scrutinize the competitive problems, the first step in ensuring that other gas suppliers gain competitive access to AGL's lines and NSW gas consumers. The ACCC claims responsibility for actions downstream of the Moomba-Sydney pipeline. The MEU appears accountable for policy development, not implementation. IPART has declined to deal with competitive issues, its stated mission being to deal with "competing claims". The requirements for *equal* access to gas users in NSW do not involve competing claims, as the playing field is either level or it is not, and IPART has not yet indicated that it will confront competitive issues. IPART's disengagement with competitive issues is evident in its review of AGLGN's Access Arrangement. IPART's actions fail to prevent the erection of the type of barriers that have faced the new Bass Strait pipeline.

The problems facing NSW are not new. Both the US and the UK experienced such troubles in the early years of their gas open access programs. Both countries discovered that well-intentioned open access legislation (like the *Code*¹), alone, was not sufficient to ensure competition. Effective competition in the UK evolved only after the voluntary de-merger of British Gas into separate gas pipeline and merchant activities. The US pursued its own successful competitive open access path not through de-merger (or forced divestiture, which was considered impractical) but through much more careful regulation of existing affiliate relationships, open access rules and tariff design formulas than either IPART or the ACCC has undertaken to date vis-à-vis the *Code*.

Such remedies served, in the UK and the US, to create a level competitive playing field and to deny the dominant gas pipeline companies the ability to frustrate competition policy. Such vigorous gas supply competition will not occur in NSW unless some agency focuses on the root of the competitive problem: the vertical integration of AGLGN in the presence of weak and ineffective price and accounting regulation, combined with inadequate scrutiny of AGLGN's transactions with its unregulated affiliates. Alone, the *Code* cannot prevent AGLGN

¹ *The National Third Party Access Code for Natural Gas Pipeline Systems*, 1998.

from cross-subsidizing its competitive operations, from raising the entry costs for competitive suppliers or from frustrating the ability of its large customers to use capacity from the Cooper Basin to obtain competitively-priced gas from independent suppliers.

The most practical solutions involve more explicit and effective regulation of AGLGN by IPART (or another agency) as part of more serious attention to the implementation of the *Code's* competitive intent. The solutions must accomplish the following objectives:

- Prevent the raising of naked entry barriers, represented by the additional \$28 million spent by Duke International to duplicate an AGLGN line.²
- Prevent the cross-subsidization of AGL's competitive business through much better regulatory accounting and scrutiny of AGLGN's affiliate transactions and relationships.
- Prevent AGLGN from taking non-tariff customer contributions without compensating those customers, a potent source of discrimination, entry barriers and tariff cap evasion.
- Improve transparency and tariff predictability for users by making tariff models and the data that support them public. A regulated company is not justified in claiming that the data that support its regulated tariffs are confidential (as AGLGN has done under its proposed Access Arrangement).

Other agencies must do their parts to solve the problem; the ACCC must be more proactive to ensure competitive open access on the AGL-controlled Moomba-Sydney pipeline, and the Victorian network must simplify its own gas carriage regime. Nevertheless, NSW can do a great deal to ensure greater gas supply competition in NSW. Effective action will follow the NSW government's recognition that a problem exists and that more careful regulation will ensure free and fair competition for gas supply to the state.

² Duke Energy declared itself unable to negotiate reasonable access terms with AGL for the last segments of the Eastern Gas Pipeline project (EGP). As a result, Duke will construct an additional 50 km of pipeline directly alongside AGL's line and in place of using the AGL line—the cost of which is estimated to be \$28 million. (Bloomberg News release, 5 January 2000)

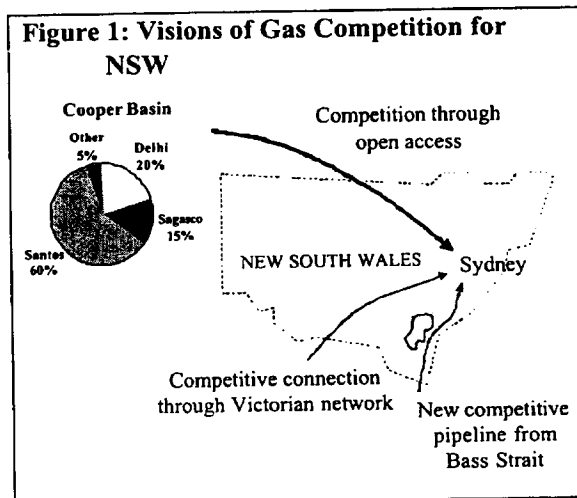
II. DISAPPOINTING OUTLOOK FOR GAS COMPETITION IN NSW

NSW should expect genuine rivalry in the supply of gas and transportation services. Aside from the connection to the Cooper Basin, Duke is completing a \$450 million pipeline that will run directly from the Bass Strait gas fields to Wilton, near Sydney. In addition, a \$55 million transmission pipeline link from Wodonga, Victoria to the AGL system in NSW became operational in 1998. Yet, competition is not fair. In this section we look at why.

A. Vision for Gas Supply Competition in NSW

NSW is unique among Eastern Australian states because gas supplies from three different sources can feasibly serve the State, as shown in **Figure 1** which depicts NSW's competitive options.

1. Competition through open access to the Cooper Basin. Multiple gas producers exist in the Cooper Basin. Open access should allow any producer or shipper to gain competitive pipeline capacity on fair and equal terms.³
2. Competitive connection through the Victorian network. The connection of the Victorian and NSW gas networks should benefit purchasers in NSW.
3. New competitive pipeline from the Bass Strait. The Bass Strait has sufficient gas supplies to support an independent pipeline to Sydney.



These are three *potential* sources of competition for the NSW gas market. Compared to the potential for competition, the outcome has been unsatisfactory and future prospects look dim.

³ Currently, those producers shown in the figure jointly produce and market gas. However, the release of acreage and the prospect of being able to access markets have resulted in the recent entry of some new players, with a work program commitment of A\$165m.

B. Much of the Competitive Potential has Fizzled. What Happened?

We discuss four primary reasons in turn:

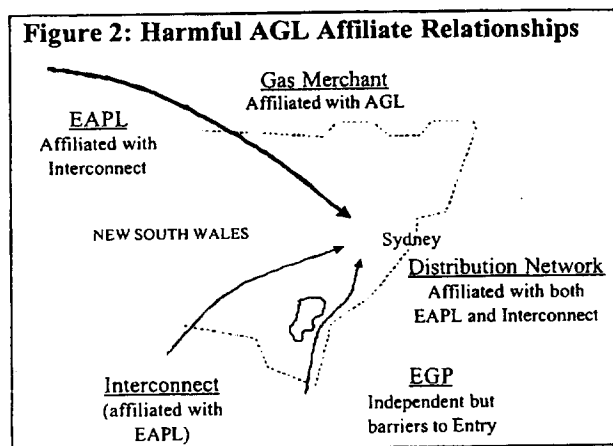
1. The vertical integration of AGL with the Cooper Basin pipeline;
2. An ineffective open access arrangement on the Cooper Basin pipeline;
3. A complicated, costly and unpredictable access regime on the Victorian network; and
4. IPART's inability to prevent AGLGN's erection of competitive entry barriers.

1. The 1993 Integration of AGL with the Cooper Basin

AGL's purchase of the Cooper Basin pipeline mired competitive prospects in two ways:

1. AGL's interests are wedded to a single basin. AGLGN will look only to the Cooper Basin for gas supplies because alternative supplies will diminish the value of the company's affiliated equity investment in EAPL.⁴ AGLGN works to make other supply routes more costly and less competitive (as the \$28 million Duke problem shows).
2. AGL can keep competitive pressures far from the reticulated system. Ownership of the single transmission pipeline between the gas fields and its Sydney-based distribution allows AGL to structure transportation terms and conditions that increase the cost for non-AGL shippers. An AGL-affiliated EAPL gives AGL the incentive to keep third-party suppliers out.

In Australia's thin gas market, permitting AGL to hold a controlling share in EAPL is a mistake. No effective competition in gas shipments exists over EAPL to the distribution system in Sydney, as shown in **Figure 2**. The costs involved in remedying these competitive problems—short of forced divestiture—will include greater



⁴ It is probably not an overstatement to say that if AGL had discovered gas in Botany Bay, the company would have preferred to keep it quiet, as developing such gas supplies would diminish their investment in EAPL.

regulatory scrutiny of EAPL and AGLGN's detailed access conditions and tariffs.

2. Ineffective Open Access Arrangements on the Cooper Basin Pipeline

The *Code* intends to promote a competitive market for natural gas in which customers choose suppliers, including producers, retailers and traders, and to prevent the abuse of monopoly power. EAPL's proposed open access arrangements are inconsistent with these objectives. EAPL's terms and conditions for transportation service are currently structured in a way that will tilt the competitive playing field in favor of AGL's other affiliates. Two main reasons for the tilt are as follows:

1. EAPL retains excessive discretion regarding the transfer of and the charge for the transfer of capacity.⁵
2. EAPL retains the ability to restrict, arbitrarily, the use of various input and offtake points for capacity transfers.

As US experience has shown, affording "commercial" discretion to a vertically integrated pipeline company obstructs competition, as the integrated pipeline has a "commercial" interest to hamper competition and to protect its margins.

Implementing an open access policy on a vertically integrated gas pipeline company is tricky. It is possible to do, as the US gas market has proven. But, genuine competitive access requires more meticulous regulation than either IPART or the ACCC has practiced to date.

3. The Existing Victorian Network is Problematic for NSW Consumers

Two problems exist with the new \$55 million link to the current Victorian network.

- 51 percent of the line is controlled by EAPL (which is controlled by AGL), effectively eliminating the potential for genuine transportation rivalry between this link and EAPL. The more gas that flows into NSW through the interconnect, the lower EAPL's revenue will be, as the revenue gain from the interconnect flow is less than the loss of revenue from the reduction in flow from the Cooper Basin.

⁵ In its proposed Access Arrangement, EAPL can block transfers for "reasonable commercial and technical grounds." This is alarmingly reminiscent of efforts by US pipelines to stymie the development of a robust secondary capacity market by proposing their own "commercial" criteria for allowing third party access—which in fact means the promotion of the business of the pipeline's affiliate. Such "commercial" criteria have expressly not been permitted in the US.