

Reforming the Regulatory Arrangements for Gas Pipeline Networks

An IPA Submission to the Productivity Commission

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Summary

While Australia's gas reserves are not of Middle East proportions they are massive and far in excess of what could be utilized domestically. The most significant reserves are located some distance from main potential demand centres.

Until the mid 1990s and the onset of National Competition Policy the development of Australian fields was heavily managed by State and Commonwealth Governments. Gas pipelines required governmental imprimatur and were monopoly providers.

The Gas Access Regime, which has operated for most of the past decade, was founded on the elimination of monopoly privileges. The current regime has fostered major gains in opening the way for greater competition and in bringing a far greater accent by pipeline businesses on cost-saving. It has also brought gains to users by forcing down prices.

However, the regulations are highly intrusive and operationally tend to be biased in favour of price reductions. Moreover, the present regulatory leadership in both the ACCC and the NCC finds it difficult to relinquish regulatory oversight. The ACCC and NCC have sought continued regulatory control where competition has made this unnecessary. The ACCC has even developed a regulatory approach for Greenfield pipelines which are yet to be developed and which, by definition, enjoy no monopoly or government favour.

Regulatory stringency reduces incentives to build new pipelines. Enterprises are concerned that government regulatory institutions are likely to be motivated by populism and will in any event require invasive oversight. In addition, to the degree that regulators' decisions keep prices artificially low, rival provision becomes uneconomic. Regulation has also led to businesses tailoring their development activities specifically to avoid the controls and incurring wasteful higher costs to do so.

On balance, the Gas Access Regime has been beneficial in ending the previous arrangements of managed development and in being midwife to a major surge in pipeline labour productivity. But it has not led to an upward trend in gas usage. And its gains are partly offset by the distortions to business decision taking and to the paperburden costs that have accompanied it.

Among the most valuable future roles of gas is in electricity generation. In the context of Australia's low cost coal reserves, gas, unless subsidised by government emission policies, is

unlikely to be competitive as a base fuel for electricity. However, gas fired stations are particularly important for peak power provision; because of their considerable flexibility they can be brought on line and taken off line much more rapidly than coal fired stations. Demand trends are bringing a greater call for peak generators.

In order to live up to its potential for electricity generation, gas fuelled generators must be assured of an ability to access the gas when it is needed. A generator's value is much reduced if contracted gas is made not available or if firm contracts cannot be negotiated in the first place.

One impediment to allowing secure contracts is Victoria's unique "market carriage" system of gas market management. This should be changed into the conventional "contract carriage" system.

To fulfil gas's potential role, other measures are also required. These include bringing the price capping of gas into alignment with that of electricity and abandoning the revenue capping system which reduces incentives for pipeline owners to seek out new business.

Greater scope for allowing competition to assume its conventional role of market "regulator" is developing. Pipeline-on-pipeline competition is already in place in Sydney and will soon also be in Adelaide. The dominant sources of gas—Cooper and Bass Strait—are already competing with each other and additional sources are emerging. And, relevant to both distribution and transmission gas pipelines, it must be borne in mind that gas is, in any event, in competition with electricity and other fuels.

Accordingly, the regulatory environment needs to be loosened to allow this greater scope of markets to operate efficiently. Such relaxations would include:

- Exiting the regulatory oversight of Greenfield pipelines
- Exiting regulatory oversight where competition is in place with more than one major pipeline serving a load centre
- Replacing the present highly intrusive price setting regulation of dominant pipelines with the originally foreshadowed "light handed" regulation whereby price adjustments are based on economy-wide reference price changes.

1. **Introduction: Gas Reserves in Australia**

Though relatively small compared to the resources in the Middle East and former USSR, Australia's reserves of natural gas are vast in relation to domestic needs. Reserves comprise some 157 exajoules according to the BP Statistical Review and are equivalent to 70 years current production. The gas itself is in about a dozen separate structures and has a diverse ownership. Production and ownership is shown below

Gas reserves are as follows:

Table 1

	Gas reserves (PJ)	Production 2001 (PJ)	Ownership
Bowen	229	23.6	Diverse
Bass	376	0	Origin, AWE
Carnarvon	81678	719.5	Diverse
Cooper	4416	211.3	Santos (50%), Origin (15%), Esso (30%)
Gippsland	8049	239.5	Esso (44%) BHP (44%)
Amadeus	357	18.6	Diverse
Bonaparte	27076	0	Diverse
Otway	521	7.9	BHP, Origin, Woodside, Cal Energy, Benaris
Perth	968	11	Roc, Arc, Bounty
Coal Seam Methane			
Sydney	5548	0	
Gunnedah	5700	0	
Clarence – Morton	8170	0	
Bowen/Surat	1000-25000	0	

The fields closest to the main eastern and southern population centres - Cooper, Gippsland and more recently Otway - have traditionally been regarded as the only viable major supplies for these markets.

The possibility of transcontinental supplies to the eastern markets from the massive Carnarvon and Bonaparte reserves is, however, becoming more realistic. This is due to gas assuming a higher value and pipeline costs falling with the passage of time. There is also the prospect of gas from Papua New Guinea being piped to Brisbane and beyond. In addition, some contracts are already in place for coal seam methane, which has increasing prospects of providing large scale commercial supplies.

Hence there is the potential for an increasing diversity of gas source and an augmentation of gas pipelines but the wrong regulatory structure could severely stunt this change.

2 *Developments Prior to the Gas Access Regime*

All of the Australian major markets of Perth, Sydney, Adelaide, Melbourne and coastal Queensland were traditionally served by a single supplier source. In all cases, one pipeline was developed linking a single or dominant gas source to the market.

In part this has been dictated by geography: the sources of gas and the main markets are distantly located from each other; and the markets themselves tend to be relatively thin in terms of demand levels making duplication or rivalrous entry difficult.

Other factors contributing to the single source arrangements included the jurisdictional regulations at the state government level. Governments used their powers to establish monopoly suppliers to prevent “wasteful competition” and to provide revenues or require cross-subsidies to certain customer classes. Until competition policy law was in place and bedded down there was a government veto over new pipelines.

An important instance of this government veto is evidenced by the reaction of the Western Australian Government to the attempt by PG&E to establish a rival pipeline to transport North West Shelf gas to Perth. PG&E, frustrated at not obtaining a government imprimatur for the proposal sought to proceed in any event, thereby threatening the sales revenue the government hoped to achieve for the privatisation of the Dampier to Perth Natural Gas Pipeline. The Western Australian authorities prevented PG&E from building a rival pipeline.

The exercise of the Western Australian Government’s veto over a proposed new facility was a hangover from the system which was supplanted by National Competition Policy. National Competition Policy sought to prevent monopolistic supply and outlawed government measures designed to impede new competition.

Even so, the current approach to pre-NCP facilities that might exhibit monopolistic features can suppress the emergence of rival suppliers. Competition policy, as established by the ACC/NCC/State regulators, seeks to specify price and other conditions under which services are supplied by “essential facilities”. As a regulator cannot set a price above that which a (willing) buyer would pay, this can only put in place a price ceiling. The regulatory authorities aim to set this at the level that would emerge from competition but even the most optimistic would regard this as being an heroic objective.

To the degree that prices are set below a truly market or competitive level, this deters the development rival supplies (new or expanded pipelines, other energy sources etc.).

3 *Effects of the Gas Access Regime*

3.1 *The Provisions of the Regime*

All pre-1996 pipelines were specified at the outset as being covered by the Gas Access Regime. The regime allows anyone to apply to have a new pipeline covered. Coverage specifies in considerable detail the conditions under which pipelines must operate.

Before an access arrangement is permitted to come into effect, the regulator must approve it and may override provisions or offers by the owner which it considers unfair or inefficient. The service provider must supply the regulator information on

- Approaches it uses to determine tariffs and allocate costs
- Capital costs, depreciation provisions and methodology, rates of return, debt/equity, debt costs, economic life assumptions
- O & M costs including wages, cost allocation between different services, taxes, material costs
- Allocation of overheads and marketing costs
- System capacity, capability, peak demand existing and expected demand, load profile, customer numbers in each pricing zone
- Key performance indicators to justify costs in each zone and for each service.

An access arrangement must contain reference tariffs¹ and service policies that allow users to tailor their usage to their own needs and not be required to take a bundled product. It must have a trading policy and a queuing policy to allocate capacity and must have an extensions/expansions policy.

The combination of all these requirements leaves the pipeline owner hostage to the regulator in the operational policy of the pipeline and with considerable paperburden obligations. In the case of a market carriage pipeline (i.e. that in place in Victoria) the regulator is the actual manager of the pipeline.

Some of the provisions would appear to be inimicable to normal market efficiency. An example of this is the requirement in the Code for a queuing policy. Queuing removes price from its normal process of allocating demand to those most valuing a product or service and signalling the need for market participants to augment supply. In addition, requiring an expansions or extensions policy requires the pipeliner to adopt a greater inflexibility than is normally thought to be efficient.

The combination of these and other provisions places the pipeline out of its owner's control after it is built. Customers are given a free option—they have some capacity guarantees at a price set by a regulator but can also take up a more favourable offer should one arise. It is unlikely this would result in the most efficient means of operation.

3.2 Initial Effects of the Gas Access Regime

The main immediate effects of the Gas Access Regime were to unwind legislated monopolies and to require price reductions. Some consistency has been achieved in the pricing decisions, notwithstanding that the regulations fall under different jurisdictions.

¹ Unless the pipeline is built under a competitive tender in which case the tenderer may seek approval to have tariffs determined by the competitive process.

Price settings for all regulated gas and electricity lines have been required on the basis of a CPI –X construct². The regulators liaised with each other and have cross memberships of the ACCC to ensure greater consistency.

Regulated pipelines, especially those that were government owned, were required to offer steep price reductions and therefore make deep cuts in their expenditures. In all cases the price reductions have been accommodated by the regulated firms, though often with some difficulties.

For the local distribution facilities, this winding back of the prices set by, in the main, heavily unionised and overmanned government owned facilities was accomplished without adversely affecting the profitable operations of most of the regulated entities. In other words, the regulatory authorities appear to have been relatively accurate in setting prices for monopoly facilities in line with their underlying competitive levels.

Evidence of this can be seen in the effects of stock market transactions in the one jurisdiction where these are observable. In Victoria, the on-sales of CitiPower, Powercor, United Energy and its retail subsidiary, Pulse, tend to indicate that the substantial price reductions being required by the regulator reflected the savings possible by moving these businesses into a commercial framework.

In the case of the transmission pipelines this process has proven to be more controversial. GasNet first saw its share market value fall considerably and, though its share value has more than recovered, it is presently in dispute with the ACCC. The EPIC Moomba to Adelaide pipeline is similarly in dispute over its regulated return.

The EPIC Dampier to Bunbury Pipeline has been placed in a position of near insolvency. That pipeline faced different issues than other pipelines due to the manner of its sale; EPIC has provided evidence of government assurances on future price levels that would be permitted, and it made its bid offer on the basis of those price assurances. In this respect, the company can claim to have bought the assets under circumstances similar to those applying under a competitive tender – the pre-specified tariff rates were the drivers for the bid offer.

Many would argue that if the government reneges on these rates this raises sovereign risk issues. Others might maintain that the price assurances were *ultra vires* in the light of the Western Australian Government's accession to the National Competition Policy provisions requiring prices to be determined by an independent regulator. The merits of the pipeline owner's case and its outcome will not be resolved for some time.

The regulators' price determinations are illustrated in the table below

² In some cases revenue rather than price is the regulated variable. This reflects a disposition to dissuade service providers, especially those supplying transmission, from aggressively selling their services and bringing an "excessive" supply of energy into the market. Originally geared towards discredited notions that energy supplies are dwindling, this is now often justified in terms of saving greenhouse gas emissions. In both cases it brings an artificial restraint by discouraging firms in one sector from offering discounts to attract business while not taking such actions vis-à-vis alternative means of meeting demand.

Table 2

ISSUE	Regulator	Application	Determination	Date
AGL gas contract market	IPART	Annual revenue reduction from \$140m to \$128m	Annual revenue reduction to \$99m	May 1997
Vic gas	ACCC/ ORG	9.7-10.2 return real pre tax	7.75% return real post tax	Oct 1998
Wagga gas (GSN)	IPART	Original 11.1% later offer 9.0%	7.75% real pre-tax	March 1999
Mildura gas	ORG	Tender at 9% real pre-tax	9% real pre-tax	June 1999
Albury gas	IPART	9.6%	7.75%	July 1999
AGL Pipelines for the Central West Pipeline	ACCC	Real pre-tax WACC of 10% tariff increasing after 2001 at CPI+1.36%	Real pre-tax WACC at 7.5% meaning prices are frozen in real terms post 2001	Sept 1999 Draft Decision
AGL Pipelines for the Central West Pipeline	ACCC	Real pre-tax WACC of 9-9.5% tariff increasing after 2001 at CPI+1.36%	Real pre-tax WACC at 7.8% (10.55% post-tax nominal) tariffs as proposed for 2 yrs then to fall by real 0.06% p.a	July 2000 Final Decision
EPIC	WA GAR	June 2003 Perth price \$1.062 per GJ	June 2003 Perth price \$0.891 per GJ	May 2003
NT Gas	ACCC	DORC \$336 M	DORC \$228.5m. Prices reduced 22% real	May 2003
Telstra Interconnect	ACCC	4.7c/minute	2.0c/minute with 1.6 c suggested Sept 1999	June 1999
Adelaide Airport	ACCC	8.89% real pre-tax or \$3.66/passenger	8.25% real pre-tax or \$3.45/passenger	June 1999
NSW vesting contracts	ACCC	43.64 cents	no more than 40 cents	Sept 1999
NSW distribution prices	IPART		16% real price reduction 1999-2004	2000 Final Determination
Victorian Electricity Distributors	ESC	Pre-tax real WACC AGL 8.6% CitiPower 8.5% Powercor 10.6% TXU 10.5% UE 9.7%	Pre-tax real WACC 7.1-7.4% draft 6.8-7.2% final Year 0 price reductions (%) Original Final AGL 17.1 15.5 CitiPower 12.4 11.2 Powercor 19.6 14.5 TXU 21.8 18.4 UE 12.9 9.1	December 2001 Final Decision
Powerlink	ACCC		Pre-tax real 7.04%	July 2001

As the first nine examples in Table 2 illustrate, the regulators’ decisions have required very substantial reductions in the price that is charged for gas transmission and distribution (the Dampier to Bunbury Pipeline has also seen price reductions of over 25 per cent aside from

the price settings presently under dispute). The six examples following those of the gas industry demonstrate that this outcome is typical of the regulated industries.

These steep price reductions required of the incumbent line companies in the initial regulatory rate setting appear to have taken out the “fat” accumulated during their previously protected tenures. To the extent that they were successful, further draconian measures to require price reductions in subsequent rate setting reviews would have a perverse effect, requiring cost savings that result in service levels below those sought by consumers.

3.3 Costs Stemming from the Gas Access Regime

3.3.1 Different Types of Costs

Commonly regulatory costs are divided into direct costs of the regulators, the paperburden costs imposed on the regulated and the economic costs stemming from changed behaviour on the part of business.

Considerable evidence gathered by the US Office of Information and Regulatory Affairs has placed indicative costs of the paperburden as being twofold that of the direct costs, with the consequential costs of regulation changing market behaviour being tenfold the direct costs. However this latter figure is subject to considerable variability. A recent paper by Argy and Johnson of the Australian Office of Regulation Review addressed these issues but declined to offer an estimate of the costs of regulation generally³.

A study conducted for Australia in 1998 and cited in the ORR Annual Report 2001/2 put the annual costs of the paperburden imposed on business at \$17 billion or 2.9 per cent of GDP. This is consistent with the earlier magnitudes estimated for the US⁴.

3.3.2 Paperburden Costs

In terms of Government regulators, Attachment 1 identifies some 450 full time equivalents involved in the economic regulation of the gas and electricity industries. In addition to these there are several hundred more involved in social regulation – safety, environmental, greenhouse and so on.

Material is being assembled on the paperburden that the regulations impose on businesses.

3.3.3 Distortions to Commercial Behaviour

There is evidence of costs being incurred as a result of the regulatory arrangements in place for gas. The fungibility of business decisions means that firms will often attempt to circumvent laws they find to be onerous but in doing so will seldom avoid incurring costs.

Regulatory intrusion has led to firms seeking means of avoiding regulation through selling only to their own affiliates. This is seen in the SEA Gas development between Victoria and Adelaide. This new pipeline presents a major alternative source of gas to the present gas line

³ <http://www.pc.gov.au/research/swp/miqr/miqr.pdf>

⁴ <http://www.pc.gov.au/research/annrpt/reglnrev0102/reglnrev0102.pdf>

from Moomba. The original two joint venturers, International Power and Origin Energy, designed the project with the intent of forestalling a possibility of having the line declared and opened to third parties. It was therefore to be built using 14 inch pipe that would be sufficient only for their own use. TXU was also keen to ensure gas carriage to its generation facilities in South Australia and sought to join the consortium. TXU's initial attempts were rejected and it was only after demonstrating its determination to proceed with an independent system (TXU actually incurred design and pipe expenditures) that the SEA Gas partners agreed to it joining them.

As a result of this stand-off, not only did TXU incur wasteful expenditure, but the SEA Gas system itself has some inefficiencies as a result of the part-constructed 14 inch line having to be duplicated and to join a single 18 inch line part way to its South Australian destination.

The excess costs incurred are a result of two features. First, the competitive strategies of Origin and International Power seeking to prevent a rival obtaining access to a low cost transport medium they had agreed to develop. And secondly, the agreement of all the partners that third parties should not be able to enjoy a "cheap ride" on their facility courtesy of an ACCC determined price that does not recognise the risks and the costs of alternatives⁵. Under the Gas Access Regime, these plans may however be foiled if a third party were to seek declaration of the pipeline, agreeing to incur the costs of compressors thereby augmenting the capacity.

This experience illustrates two aspects where the Gas Access Regime has failed to bring optimal investment. These are the jockeying that occurred between the different parties leading to specific unnecessary costs and the effect of the Gas Access regime in discouraging pipeline builders from bringing on extra capacity since the extra capacity can leave them hostage to a regulatory system that brings risks of flooding the market and undermining the value of the investment.

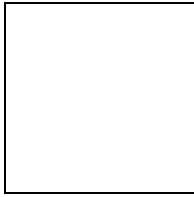
3.4 The Gas Access Regime's Costs and Benefits in Perspective

The Gas Access Regime can perhaps best be seen as a transition to a more market responsive system. It has resulted in a more efficient system of pipeline operations as formerly government owned firms moved to private ownership and as markets served by privately owned firms were opened to increased commercial pressures.

The increased labour productivity of the industry is illustrated in Chart 1 below.

⁵ Even if the regulator had been prepared to allow pricing under the "efficient component pricing rule" that allows the project initiator to obtain the profit that would be foregone by having to carry a rival's product, the legislation appears to rule this out.

Chart 1



Source: AGA

Over the 10 years to June 2001 natural gas primary consumption increased by some 52 per cent while employment levels were reduced by three quarters giving a four and a half fold labour productivity improvement. Even though part of this would have been due to an increase in out-sourcing, we have doubtless seen a remarkable achievement in productivity, though this may say as much about previous labour inefficiencies as it does about the proficiency of current management.

It is difficult to argue that these benefits stem from competition, at least the competitive framework inherent in the Gas Access Regime. Not only was the trend clearly under way prior to the Regime but the Regime itself has heretofore resulted in little increase in competition in the sense of gas-on-gas or pipeline-on-pipeline competition.

Nor has the Gas Access Regime resulted in improved certainty for pipeline owners. Quite the opposite has been the case and both Duke (previously the most active builder of new pipelines) and AMP (among the most important funders) have made statements in recent years to the effect that the regulatory morass they face means they will not be exploring opportunities for new pipelines in the foreseeable future.

What the competition reforms have done is progress the process already underway of overturning the previous arrangements whereby new gas pipelines depended upon a government imprimatur to be approved. That approach tended to be a machine for rent dissipation: governments sought advantages for themselves as owners or controllers and the firms (or more usually their unions) were also over-compensated. The latter normally boiled down into superfluous jobs incorporation terms and conditions that imposed excessive costs.

3.5 Outcome of the Gas Access Regime in Terms of Development

On the empirical evidence, the regulations do not appear to have resulted in a dramatic increase in gas usage. Gas sales grew rapidly up until the mid 1990s and, reflecting the industry's maturity, have since grown only moderately.

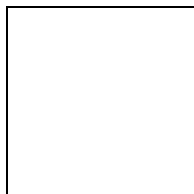
Table 3

Australian consumption of natural gas, by state - giganlitres per annum							
Year	New South Wales b GL	Victoria GL	Queensland GL	Western Australia GL	South Australia GL	Northern Territory GL	Australia GL
1974-75		2 478	258	831	1 314		4 881
1979-80	1 285	4 494	313	867	2 282		9 241
1984-85	2 254	5 616	479	1 911	3 081	26	13 367
1989-90	2 686	6 551	579	4 655	2 858	324	17 655
1994-95	2 711	6 596	1 180	6 610	2 872	378	20 347
1999-00	3 673	6 114	1 876	8 099	3 073	535	23 370
2000-01	3 567	6 270	1 991	8 902	3 419	500	24 650

Source: AGA

The relatively moderate rate of increase cannot be traced back to high gas prices. Gas prices have in general been reduced by about 10 per cent in Melbourne and Sydney with a smaller reduction in Brisbane but a substantial increase in Adelaide.

Of course, the period from the mid 1990s coincided with electricity reform and downward pressure on electricity prices, which may have led to some suppression of gas demand. The gas price outcomes are illustrated in the following chart.

Chart 2

The Adelaide price increases are not apparently as a result of the transmission pipeline the costs of which are relatively low (in line with the Moomba to Sydney costs) and comprise only around 15 per cent of the total costs.

3.6 Developments in Gas Fired Electricity Generation

Over the years Australian electricity has developed an increasing summer peakiness, driven by the air conditioning load. While gas has traditionally seen a winter peak as a result of the seasonal domestic heating loads, this is now changing for many major pipelines as a result of gas being used for electricity generation.

Electricity from gas, especially generated in low capital cost open cycle plants, is well suited to peak supply since it can be rapidly activated. Rapid development of gas generated electricity is forecast. The AGA sees the following pattern of development unfolding:

Table 4 Existing and Proposed Gas Fired Generation Stations

STATE	Existing Gas	Number of Existing	Number of Proposed
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	Share (%)	Gas Stations	Gas Stations
Western Australia	28.8	18	3
South Australia	55.8	9	7
Queensland	5.1	14	2
New South Wales	1.3	5	4
Victoria	2.2	6	4
Tasmania	0	0	1

These stations have the capability to place considerable strain on the gas system's capacity to provide for sudden and acute peaks. For example, the six gas stations in Victoria have a combined hourly consumption of over 17 TJ, 34 per cent of the hourly capacity of the GasNet system's 50 TJ. In South Australia the existing nine stations can consume 28 TJ per hour which is considerably in excess of the Epic pipeline's 14.5 TJ per hour. Attachment 2 shows further details.

The greatest need of peak generators (and the time during which they would earn a disproportionate share of their profits) is during high price electricity events that will increasingly occur during hot summer periods. The gas fired power stations both in Victoria (through Vencorp action) and South Australia (as a result of Government direction) have faced periods of being required to back off. A major issue for pipelines and gas generators now that the gas and electricity have coincident peaks is how gas generators can be assured of gas supplies

4 Issues Raised by the Productivity Commission's Review

4.1 Addressing the Benefits of the Gas Access Regime

4.1.1 Regulatory Decisions on Major Gas Pipelines

In a series of studies the Productivity Commission attributed a large part of the acceleration of Australia's productivity growth through the 1990s to the microeconomic reforms, a major component of which involved opening the energy sector to greater competition and ensuring that the prices for those parts of it which were characterised as natural monopoly were set at levels consistent with the outcomes estimated to result from competition⁶.

This is a reasonable interpretation of the outcome of micro-economic reform in the utility industries. Prices were reduced in these industries for two main reasons. First, as a result of the introduction of competition in those parts susceptible to rivalrous provision, in particular in electricity, and secondly because regulations reduced prices of the "essential facility" components.

Price reductions for existing facilities resulting from the present regulatory arrangements have already been addressed. If these reductions are greater than the investors expected or if

⁶ See for example Dean Parham, Australia's 1990s productivity Surge and its Determinants, NBER 13th Annual East Asian Seminar on Economics, Melbourne June 2002.

the required price action is unpredictable, this is likely to have a bearing on future willingness to invest.

One further manifestation of difficulties facing new transmission has been unexpected reductions in allowable price levels of new pipelines. A prime example was the Central West pipeline in NSW. In this case, the transmission business had been prevailed upon to develop a major new spur to serve the area on the basis of an agreed premium price (some of which was defrayed by a State government subsidy). It was fully open to other pipeliners to offer a better deal but none emerged. Notwithstanding the agreement between pipeliners and customers, the ACCC required a considerable reduction in the price.

This is a clear deterrent to those wishing to see development proceed on the basis of commercial bargaining. It will mean the more marginal projects would be unlikely to proceed. Hence, such activities on the part of the regulatory authorities results in unmet demand since the regulator is indicating an unwillingness to allow customers to pay more than the regulator itself considers appropriate.

In the case of the Duke Pipeline, regulatory decisions were made for a new venture competing head to head with the Moomba to Sydney line. The NCC in 2001 refused to accept that the price reduction that emerged from this competition was an accurate reflection of a true market outcome. The NCC preferred instead to give greater credibility to price levels that consultants hired by the ACCC had forecast would prevail in a true market situation. This was notwithstanding a substantial fall in price on the dominant Moomba to Sydney line once the Duke pipeline provided a credible alternative.

The Duke pipeline now has its capacity very largely booked, thus tending to verify its own view of the appropriate price at which the market would clear. If the price had been set as low as the NCC/ACCC estimates sought, a further price reduction of some 30% would have been in place, a reduction that would presumably have brought excess demand and a need to ration supply through the highly inefficient procedure of queuing.

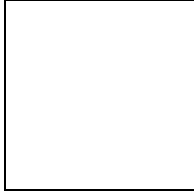
4.1.2 New Pipeline Development Activity

The level of pipeline activity has been low in recent years. The pipeline developed by Duke from Victoria to Tasmania is the only venture of any size that has been planned and developed under the Gas Access Regime. That pipeline has not enjoyed the success its developers hoped for because the Tasmanian Government has not allowed domestic gas to proceed due to the proposers falling short of its price and roll-out aspirations. Of the other major developments:

- The East Coast Pipeline, now owned by Duke, predated the Gas Access Regime and, as discussed, its operations under the regime have been dogged with disputation with the NCC and indirectly the ACCC.
- SEA Gas pipeline has been developed to avoid the onerous conditions set down by the Gas Access Code by its developers seeking to ensure no third party access provisions can apply.

The projects of a lesser magnitude are shown in Table 5 below. In no case has a project progressed smoothly and only one of the eight identified has been completed (a further project is proceeding on the basis of a State Government subsidy).

Table 5: New Projects under the Gas Access Code



Source: AGA http://www.gas.asn.au/pubfile/docs/doc021003_083427.pdf

These disappointing outcomes stem from reluctance on the part of governments and regulatory authorities to accept a market determined price

4.1.3 Competitive tendering

Pipeline regulations have provision for competitive tendering whereby the ACCC automatically accepts the price implicit in the winning tender. Ostensibly, this is a market oriented approach worthy of support. However, it is a flawed approach in practice and always likely to be so.

In its administration of the approach, the ACCC may reject a tender process if it considers there to have been too little interest shown or if the bids show insufficient competitiveness. Moreover, the process is highly formalised, costly and time-consuming with the ACCC listing fourteen separate stages in the process, including a public inquiry.

These matters aside, competitive tendering is only an option for an opportunity with well-known and high prospectivity. This is rarely the case. Normally an entrepreneur spots an opportunity which has not previously been taken up because of its riskiness. Even if such opportunities could attract rival bids requiring them to proceed by that process would cause economic harm—it would deter firms from engaging in marketing research since their rivals would be able to free-ride on any promising opportunity they might spot.

In short, competitive tendering is a process which has value only in highly specific circumstances. It can be used to ensure the suitor valuing a project with widely known prospects becomes the successful developer. It is for this reason that it is an extensively used approach for sub-contracting work by firms and is the basis of Public Private Partnerships between business and government whereby the former build-own-operate facilities on behalf of government agencies.

4.1.4 The Greenfields Guideline

Mistrust of market mechanisms is also apparent in the June 2002 ACCC Draft Greenfields Guideline for gas transmission pipelines. This seeks to tease out some workable principles for regulating new pipelines within the context of the Gas Access Regime. Unfortunately it envisages little scope for an unregulated pipeline to operate—such a pipeline would need to approach the ACCC with a proposed access arrangement and have this accepted.

The Greenfield Guideline attempts to graft US approaches designed for free standing monopoly pipelines facing low risk to pipelines that face all the uncertainties of an entrepreneurial venture. In the defence of those designing it, it must however be said, that it did not appear out of a vacuum. Much of the National Third Party Access Code, especially Chapter 8, operates on the same assumption as the Guideline, namely that a facility exists and how now do we ensure its use is equitable? The principles and cost allocations are admirable in detailing a means by which a government might determine how best it might price facilities it intends to build. But no government intends to build such facilities. Specifying in advance how entrepreneurs should operate can only bring a drying up of worthwhile new projects. The Guideline and Chapter 8 of the Code should have no role with new pipelines.

None of this justifies the regulatory intrusion. Requiring *new* pipelines to be regulated is particularly anomalous. These enjoy no exclusivity and by definition have no franchise or monopoly. For gas suppliers and customers they can only bring benefits. Unless or until a facility can be regarded as “essential”, regulating it will have a deleterious effect: there are no redistributive gains that could counter the reduced level of efficiency that regulation entails. The new pipeline competes for customers in the same way as all other goods and services and has no lien on the consumer dollar. Hence the Guideline attempts to filter projects with uncertain profitabilities through a sieve which is appropriate only for risk-free assets.

That said, like other “essential facilities” through the ages, pipelines that have achieved a monopoly position, whether or not they were originally franchised, can be expected to be opened for general use, implicitly on terms that they might not have chosen for themselves. This was the case with ports in the seventeenth century and with railways from the mid 1840s⁷. It is also the case with patents granted to new investors.

Accordingly, it might be argued that at some stage a pipeline which was developed entrepreneurially in a competitive environment can become an “essential facility” requiring it to offer its services to all-comers. However at the outset this cannot be the case: the facility cannot be “essential” when life went on satisfactorily prior to its existence.

Moreover, technology and market developments will often make a monopoly short-lived and regulating it can therefore bring resource misallocation, especially where the regulation has an impact on competitive provision. This occurred with railroads which remained regulated long after their market power had disappeared and, because of the inevitable imperfections in regulation this brought distortions and adversely affected the businesses themselves. By contrast, ports managed in general to avoid the regulatory corset and it would seem that airports are being released from these constraints in modern times.

The Productivity Commission’s proposals in its Review of the National Access Regime, recognising the shortcomings of the present approach in deterring investment proposed a “regulatory holiday” to prevent stifling the incentives for new Greenfield facilities. This is a far more promising approach than that required by the ACCC because it is based firmly on

⁷ For an authority who traces this aspect through the common law see Richard A. Epstein *Principles for a Free Society*, Perseus Books, Reading Mass, 1998.

market realities rather than bureaucratic constructs and second-guessing of commercial drivers.

4.2 The Victorian Pipeline Regime

4.2.1 Contract Carriage and Market Carriage

A major issue with Australian pipelines is the system of control in place in Victoria.

Almost universally pipelines operate as “contract carriage” where the shippers book space with the pipeline. However Victoria opted for an alternative approach, “market carriage” which borrowed from that in place with electricity. Gas shippers and suppliers make offers on a daily basis for gas they have contracted which is surplus to their requirements and for gas shortages they anticipate.

Under market carriage the retailer does not require carriage rights. The advantage claimed of this is that retailers need not be concerned about their ability to obtain additional capacity when a customer changes supplier, since the supply rights, in so far as they exist, are automatically transferred with the contract.

The downside to this is that users cannot contract for carriage and thereby obtain priority on the pipeline. Nor do they have a clear means of recourse in the event that they are denied delivery of the gas they have contracted. The manager of the pipeline is a government body, VENCORP, which has no capability to sign contracts that offer such assurances. VENCORP has legislative protection against any liability for its actions that might lead to delivery shortfalls or gas interruptions. At least one serious shortfall has occurred when the gas was not available and generators were disconnected. A partial solution for a generator is to have dual burners and the ability to switch to distillate but this means an added expense and a cost premium of perhaps tenfold that of gas.

In addition, the owner, GasNet has less incentive to find additional capacity – even more so since the firm has its aggregate *revenue* rather than its *price* capped. There is considerable latent capacity available in pipeline systems and some additional capacity that would be available by operating the system in other than the most risk-averse manner (as a not-for-profit agency, VENCORP has nothing to lose from requiring excessively conservative operating conditions). Clear property rights that are transferable and valued offer appropriate incentives, so that those best able to do so may uncover hidden value.

It is also true that under a regulated contract carriage approach, the pipeline’s incentives are severely attenuated. A pipeline that develops new capacity under such circumstances would have the price of that capacity reduced at the next “re-set” to bring the return on capital back to the regulator’s target rate. In addition, the difference between the two forms is reduced if, as some maintain happens in South Australia, the government is persuaded to intervene when shortages arise, thereby nullifying the contracts users have with the pipeline.

4.2.2 The implications of the lack of property rights to carriage

The inability of users to obtain firm carriage access is likely to have contributed to several deferrals of gas fired new electric power plants to serve the Victoria/South Australia region. These proposals included plants to be located in Maryvale (Paperlinx/Duke 200 MW) and South Ballarat (AES 500 MW). One outcome of this is the intent signalled by the electricity market manager, NEMMCO, to seek to contract increased electricity capacity under its reserve trader provisions.

Market carriage also creates difficulties for firms wishing to contract gas through the Victorian system to other systems. The shipper faces contractual uncertainty in selling gas that must be transported through a Victorian system with contractual rights unavailable.

A further disadvantage of vesting control of the facility by a body not motivated by profit maximisation is the excessive caution this brings. VENCORP's incentive is to avoid the possibility of capacity shortages. Such motivations in the past have led to goldplating. They can also lead to perverted outcomes since in the future, a regulator is likely to take the view that capacity built in excess of needs is excessive and should not command the return envisaged of it. But the instigator of that capacity overbuild, VENCORP, has no liability for its mistaken view.

This is likely to entail higher operating costs. With respect to the Victorian system, VENCORP claims to operate in a highly cost-effective manner. But it comprises an extra layer of management and board oversight compared with an integrated system. And as a State owned body, it is unlikely to have the same cost saving imperatives as a private company that is profit-focussed and unencumbered with multiple objectives.

While we have no comparative benchmark, the O&M costs of GasNet and VENCORP at 28 per cent of 2003 forecast revenue appears to be relatively high.

5 *Developments in Gas-on-Gas Competition*

5.1 *Regulatory Forcing*

The ACCC has long sought to obtain increased competition and lower prices by forcing firms to discard basin-wide marketing agreements. If the independent firms were each separately to market their shares of the gas this would bring competitive tensions from within each field, especially to the degree that the different share owning firms had different corporate goals on the value of earlier rather than later extraction rates.

Many who advocate requiring separate marketing doubtless also do so because they consider rivalry will bring cut-throat competition with pricing based on marginal costs. Any such aspirations are seriously misplaced since marginal cost pricing for supply (where marginal costs are declining) reflects a market under stress or in decline rather than healthy competition.

Whatever the merits of competition between businesses operating the same gas reserves, forcing firms to terminate contracts that they had entered into in good faith is a poor framework for public policy. The firms themselves joined consortia to spread exploration,

development and marketing risks and requiring an ex post facto revision would send messages that would deter future such ventures and therefore increase risks borne by a single firm.

One concern is that if firms have ownership shares in different fields, they will tend to operate them on monopolistic lines. These concerns are unfounded even though many fields do in fact have related ownerships. As long as the shares are not identical there is some considerable pressure offering assurances that the fields will be in genuine competition. The different shareholdings of BHP, Exxonmobil and Santos, as well as significant shareholdings by other substantial owners, means they cannot operate as a single cartel even if this were to be permitted. Acting as a cartel would mean the shareholders of some fields' firms would be sacrificing profits to those in unrelated firms in order to maximise some overall level of profitability. To develop an algorithm that left all parties satisfied would not be feasible. Hence, irrespective of overlapping shareholdings the different fields are bound to operate in competition one with the other.

5.2 Gradual Progress in Competitive Provision of Gas

In spite of institutional distortions remaining in place as a result of insistence by the authorities that competition follow some stylised “perfect competition” outcome, developments have brought about competitive pressures in the provision of gas.

In the Sydney and Adelaide this has not yet resulted in gas-on-gas competition through separately owned pipelines delivering from fields located close to each other. Both the Moomba to Sydney and the Moomba to Adelaide pipelines provide gas from a single seller source.

Competitive gas sources carried by the dominant pipeline are, however, developing. Brisbane already has some competition with non-Cooper gas on the Moomba to Brisbane pipeline and coal seam methane fields are being developed to supply Sydney linking into the Moomba to Sydney line.

More significantly there is gas-on-gas competition coming to play because of the development of rival pipelines following the termination of exclusive arrangements. These include:

- For Sydney, Cooper gas being challenged first by Bass Strait gas through the Albury interlink and secondly in a far more substantial way by the same source via Duke's Eastern Gas Pipeline. The imminent availability of coal seam gas adds a further source of supply.
- For Adelaide the Cooper gas facing competition from Otway and, essentially Bass Strait, via the SEA Gas Pipeline.
- For Melbourne Bass Strait gas is facing competition from Cooper via the Albury link and from the Otway fields through the Warnnambool link.

These competitive pressures are far from uniform –Sydney and Adelaide have genuine rival gas pipelines. Although Esso/BHP and the GasNet system remain very much dominant for

Melbourne’s gas supply, this is being reduced, not only by new gas developments but by storage that allows inter-temporal supply to place competitive pressure on direct supply from the Bass Strait partners.

Table 6 identifies the major pipelines serving Adelaide, Sydney and Melbourne.

Table 6

Pipeline	Pipeline Owner	Reserves	Reserves’ Owners	Length	Capacity	Tj/d
		PJ			Pj/yr	
Moomba-Sydney	APT	4416	Cooper Basin ptrns	1300	152	470
Longford- Sydney	Duke	8048	Esso BHP	795	65	150
Wagga-Melbourne	Gasnet/APT			410		50-90
Longford-Melbourne	GasNet	8048	Esso BHP	173	360	1050
Yolla-Melbourne	Origin/GasNet	256	Origin/Cal/AWE/Wandoo	189	20	60
Pt Campbell-Melbourne	GasNet	500	BHP/Santos	144		260-275
Pt Campbell storage						(260)
Dandenong LNG						150
Total Victorian System						1270
Moomba-Adelaide	Epic	4416	Cooper Basin ptrns	781	152	
Pt Campbell-Adelaide	TXU/Origin/IP	500	BHP/Santos	670	125	200

6 Improving the Current Regime: Alternative Regulatory Approaches

6.1 The Need for Regulatory Change

Access regulation, especially if it is associated with price control, means a restraint on the commercial focus of businesses. It means requiring a business to sell and otherwise make use of its assets in ways that are not of its own choosing. Such measures can undermine the overall welfare of the community which is best maximised by an unfettered right of property owners to use their assets as they see fit within the constraints of general laws.

Recognising this, the NCC has stated⁸, “Against these benefits (of increasing competition by giving a business a right to use another business’s infrastructure), access regulation can also entail costs if it is applied inappropriately or too widely.” We argue that this has occurred with the current arrangements.

The status quo, which is pretty much total control, appears to have outlived its usefulness. Its regulatory decisions are excessively cautious. This is epitomised by the NCC/ACCC approach to the outbreak of competition to the Moomba to Sydney pipeline from the Duke pipeline. The NCC not only argued that to be judged rivalrous the pipelines needed to offer competitive transport both to a market and from a source (i.e. be parallel) but also suggested that even then they would require such pipelines to be regulated in order to prevent them colluding. For its own part the ACCC published estimates of the competitive price that, if

⁸ The National Access Regime A Draft Guide to Part IIIA of the Trade Practices Act, NCC , August 1996 p.7

applied, would not have given adequate returns to the businesses and would have attracted excessive demand.

Having had an appeal reject its plan to control Duke's prices, the NCC has remained intent on controlling the price and access conditions governing its larger competitor from Moomba⁹. Control of the latter's prices would automatically mean control of the former's.

It seems likely that the present regulatory control is having the chilling effect on new pipeline developments that was referred to by the PC in its Review of Part IIIA of the Trade Practices Act. The present arrangements have had a counter-productive effect on economic wellbeing and need to be amended.

Regulators are always likely to be risk averse and may have a vested interest in ensuring their role over a large number of facilities¹⁰. A solution is regulatory disengagement but this must be applied with reference to the way that the present competitive outcome has developed. Different approaches are needed dependent on the history of the pipelines. New pipelines developed without franchise protection, are very different from pipelines developed by the government or with government protection against competition.

Although new pipelines can assume monopolistic power – and the current regulatory tussles that various governments have with Microsoft shows the potential for this remains – their different foundation is important. For pipelines built under protection from competition, having at the outset accepted government support, their owners incur some increased obligations. The original franchise normally involved a *quid pro quo* which might involve such considerations as obligations to serve or price uniformity.

6.2 New Pipelines

By definition, new pipelines are not an “essential facility”, since prior their development life went on without them. They may at some future date be redefined as a common good and, as such, be deemed necessary to be regulated. New pipelines should not be subject to regulatory control at the outset. Instead they should have an automatic regulatory holiday.

This reasoning stems from basic market principles. No firm should be discouraged from profiting from spotting an opportunity to supply a market/achieve a better price for the output of a gas resource. To the degree that a firm does benefit from such activities it can only do so while also benefiting consumers and/or producers. The additional or cheaper source means lower costs and/or greater security. This is a fundamental consumer benefit. If the enterprise is forced to provide benefits in addition to those that incidentally arise from its developments, this will reduce the profits it makes on its own behalf. Such requirements must deter development in the same way as book publishing would see less activity if publishers' prices

⁹ NCC spokesmen have also advised that the shareholding (35per cent) of APT by AGL could give rise to competition problems.

¹⁰ The ACCC, for example, contested the PC's judgement that competitive forces were sufficient to allow the withdrawal of airport regulation.

were controlled of if, as a condition of allowing the copyright, the publisher was also obliged to issue a low cost paperback edition at the same time as the hardback.

As we put the case in IPA Energy Paper 26¹¹

When a regulator places obstacles in the way of a new facility being constructed, there is a loss to the economy. The case for new pipelines to be free of price regulation is no less strong than that for new bakeries, car plants or any other facilities that have no government franchise. Regulation that closes off market entry by insisting that incumbents underprice their services is just as harmful to a healthy economy as regulation that forbids new competition.

Of course, the difficulty of regulating assets which have monopoly characteristics even after the elapse of a regulatory holiday is that the original monopoly often ceases to prevail. But, for the present, forestalling regulation, or premature regulation, of yet-to-be-built facilities is far more important than removing a regulatory vice which might be imposed many years down the track.

It is for this reason that the ACCC's Greenfields Guideline for gas transmission pipelines should be withdrawn. The Guideline is harmful to economic wellbeing.

6.3 Existing Pipelines

Current major sources and pipelines covering south eastern Australia were summarised in Table 6.

National Competition Policy has meant the termination of the protected regime for those pipelines that pre-dated it but it has also meant on-going protection in so far as rival facilities cannot be brought on stream where the facilities themselves are lumpy. Under normal competitive conditions an incumbent would try to deter the development of rival facilities through selective pricing activity. But National Competition Policy, rather than preventing this, actually tends to reinforce it. This is because of the asymmetry in the market reaction to prices set by regulation – buyers are free to choose but sellers must comply so that a regulator cannot set meaningful prices that are higher than consumers are prepared to pay. Accordingly, even though most regulatory agencies have the competitive price specification as their goal, prices set for an incumbent supplier tend to be lower than those that would be set by an unrestricted competitive market.

Such outcomes would be reinforced by pressures to please consumers by setting prices below competitive levels. Such pressures are always likely to be present. The authorities' normal political demands in this direction are constrained only by the awareness that artificially low prices may sooner or later result in shortages.

¹¹ Natural gas in Australia after the "Hilmer revolution"
<http://www.ipa.org.au/pubs/Moranwebpapers/Energy26.pdf>

Placing responsibility for these decisions in the hands of an independent regulator eases the pressure somewhat but the independent regulator also faces the same forces¹², albeit somewhat diluted by not needing to face the voters directly.

The upshot is that prices of the formerly reserved markets tend to be set at levels that make it difficult for new providers to compete. This slows down the emergence of competing facilities, especially since a regulatory regime can seldom force an incumbent facility to expand¹³.

Where competition conditions prevail most regulators would agree that coverage should be removed. The designation of when such competitive conditions are in place is clearly controversial. With gas, electricity is almost always a dominant competitor at the household and business users level and this itself places pressure on gas suppliers to perform efficiently, the more so since electricity industry reform.

This aside, the growth in demand will often bring about conditions where gas competes with other gas sources. Often two rival suppliers are enough to create genuine competition and, indeed, two rivals sometimes result in very intensive, even destructive, competition. Australia has a number of markets – telecommunications, cement, bricks, petrol – that have few suppliers but which have clearly workable competition. On the other hand, as seen in the first few years of the England and Wales electricity market, even without collusion, two dominant suppliers can cause prices to remain well above “competitive market” levels for a number of years.

Our own view is that the England and Wales electricity situation seldom occurs and is self-correcting when it does. Moreover the “tacit collusion” was facilitated by the nature of the half hourly electricity market where constant bidding introduces greater familiarity with rivals’ strategies. This allows firms to readily understand each other’s bidding strategies and accommodate to them in ways that are unlikely to occur in less intensively bid markets.

7 Recommended Approaches

7.1 Lighter Handed Regulation

At the outset of the National Competition Policy era, most regulators proclaimed their philosophical bent towards and intent of following “light-handed” regulation. Few would claim that as an outcome and less is heard of the phrase now that the reality of intensive scrutiny is evident. Indeed, the current form of regulation is not only heavy-handed but is also a mockery of the original notion of CPI-X price regulation. CPI-X regulation was designed to require minimal oversight and automatic pass through of economy-wide price

¹² Thus, within days of being confirmed as Chairman of the ACCC, Mr Graeme Samuel faced criticism from the Shadow Treasurer that he was being soft on prices and was acting to the disadvantage of consumers.

¹³ The Gas Access Regime has provisions making this clear, s.3.16 says, “The Relevant Regulator may not require the Extensions/Expansions Policy to state that the Service Provider will fund New Facilities unless the Service Provider agrees”.

changes with an additional component to put pressure on the regulated businesses. In fact, in operationalising the concept, regulators have delved into the businesses' costs, stipulated major cuts and dressed the outcome in a CPI-X framework.

Gas pipeline regulation has been applied as painstakingly thoroughly as that of any other industry over the eight years since the NCP was adopted. Substantial price decreases have been required of the pipelines. At the same time a rigorous process ensuring equal treatment of all customers and users has been put in place. The pre NCP pipelines now all have ownership structures that ensure they do not favour one user over another.

The system involves voluminous reports backed by intensive estimates on the part of regulated, regulators and their respective consultants. In the recent GasNet decision, the four "final" reports alone amounted to 540 pages of blistering detail and these were supported by many submissions and other papers. Notwithstanding the detailed assessment few regard the outcome as "fair" – GasNet saw its aspirations for price increases severely pruned back; users were perturbed at what they saw as over-generous depreciation provisions. It is, moreover, doubtful that the ACCC, facing the normal regulator's problem of information asymmetry, has a high degree of confidence in the full appropriateness of its decision.

Heavy handed or not, the regulatory approach over the past few years has eradicated, some would say more than eradicated, any excess costs and profits in the pipelines that might have been legacies of their previous government ownership/regulatory control. Service providers cannot however continue steeply cutting their prices indefinitely without endangering the on-going provision of capacity. Nor are their many voices in favour of some continued regulation being maintained to control profits with on-going detailed cost and demand investigations this requires. Most authorities recognise that since such approaches stultify the innovation and customer focus that are intended to be the drivers of the industry.

Rather than implementing control over prices it would be preferable to have an oversighting role for a well-qualified body, perhaps the Productivity Commission, to conduct an inquiry over prices should some evidence emerge of the market failing to perform as intended. At the present time this would allow coverage to be withdrawn from the pipelines supplying Sydney, and (as from 2004) Adelaide.

Melbourne and Perth, as well as for the present Brisbane, which remain supplied by a single pipeline would continue under some form of control. This might involve provisions, like those already in place, requiring the existing pipelines:

- not increase current prices beyond some pre-designated level,
- offer freedom of all to access at the same price,
- give automatic permission of users to re-sell,
- allow the buyer be able to choose alternative offload points on the pipe.

The above approach would allow the adoption of a genuine CPI-X regime. The regulator would be able to waive through price changes without undertaking the scrutiny that has featured so prominently to date. Additional scrutiny might be reserved for claims for increased prices.

It is also important that deregulatory moves be coordinated. Releasing regulatory constraints in one sector of the production chain has implications all along it. In particular, it would be quite harmful if transmission prices were deregulated but retail prices were kept under control. Such an outcome would put retailers at risk in Australia with the same potential outcome as occurred in California, where retail price capping and increased wholesale prices drove the retail businesses into bankruptcy.

7.2 Practical Improvements in Regulatory Approaches

7.2.1 Type of Price Setting

Although it is price capping that is the conventional approach, some facilities are controlled through a revenue capping mechanism. This is unfortunate. Revenue capping of the transmission businesses' earnings is likely to distort activities.

Revenue capping owes its popularity to environmentalists' pressures to prevent actions that might "waste" scarce resources. It is claimed that a price cap would encourage the transmission business to sell more energy than was needed.

Such notions belong to an earlier era. All businesses seek to persuade consumers to buy more of their product and the price system ensures the appropriate incentives are in place to optimise increased sales with conservation of supplies. Placing transmission businesses without the incentive to pursue sales growth is likely to mean opportunities foregone. These might include reducing the prospect of a joint approach of energy supplier and transport supplier to make offers to attract particular businesses.

7.2.2 Alignment of Gas Price restraints with those of Electricity

The gas and electricity markets are far from being aligned. The gas market VoLL in Victoria is set at \$800/ GJ, a level that coincidentally is similar to the \$10,000/MWh electricity VoLL equivalent. However, the gas price is in fact effectively capped at below \$20/GJ, the cost of the last increment of supply that is presently available.

Gas prices in Victoria, are in effect capped at even less than this. Even on a day when there were forced disconnections prices averaged less than \$10/GJ. Those (generator) participants that were ordered to cease using gas were understandably reluctant to do so when the price of their electricity output was many times that level. At least one of the generators has reported that it had contracts that it was forced to break at some considerable penalty. There are clear benefits in aligning maximum market prices of gas and electricity since gas fired electricity will usually be the marginal source of supply. Hence consistency and the avoidance of market distortion would require VoLL being allowed to rise to similar levels for the two commodities.

With the gas market based on a daily price and electricity prices set at 5/30 minute periods there are major implications for efficiency. Not only do the two prices need to be made consistent, but gas prices cannot be left remaining on a daily basis.

More frequent bidding and re-bidding provision (probably with locational features) may entail costs including those integral to the development of intra-day gas pipe injections and depletion profiles. For most participants these may not be great in a market that is normally characterised by static prices. But the need for such features will increase as the main GasNet pipeline achieves greater utilisation. Indeed, if the VoLL price is to be better aligned to that of electricity, the likely means of price changes occurring smoothly would be via demand side bids. These require intra-day bidding to be effective.

This should be brought into effect non-disruptively. It might be done by determining the true equivalent of the gas and electricity VoLL and phasing the former into alignment with the (more important) electricity VoLL. Announcement in advance will allow new storage, demand-side measures and other innovations that will ensure gas and electricity are treated similarly. In the absence of this, there will continue to be arbitrary requirements for gas generators to back-off and the consequent uncertainty (and reduced profitability) will adversely affect investment incentive for peak electricity generators.

7.2.3 Changing the Victorian Arrangements

The Victorian gas arrangements have failed and can never prove satisfactory. Changing them to the conventional contract carriage approach would not be draconian.

It might be accommodated by:

- Making explicit the implicit carriage rights that existing users have and allowing the users to trade in their capacity (and possibly imposing a charge to offset the “gift” that the vesting might entail).
- Requiring all future users and those seeking increased use to have capacity as well as gas or to risk facing penalty charges by becoming financially interruptible.
- Have an independent body examine whether and under what conditions coverage might be revoked on the GasNet pipeline system
- Facilitating trade in capacity through electronic bulletin boards.
- Resetting the gas VoLL at a level that is consistent with the electricity market VoLL and introducing an intra-day gas market.

ATTACHMENT 1

Government Regulators

Defining the Resources

There are many different ways of defining regulatory resources. One means, perhaps offering the most accurate information of influence, is by estimating the budgets of the agencies concerned. This would allow for the true resources employed at a time when agencies are increasingly contracting out many of their core functions. Unfortunately, the detail in most government budgets is insufficient to make satisfactory estimates. Hence, the estimates below focus on numbers of regulators.

The core regulatory functions are now normally housed within specialised bodies like the ACCC, NECA, IPART and the ESC. However some clear regulatory functions remain in line departments, like the retail price setting that remains under the purview of the Victorian Department of Natural Resources and Energy.

In addition to these are the “policy” personnel in the mainline departments advising ministers on policy approaches and changes. The regulatory role of this class of industry overseers is in the main less direct than the overt price and condition setting bodies and many consider that they should not be designated as having a regulatory role. However, setting policy frameworks is the heart of the notion of regulation, and just as the regulatory manager is a part of regulatory resources even though the activity is conducted by more junior personnel.

A third tier of regulators are concerned with sustainable energy. This is a very rapidly growing area of governance and advice. The Sustainable Energy Authority of Victoria (SEAV) now has some 72 staff involved largely in advising, urging and studying matters concerning greenhouse gas emissions. In addition, there are other staff, some 10 within the Victorian Department of Primary Industries, concerned with energy and many more across the bureaucracy covering energy saving policy in areas like building control, transport, and local government.

Other states have comparable agencies. The Commonwealth’s Greenhouse Office has a staffing level of 178; SEDA in NSW, which lists not becoming a bureaucracy as one of its goals, declined to provide information on its own size. These environmental agencies are involved either in distorting the energy economy, often by a policy of promoting wind and other unconventional power or, more benignly, offering advice to people on how they might save energy.

A fourth tier of regulation concerns energy safety. The size and responsibilities of these offices varies across the jurisdictions: Victoria is especially well staffed and Queensland less so.

It is the first two tiers of officials that we focus on to offer estimates of regulatory resources. The energy saving/environmental/safety functions are sometimes difficult to disentangle from the “economic regulators”, particularly where they are embedded within departments.

Numbers of Government Personnel Involved in Regulation

The numbers below do not include those involved in pure research, like ABARE or, indeed, the Productivity Commission. For the states, only about one third of regulatory resources are in specialised agencies involved in setting prices and conditions. Although more than half of the Commonwealth personnel are housed in such specialised agencies this reflects the essentially federal nature of the NCC, NECA and the NCC.

In all, there are over 450 staff positions (including an allocation for overhead) estimated to be regulating the industry. These numbers may not seem large in the context of an electricity industry of about 30,000 employees and a gas industry totalling more than 2,500. However it must be stressed they are not the sum total of regulatory resources allocated to the industry, only those in mainline economic regulation. It has already been noted that there are very considerable resources allocated to the “social” regulation of energy through safety regulators, greenhouse offices, sustainable energy agencies and through the various parts of environmental agencies that impact upon and in part control the energy industries.

The resources involved within different jurisdictions’ government agencies varies. One significant factor might be the degree of public ownership, which could account for the relatively low numbers in the policy agencies in Victoria and South Australia.

	Major Energy Policy Agency	Major Regulatory Agency(s)	Other Policy Agencies	Total
Commonwealth	38	65	13	116
ACT	2	3		5
NSW	50	30	6	86
Queensland	70	13	6	89
S. Australia	14	10	6	30
Victoria	21	33	6	60
Western Australia	35	7	15	57
Tasmania	5	14		19
Total	235	175	52	462

Attachment 2

Pipeline Capacities and Gas Generators

Table A1: South-eastern Australia Gas Pipelines

Pipeline	Length km	Capacity PJ/a	Capacity TJ/day	Capacity TJ/hr	Owners
Moomba – Wilton	1300	152	470	20	APT
Yolla – Westernport Bay	130	20	67	6.3	AWE, Origin
Longford – Horsley Park	795	65	150	10	Duke Energy
Wodonga – Young	151	20	54	2.3	APT/GasNet
Wollert – Wodonga	269	6.5	17	0.7	GasNet
Longford – Melbourne	173	360	1050	50	GasNet
Moomba – Adelaide	781	120	348	14.5	Epic
Pt Campbell – Adelaide	679	90	240	10.3	TXU, International Power, Origin

Peak load generators require high gas fuel flow rates. An estimate of the peak gas demands are summarised in Table 3 and 4. Pipelines are normally designed for steady state flow rates. The inconsistency between short term peaks and design for steady state flows can be resolved by linepack management, increased pipeline diameters and additional compressors, but at a cost – hence rewards to the pipeline owner or developer have to be commensurate with costs and risks over the long term. Otherwise new pipelines and expansion of existing ones will not be built to meet the current and emerging gas fired generation needs. New investments in pipelines are discouraged by the VENCORP administered market carriage systems and the price and reliability of electricity in the NEM in Victoria and South Australia will be seriously affected. Consumers in those states will bear the brunt of the inappropriateness of the market carriage system.

Table A2: Gas Fuelled Generating Stations in Victoria

State	Station Name	Equipment	NEMMCO SOO 2003/04	Assumed Thermal Efficiency	Gas Consumption TJ/hr	TJ/day @ 100% l.f.	PJ/a @ 100% l.f.
Victoria	Anglesea		160				
	Bairnsdale	2 open cycle GT	78	30%	0.936	22.464	8.199
	Jeeralang A	4 open cycle GT	212	25%	3.053	73.267	26.743
	Jeeralang B	3 open cycle GT	237	25%	3.413	81.907	29.896
	Newport	1 thermal/steam	500	35%	5.143	123.429	45.051
	Somerton GT	4 open cycle GT	135	30%	1.620	38.880	14.191
	Valley Power	6 open cycle GT	252	30%	3.024	72.576	26.490
	Total		1574		17.188	412.523	150.571

Table A3: Gas Fuelled Generating Stations in South Australia

Station Name	Equipment	NEMMC O SOO 2003/04	Assumed Thermal Efficiency	Gas Consumption TJ/hr	TJ/day @ 100% I.f.	PJ/a @ 100% I.f.
Dry Creek GT	3 open cycle GT	135	25%	1.944	46.656	17.029
Hallet GT	12 open cycle GT	220	25%	3.168	76.032	27.752
Ladbroke Grove	2 open cycle GT	76	30%	0.912	21.888	7.989
Mintaro GT	1 open cycle GT	76	25%	1.094	26.266	9.587
Osborne	2 combined cycle GT	178	45%	1.424	34.176	12.474
Pelican Point	3 combined cycle GT	450	50%	3.240	77.760	28.382
Torrens Island A	4 thermal/steam	485	30%	5.820	139.680	50.983
Torrens Island B	4 thermal/steam	800	30%	9.600	230.400	84.096
Quarantine	4 open cycle GT	95	30%	1.140	27.360	9.986
Total		2515		28.342	680.218	248.279

Source: NEMMCO Statement of Opportunities