

# **Natural gas in Australia after the “Hilmer revolution”**

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## Summary

### ***Current competitive framework***

Prior to the Hilmer reforms<sup>2</sup>, long distance gas transmission pipelines were exclusive franchises and therefore (legislated) monopolies. Policy developments stemming from the 1993 Hilmer Report eliminated monopoly provision thereby changing the framework underpinning the way Australia's gas and electricity industries operate.

Gas transmission is now regulated under the National Third Party Access Code for Natural Gas Pipeline Systems (the National Gas Code). The National Competition Council (NCC) normally determines whether a pipeline should be covered by the National Gas Code with the Australian Competition and Consumer Commission (ACCC) determining the terms under which a covered pipeline operates. Gas access may alternatively be regulated by the ACCC accepting an undertaking by the pipeline under Part IIIA of the Trade Practices Act.

### ***Appropriate regulatory coverage and practice***

#### National issues

Regulatory coverage seeks to prevent monopoly exploitation by an enterprise. But, in replacing private control this will impact adversely on operational efficiency and incentives for efficient investment. Regulation is most effective where it is designed to achieve the efficiency inherent in privately owned competitive network facilities.

To avoid discouraging new investment, the regulator should not require prices on *existing* pipelines to be set below, or services above, the levels consumers would be prepared to pay in a competitive market. Successful innovative and uncertain investments commonly earn a risk premium above "normal" profits. The regulator should include such a premium in the prices set for a firm—even one that is well established—that has pioneered markets that were previously unserved. The ACCC, however, generally sets regulated prices at levels that offer inadequate recompense for costs and risk.

For *new* pipelines built without government protection or other favours, there is little basis for regulatory controls. These pipelines, by definition, start with no monopoly and users are free to seek out the pipeline links that offer the best terms. If provision is made for an asset built under such circumstances to become a regulated "essential facility", at some future time, the provision should be restricted to specific circumstances, and should be under constant review.

Furthermore, natural gas pipelines that pre-dated the Hilmer reform era are increasingly experiencing some competitive pressures since the removal of their franchise protection. These pressures require revocation of the regulatory coverage of some pipelines. Failure

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<sup>2</sup> Set out in National Competition Policy, Hilmer F.G., Rayner M.R., and Taperell, G.Q., AGPS, 1993.

to revoke coverage where there is workable competition can seriously impede competitive development. Where the regulation sets prices too low, this leads to inefficient imposts on pipelines and unsustainable subsidies to customers.

### Victorian issues

Victoria is the major gas using state other than Western Australia. The state's "market carriage" system for gas presents an additional regulatory matter. Victoria's network involves the Government-owned VENCORP controlling pipelines and no user-rights to a specific capacity. Most other pipelines are "contract" carriage under the pipeline owners' control with the capacity allocated to users.

The Victorian "market carriage" system offers too little incentive for the pipeliner to implement improvements and insufficient certainty for users. It should be converted to a contract carriage system.

The present regulatory structure also has some anomalies with respect to gas and electricity. For example, price caps are not presently aligned in Victoria. To avoid distorting investment decisions between the two energy sources, the gas price cap (the Value of Lost Load) should be set at a similar level to that of electricity.

In addition, electricity transmission price regulation is based on a revenue cap, while that of gas is based on a price cap. The latter is more efficient because it does not discourage efficient use. Electricity price setting methodologies should be aligned with those of gas.

# Introduction

## ***Regulation's role in the gas industry***

As with electricity, gas is best analysed as comprising four elements:

- supply of gas (which unlike electricity might include storage),
- transmission along high pressure pipes,
- local distribution, and
- retailing.

Of the four elements of gas supply, distribution alone is an uncontested natural monopoly. For the other elements control is normally best left to commercial market forces.

Once *in situ* a local network is unchallengeable except from alternative fuels. Although there are occasional examples of a rival duplicating an incumbent's distribution network, this is unusual and probably socially wasteful. It would also be possible to avoid regulation of distribution if users signed long term contracts with the pipeline but this will be impracticable with highly dispersed household usage. Some form of regulation of distribution is, therefore, probably inevitable.

While transmission and production might also have monopoly features, these are likely to be far less persistent than with distribution. New sources of gas supply will usually be found if prices are attractive. With transmission, rival networks can be built to contest an incumbent's market. Such a possibility is, of course, reduced to the extent that regulation is in place and brings prices lower than those that would otherwise prevail. Gas supply and transmission are also different from distribution in that their development decisions and final customers involve commercial parties capable of contracting with each other for long periods.

In general, Australian governments have not sought to be major suppliers of gas ex-mine. Long term contracts with gas producers have been signed by government agencies. There have been pressures to renegotiate those contracts (including by the competition authorities seeking to force consortia to have their different firms market separately). However, governments have, quite rightly, been reluctant to break contracts, even those of long standing.

Transmission pipelines have been at the heart of recent policy concerns. They have been a focus of changed sentiments on the nature of natural monopoly and whether any regulation is required in some cases.

## ***The 1994 CoAG decisions***

In 1994, the Council of Australian Governments (CoAG) agreed to "free and fair" trade in natural gas both intra-and inter-state. Part of this involved an agreement to create no

additional exclusive franchises for retail, distribution and transmission and to make existing franchise arrangements more competitive. Government sanctioned franchises were seen to be bringing inadequate incentives for pipelines to operate efficiently and to develop. The monopoly status they created also gave rise to the need for considerable regulatory intrusion to prevent abuse.

However, particularly with those franchises owned by government, there was too little restraint on monopolistic abuse prior to 1994 and prices were high. Even so, the taxpayer, as owner of those pipelines failed to benefit from this. Instead, the excessive revenues from monopoly prices tended to be dissipated in excessive manning levels and other operational inefficiencies. Hence, in the case of the Victorian system, privatisation brought a net increase in government revenue. The private sector bidders were able to spot opportunities for saving costs and their bids reflected this, allowing the government to save more on debt retirement than it lost in net revenues foregone from its gas business.

The CoAG decision followed from the Hilmer Committee recommendations. The impetus for and recommendations of the Hilmer report stemmed from a need to redress the competitive restraining effects of state government owned or controlled monopolies that were bottleneck “essential facilities” infrastructure. The report made specific mention of gas transmission pipelines

Although Hilmer discussed wide notions of “essential facilities” where regulation could be contemplated, the authors were, “conscious of the need to carefully limit the circumstances in which one business is required by law to make its facilities available to another.” (p.250). The Hilmer Report returned many times to emphasise the need to avoid undermining property rights and, hence, investment incentives, (e.g. p.256, 258). The Hilmer report and its consequent legislation sought to ensure the regulated aspects of these services were confined to the core “essential facilities”.

With regard to the rationale for regulatory coverage, Hilmer said “While it is difficult to define precisely the nature of the facilities and industries likely to meet these requirements, a frequent feature is the traditional involvement of government in these industries, either as owner or extensive regulator”. In short, in Australia in the early 1990s the only “essential facilities” were government owned or those businesses which enjoyed government support or protection from competition

The 1994 CoAG approach reversed previous practice under which gas pipelines were either exclusively owned by governments or were only permitted to operate with government approval. The previous approach had seen the need to vest exclusive control over a market to a single pipeline. This was based on the notion that there might otherwise be unnecessary duplication and therefore risks that investment returns might be harmed. Under the previous approach, the transmission pipeline and distribution businesses were affiliated and prices were controlled either directly where the government owned the businesses, or indirectly where it franchised the activity.

The new policy approach was designed to make the gas industry more responsive to demand and to introduce greater entrepreneurship, risk taking and therefore innovation on the part of pipeliners.

While clear improvements in gas supply, operational efficiencies and prices have followed, the conditions giving rise to the new policy have not stood still. Partly due to the reforms introduced, transmission pipelines have become subject to greater competitive forces and the need for their regulation is passing—and at least in the case of eastern NSW—has passed.

## **Continued impediments preventing markets from operating**

### ***Regulations inconsistent with efficiency***

The decision to replace the regulated approach with a more entrepreneurial solution meant that gas pipelines, like motor vehicle plants, would have no automatic rights to a particular market. Nor would a gas source be immune from competition.

Once the integrated and protected franchise model was abandoned, the industry required a framework for its on-going development. Where this entailed opening up previous monopolies, the new framework had a clear public benefit.

However, the present framework has been developed on an ad hoc basis with often contradictory elements. The more important features causing this development to be flawed have been:

- the extremely high hurdles that the regulatory authorities have established with regard to the number of competitors required before they allow unregulated markets to operate. These hurdles would prevent almost any pipeline from being regarded as sufficiently disciplined by competition to allow for a withdrawal of regulatory control;
- a National Gas Code that is heavily weighted towards the assumption of the need for regulation with such features as a queuing policy (a role which price performs in the economy generally) and a very prescriptive cost-based guide to pricing which takes no account of market risk;
- a transmission system in Victoria, the largest market, under which firm carriage cannot be arranged and which therefore introduces undue risk to actual and potential gas customers and insufficient incentive for pipeline companies to expand their pipelines or implement cost savings;
- transmission price regulation for electricity based on a revenue rather than price cap that encourages energy conservation rather than efficient use of energy and incompatibilities with price cap regulation;
- inconsistent price ceiling levels for gas and electricity.

Price setting criteria have been perhaps the most contentious. These criteria have largely entailed questions about whether the authorities were establishing price settings that were too low, thereby offering inadequate returns and reducing the motivation to build new and enhanced facilities.

### ***Unnecessary regulatory coverage of pipelines***

#### **Coverage of existing pipelines**

The new arrangements included a requirement for the National Competition Council to determine whether a pipeline should be designated as covered (i.e. regulated) by the National Gas Code. All such covered pipelines, unless they have no capacity for sale to non-affiliates, are required to have their rates approved by the ACCC.

There are inherent difficulties in estimating a synthetic price. These aside, having a government agency specify the terms and conditions under which the pipeline may offer their services is asymmetrical between suppliers and customers.

This is because the essence of Australian regulation is to ensure productivity gains are reaped by customers rather than suppliers. Regulation of existing pipelines with *de facto* natural monopoly is designed to pass along savings in improved productivity in lower prices. These savings would automatically flow through to customers under perfect competition. Even under the less stylised form of competition actually prevalent in most markets, only where firms maintained genuine innovatory gaps over their competitors would they tend to retain the “surplus” profits.

The customers of transmission pipelines are wholesalers or major users, and in both cases are capable of developing contracts to protect their interests. They face every advantage where the price they pay for pipeline services cannot be increased since the regulators aim is to hand back to customers cost savings the pipeline makes. Those without contracts—new customers—can simply refuse to buy if the terms are onerous. Commonly, new customers have locational choices.

Hence, regulatory imperfections will almost certainly mean terms and conditions disadvantageous to the pipeliner, since it is impracticable to impose disadvantageous terms and conditions on most transmission pipeline customers, whereas the pipeliner has its costs sunk.

Regulation of profits is designed for situations where the monopolist would otherwise restrict output to ensure prices in excess of long run marginal costs. However this definition of monopoly behaviour is less useful for markets where marginal costs are low. It might, for example, justify a forced price reduction on pay-tv services, the outcome of which would be a severe reduction in any such new investment that entailed high fixed costs.

In the case of gas pipelines, the issue is not usually one of restricting output. Rather it is about setting the prices of output that is either fixed or where demand is not influenced by its price<sup>3</sup>. Indeed, regulated pipelines are required to have a queuing policy to ration access rather than using price for this. The risk, in such circumstances, is that the regulator may set prices too low in the knowledge that adverse implications in terms of reduced incentives to invest will be long term rather than immediate.

Since the implementation of the National Gas Code, a number of decisions made by the ACCC and other regulators have forced pipeline owners to accept prices that are lower than those that would have been voluntarily entered into by the interested parties in the market-place. GasNet is the latest of those, with the ACCC setting a WACC return about 20 per cent below that sought by the company as well as reducing the company's allowable capital expenditure.

Setting inappropriately low prices will bring reduced incentives to maintain and upgrade existing pipelines. Perhaps more importantly, this will discourage investment in new pipelines. Indeed, some pipeline investors have made public statements that they will not invest further in the industry.

### Coverage of new pipelines

Requiring *new* pipelines to be regulated is gratuitous and contrary to efficiency. New pipelines 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 impede its development and any redistributive changes the regulation might bring would not compensate for 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.

While there is a case for pipelines originally built under franchise protection remaining under regulatory control until new competition emerges, this is not so with the post 1994 era pipelines. Post 1994 era pipeline developers rely on market discovery and business acumen to profitably meet consumer needs, just like entrepreneurs contemplating any other investment. Setting more onerous terms for new pipeline developments will bring sub-optimal levels of capital expenditure on them.

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

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<sup>3</sup> The demand for pipeline usage is a derived demand. It depends on the demand for gas. Thus if the elasticity of demand for gas is 0.3 (a doubling of price brings a 30 per cent fall in demand) and the pipeline comprises only 10 per cent of total costs, passing on a doubling of pipeline costs leads to only a 3 per cent fall in gas demand. Of course, if supply is competitive, it is of little relevance whether demand is derived or not, since suppliers will take advantage of cheaper transport if it is available.

themselves. This was the case with ports in the seventeenth century and with railways from the mid 1840s<sup>4</sup>. It is also the case with patents granted to new inventors.

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.

### Withdrawal of coverage

The issue of when adequate competition is in place is a vexed one. Clearly a multitude of competitors offers the best insurance against monopolistic price gouging, and US authorities generally regard five suppliers of similar size to be adequate to ensure no such power exists.

Nonetheless, robust competition can persist and perhaps continue indefinitely with even two competitors, especially if the competitive framework is one where other products or services offer some useful substitution or could rapidly enter the market. Such monopolies exist in the case of Coke versus Pepsi, Boeing versus Airbus or even Qantas versus Virgin. Even a single supplier can be sufficient. The latter case occurs with the Microsoft operating system where its monopoly position is muted by the possibility of newcomers like Linux and by the competition it faces from previous sales of earlier versions of its software.

None of this is to deny the better outcomes that normally emerge when there are competitive offerings. Moreover, the difficulties of customer “lock-in” that are the reason behind the “essential facility” concept are greater with reticulated gas and electricity than is the case with some of the other goods and service experiencing monopoly or duopoly.

Hence, it may be that at some future time a purely entrepreneurial facility may appropriately be redesignated as “essential” should no rivals emerge. But even if a pipeline were to become regarded as “essential” and subject to regulation, this is likely to be transitory.

In this respect it is worth bearing in mind that facilities like the seventeenth century ports and nineteenth century railways, after having been “declared” and subject to regulation, eventually experienced changed competitive circumstances. In some cases, the on-going regulation designed to promote fairness actually caused the bankruptcy of the regulated assets’ owners. The regulations remained in place in spite of the emergence of rival means of supplying their markets and seriously impeded their managements’ abilities to respond to the different competitive situations.

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<sup>4</sup> 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.

The experience of railway regulation illustrates the need for the authorities to stand ready to remove facilities from regulatory control where competition emerges. Judgements are required about whether or when to regulate a pipeline, and the law has to recognise that many pipelines will not achieve the monopolistic power that would warrant their regulation. They will face actual or potential competition from other pipelines, or may never attain a sufficient share of the energy market to require control.

Generally, regulated access to essential facilities has been in place to ensure that downstream users are not squeezed by a bottleneck service. In the case of the Moomba to Sydney Pipeline (MSP) the NCC also considered access necessary to protect upstream suppliers. This is unfortunate. Such businesses are commonly considered to be capable of safeguarding themselves through appropriate contractual arrangements and extending regulatory protection to them could open up a vast expansion of government oversight of the economy.

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.

### ***Australian national gas regulation***

#### **Provisions of the National Gas Code**

The National Gas Code itself is far from the “light-handed” regulation that was proposed. It is highly prescriptive.

For example, as has previously been noted the regulatory implications of Coverage under the National Gas Code does not allow for the operation of the price mechanism, the means by which supply is rationed in market systems. Thus, under s.3.14, the arrangements are designed to preclude a pipeline from obtaining any greater profits than the regulator anticipated, and this is further amplified in s.3.23(d)(ii) which requires a tenderer to produce a policy regarding "additional revenue", a provision that does not seem to have a reciprocal arrangement where there is *negative* additional revenue.

And, in line with regulators’ decision frameworks, the pricing policy sets out to cover new pipelines (s. 8.13) that have no franchise and which can only be subject to competition—their not having been built already provides assurances of this.

Shortcomings of this nature are probably inevitable with regulatory codes and add force to the need to avoid regulation wherever possible.

## Regulators' approaches to the National Gas Code

### Stated approach of the regulatory authorities

As well as deficiencies in the National Gas Code, there remains a predisposition for regulatory intervention in prominent regulatory circles. Although proclaiming regulation to be inferior to markets, resourceful regulators will often find merit in regulatory outcomes that they see as superior to those that might unfold in markets.

Thus, in addressing some of these matters, the Chairman of the NCC, Mr Graham Samuel claimed that

*“...., it is important to remember that not all investment is good investment. Critics ignore the effects of NOT granting access – what happens to investment in other markets if access is denied? More broadly, investment is not desirable for its own sake, but rather for the benefits it brings in increasing living standards.”*

Mr Samuel argued that the Council's should prevent unnecessary duplication of infrastructure and employ a wide *public benefit* test rather than one that examines the issue from the private perspective<sup>5</sup>. This central planning approach to investment decision making is the pre-Hilmer model and should be avoided if investment in infrastructure is not to be discouraged by governments.

Mistrust of market mechanisms is also apparent in the June 2002 ACCC Draft Greenfields Guideline for gas transmission pipelines. This 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 Draft follows US practice, described in the next section, of requiring the pipeliner to submit its proposed charges to the regulator prior to receiving approval to levy those tariffs. Unfortunately the ACCC proposals therefore attempt to graft approaches designed for free standing monopoly pipelines facing low risk to pipelines that face all the uncertainties of an entrepreneurial proposal. The Productivity Commission in its Review of the National Access Regime recognised the shortcomings of the present approach in deterring investment and made some specific recommendations for improvement<sup>6</sup>. Among these was a proposal for a “regulatory holiday” to prevent stifling the incentives for new Greenfield facilities.

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<sup>5</sup> Address to Utilicon 2000, Melbourne August 7 2000.

<sup>6</sup> Review of the National Access Regime, Report No. 17, Productivity Commission, September 2001.

Specific proposals include:

#### RECOMMENDATION 11.1

Part IIIA should make provision for the proponent of a proposed investment in an essential infrastructure facility to seek a binding ruling on whether the services provided by that facility would meet the declaration criteria. Where the Minister, after receiving advice from the National Competition Council, determines that they would not, the services concerned would be exempt from declaration. A binding ruling should apply in perpetuity, unless revoked by the Minister on advice from the Council on the grounds of a material change in circumstances. Such a revocation should be appellable to the Australian Competition Tribunal.

#### RECOMMENDATION 11.3

The Commonwealth Government should, through the Council of Australian Governments, initiate a process to refine mechanisms (additional to those provided for in recommendations 11.1 and 11.2) to facilitate

### Regulatory actions

An early test of the ability of regulators to withdraw from intervening in a market where competition offered adequate discipline concerned the Duke Energy pipeline from Longford to Sydney.

This facility established to rival the existing Moomba to Sydney Pipeline (MSP) meant massive over-capacity and an ending of the conditions that first justified the regulation. Indeed, a price war broke out before Duke's pipeline was completed.

However, with the ACCC publicly silent on the matter, the NCC argued that they should regulate both pipelines. This was based on the premise that they did not traverse parallel routes and that, even if they did, regulation would still be necessary to prevent collusion. Such analytical reasoning by the NCC gives regulatory agencies the opportunity to control virtually every economic activity in the country and was heavily criticised by the IPA<sup>7</sup>.

In the event, in 2001, the Australian Competition Tribunal (ACT) overturned the NCC's ambitions to regulate Duke Energy's pipeline.

The NCC accepted the Tribunal's decision and MSP therefore sought reciprocal treatment to escape its own regulatory prison. But the NCC recommended continued coverage of the MSP, partly because it saw the original Tribunal decision on the Duke Energy pipeline as based on the on-going regulation of the MSP, which would automatically restrain the prices that Duke Energy could charge.

Among the other reasons the NCC gave in favour of continued price regulation of the MSP was an ACCC draft decision that proposed to reduce the price on the MSP further than it had fallen in the face of the competition from Duke. The NCC saw this synthetic ACCC price as being more realistic than a market price emerging from competition.

Such mistrust of actual market outcomes is frequently seen in regulatory bodies. It often stems from a disposition among regulators to assume prices of assets, once the assets have been sunk, should be based on a form of marginal cost, or at least not fully reflect replacement costs and the risk-adjusted return required of them prior to commitment. As previously discussed such a regulatory price-setting framework must have a deterrent

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efficient investment within the Part IIIA regime in particular and access regimes generally. The mechanisms to be considered should include:

- fixed-term access holidays available to any proposed investment in essential infrastructure which is determined to be contestable; and
- provision for a 'truncation' premium to be added to the cost of capital that has been agreed between a project proponent and the regulator prior to investment.

This process should be completed in sufficient time to enable legislative implementation within Part IIIA no later than 2003.

<sup>7</sup> Review of Competition Policy, The Productivity Commission's Inquiry into Clause 6 of the Competition Principles Agreement and Part IIIA of the Trade Practices Act 1974.

<http://www.ipa.org.au/pubs/Moranwebpapers/Energy18%20.pdf>

effect on other capital expenditures and bring reduced levels of economic growth. The NCC recommendations on the MSP will be contested and it is likely that its regulatory status will come before the ACT.

The NCC adopted a more realistic approach to competitive provision in agreeing in 2002 to recommend regulatory coverage revocation of the Parmelia pipeline in Western Australia. Consistent with its acceptance of the ACT decision on Duke Energy, it agreed that the pipeline does not have market power because it competes with the much larger Dampier to Bunbury pipeline and there is excess capacity.

The implications of the present attempt by the MSP to have its regulation removed may eventually bring into question the need for regulation on other pipelines. Perhaps this might even extend to the VENCORP controlled GasNet system in Victoria, though the GasNet system, as a monopoly, would not expect early release from regulatory oversight.

## Price decisions of regulators

### Allowable investment returns

The ACCC has recognised a need to allow “generous benchmark returns that provide clear incentives for a service provider to achieve efficiencies grow demand for its services and outperform the benchmark return determined for the next regulatory period.”<sup>8</sup> The ACCC estimates the return to equity it allows is 12.68 per cent compared with the average stock exchange return over the ten years to September 2002 of 11.2 per cent and 4.8 per cent over the last five years.

Even so, it has already been noted that regulated businesses clearly think the ACCC stipulated return to be inadequate compensation for their risks. This is partly because they contest the basis of the estimates, for example claiming that the allowed return does not properly account for the replacement cost of the pipeline.

The ACCC in its cost estimates also does not allow pipelines or other facilities to retain the benefits of rapid depreciation on the dubious grounds that passing on these benefits directly to consumers mirrors the outcome in competitive markets. This is rather simplistic. If these benefits were in fact simply passed on, they would not, of course, be benefits to the industry. The government would be under some misunderstanding in implementing the policies, perhaps to compensate for the tax code’s inappropriately slow depreciation rates, with a view to bringing increased investment. Indeed, on the ACCC’s line of reasoning, the rate of depreciation or the tax rate itself would matter little since competition would simply return both to some “normal” level.

As discussed in the previous section, these issues have become prominent as a result of the NCC coverage recommendations on the Moomba to Sydney Pipeline (MSP). The prices on the MSP, once it faced competition from Duke, fell from 71 cents/GJ to 66 cents/GJ. This is consistent with the price the consultant, NECG, estimates would prevail

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<sup>8</sup> ACCC, *Regional development of natural gas transmission pipelines*, October 2002.

under a cost base called the hypothetical new entrant test (HNET). The ACCC estimates the synthetic price to be 50 cents/GJ (it is apparently still developing its thinking on the matter, having recently revised this from 47 cents/GJ due to a different treatment of deferred taxes). Its consultant, NERA, puts the HNET at 51 cents/GJ.

The ACCC offered as evidence to the NCC's review of the Moomba to Sydney pipeline, work undertaken by NERA which suggested the appropriate amount of annual depreciation on the pipeline was \$5.2 million<sup>9</sup>. This is on a facility with an agreed replacement cost value of one billion dollars, an 80 year engineering life and subject to considerable risk of by-pass (and the Duke Pipeline serving the Moomba to Sydney Pipeline's Sydney market is evidence of this) as well as risks of technological obsolescence<sup>10</sup>.

Such measures mean prices set below the rates necessary for profitable operations. They mean that the facility is protected from competition—at the expense of its shareholders—and that new facility building is deterred.

The estimate by the regulator of a lower “competitive” price than the one that has emerged is a key reason why the NCC recommends continued regulatory coverage. Other concerns of the regulator are about the pipeline's market power over upstream supply sources and alleged incentives to collude with downstream affiliates<sup>11</sup>.

### Competitive tendering

Pipeline regulations have provision for competitive tendering. Under this approach, the ACCC automatically accepts the price implicit in the winning tender. Even so, the ACCC may reject a tender process if it considers there to have been too little interest shown or if the bids exhibit insufficient competitiveness. Moreover, the process is highly formalised, costly and time-consuming with the ACCC identifying 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 constitute a deterrence for firms to engage in marketing research since their rivals would be able to free-ride should they spot a promising opportunity.

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<sup>9</sup> NERA Report Commissioned by ACCC on Aspects of the Moomba-Sydney Pipeline System, <http://www.ncc.gov.au/pdf/REGaMoCR-003.pdf>, September 2002

<sup>10</sup> The pipeline has all its present sales contracted through its former affiliate, AGL. In one sense, the ACCC price set therefore matters little but a forced price reduction on non-contracted sales puts pressure, including through “most favoured customer” clauses, on contract sales volumes and prices.

<sup>11</sup> Moomba to Sydney Pipeline: Revocation Application under the , NCC November 2002

### ***New pipeline developments***

Following the changes stemming from the 1994 CoAG decision and the National Gas Code, new pipelines that were not protected by a franchise were constructed or have commenced. These included:

- Duke Energy's Eastern Gas Pipeline from Longford to Sydney
- The AGL Central West extension to Dubbo of the Moomba to Sydney Pipeline
- Duke Energy's Bass Strait to Tasmania link
- The Origin, International Power, TXU Otway to Adelaide link

However two of these pipelines, Duke's Eastern Gas Pipeline and the Central West, predated the promulgation of the National Gas Code. Both of these have experienced disappointment in the light of regulatory attitudes to the pipelines' pricing regimes. The latest new major development, the Otways to Adelaide link, appears to have been designed to avoid being covered by regulation, and perhaps less than optimally sized as a result, by having all the capacity booked by the joint owners.

The most active recent new pipeline builder, Duke Energy, has been among those developers which have publicly announced that they are unlikely to invest in any new pipelines as a result of the "chilling" effect of regulatory oversight.

The implications for reduced efficiency from the present intrusive arrangements were recognised by the Productivity Commission in its Review of the National Access Regime. Although the Productivity Commission found that across-the-board abandonment of access regulation *at this stage* would be inappropriate, it argued that changes were required to facilitate efficient investment, one of which to be considered included provision for access holidays<sup>12</sup>.

## **The management of the Victorian gas market**

### ***The US approach to gas market management***

Across the world, gas is mainly transported under contracts between transmission businesses and producers, customers, agents, retailers and others. In the US, this approach, called the "contract carriage" model was spontaneously created following measures to require pipelines to operate on an open access basis.

Without anyone having planned it, producers, users and transporters buy and sell both gas and transport contracts to ensure they meet their long and short term balances. The contracting points have evolved so that they centre on about 50 "hubs"—normally points at which different pipelines interconnect. Buyers, sellers and others seek to defray their risks by forward contracting with each other at these hubs. This way the sellers and buyers both have certainty in the quantities produced and delivered, and in the price.

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<sup>12</sup> Productivity Commission, *Review of the National Access Code*, Report No. 17, September 2001.

A few US pipelines are “common carriage”. These pipelines charge all customers the same rate and are obliged to expand capacity to meet reasonable demand. Common carriage was not a model adopted in Australia and under the National Gas Code, pipeline companies cannot be obligated to expand capacity.

US gas pipeline regulation has been in place since the 1938 National Gas Act (NGA). Its key control was, and remains, the “certificate of public convenience and necessity”, which automatically gives some protection from competition, and which mandates a rate regime and obligation to serve. Ostensibly, the approach is therefore contrary to the competition oriented regime adopted in Australia post 1994.

The NGA allowed transmission pipelines to own gas but regulated the price of that gas (but not gas from non-affiliates). Following a series of developments under which transmission pipelines increasingly came to carry non-affiliates’ gas, came Order 636 in 1992 under which pipelines were required to separate their own gas sales from their transportation service. This has left the pipelines as pure transport businesses.

The US Federal Energy Regulatory Commission (FERC) assessment of proposed new pipelines has continued to focus on minimising their adverse effects on existing pipelines. Although the conditions were somewhat relaxed in a policy statement of 1999, the paternalistic flavour remains: FERC only approves a new pipeline if the potential benefits of “overbuilding” offset other costs like environmental disruption or a negative effect on an existing rival pipeline<sup>13</sup>.

The procedure for approval of new pipelines in the US is highly formalized. Proponents must declare an “open season” where users are invited to seek (unpriced) capacity on a basis of need. There is a dual set of contracts on the part of the local distribution business or other large user, comprising product and carriage.

In addition to published rates for firm carriage, rates for interruptible service are also published. Tariff rates must be approved by FERC and are normally strictly in line with costs<sup>14</sup>, which are full costs in the case of firm access and operating costs for interruptible. The US approach effectively transfers the equity in the pipeline to the firm capacity holders. These customers have the right to trade their capacity and are usually

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<sup>13</sup> FERC gives a certificate of public necessity and convenience if 25% of the pipeline proposed is contracted, especially if there is 10 year firm contracts for 100% of capacity. Or if revenues under contracts exceed costs or if sponsors are fully at risk. These policy guidelines were relaxed in 1999. But it now also requires evidence of public benefits like bottleneck removal, competitive alternatives, lower cost to customers but a negative effect would still be seen if the new pipeline created potential excess capacity. For expansions where it is less than 5% the cost is rolled in. FERC would not allow incremental pricing where the cost of the roll-in is lower than the original build, since it sees this as best benefiting existing users.

<sup>14</sup> FERC uses the Hirfindahl-Hirschman index, (first applied by the United States Department of Justice following its 1986 report on gas pipelines). This would normally require the equivalent of five similarly sized independent operators prior to a pipeline being allocated status to pursue “market-based” tariffs. To date no pipeline has qualified for this. However, the relatively mature pipeline system does mean potential rivalry, which keeps prices reflective of costs.

credited with 90 per cent of the excess revenue that is earned by the pipeline from interruptible shippers.

### ***The coordination task of pipelines***

It is not difficult to arrange for gas to pass through the different parties between the well and the burner. In the US, merchant pipelines developed and had other parties accept them as having the necessary skills to balance the line. An open access pipeline system with contract carriage puts the responsibility for ensuring transport capacity as well as gas procurement on the customers. Parties negotiate contracts simultaneously with the gas supplier for product and the pipeline for capacity. In the process they may also have contracts with other intermediaries.

Referring to the changes then underway in the US, Jeff Makhholm, one of the principle advisors to the Victorian Government in its gas restructuring noted<sup>15</sup>:

*“ the landlords (that is the pipeline owners) and the tenants (mostly gas distribution companies) are fighting over who should be the beneficiary of the “found” floor space (valuable capacity that exists due to the acquired expertise in operating the various pipelines that comprise the network).”*

Only if they have an incentive to do so will the “landlords” seek out the latent capacity in the existing system. Makhholm correctly maintains that for economic efficiency buyers must, “hold clear contractual rights to practically all existing .. capacity.” Clear property rights that are transferable and valued offer appropriate incentives to uncover hidden value to those best able to do so.

### ***The Victorian gas system***

#### **Coordination and development under market carriage**

Rather than adopting the well proven contract carriage system, the Victorian Government has opted to establish a market with some novel features. The Government structurally separated gas retailers from the pipe owning distributors, and made it mandatory for buyers and sellers to participate in a “spot” market, placing the transmission business under the operational control of a Government body, VENCORP.

In contrast to the US system of pipeline control, VENCORP, the publicly owned System Operator, determines the quantities the pipeline carries and makes its expansion decisions. This has some features similar to the US common carriage system but leaves the pipeline owner as little more than a passive sub-contractor to VENCORP.

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<sup>15</sup> Jeff D Makhholm, *Gas Pipeline Capacity: Who Owns It? Who Profits? How Much?*, Public Utilities Fortnightly, October 1 1994

Under the Victorian market carriage system, as with common 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 for carriage 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. VENCORP has no capability of signing contracts that offer such assurances and has legislative protection against any liability for its actions that might lead to delivery shortfalls or gas interruptions.

Under the Victorian model, 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. Although the market is efficient in that it clears at a price that reflects the scarcity value of the gas, it assumes that the carriage will always be available. Events of July 22 2002 showed that the gas might not always be available and users were disconnected.

This rather devalues the VENCORP case made three days earlier that

*“the market carriage regime established by the MSOR of itself reduces the need for long term certainty. In particular, by removing the need for long term gas haulage contracts (and applying a spot market model instead), the MSOR establishes a market environment in which market participants have a reduced need for long term certainty”<sup>16</sup>.*

### 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 early outcome of deferrals is the intent signalled by the electricity market manager, NEMMCO, to seek to contract increased electricity capacity under its reserve trader provisions<sup>17</sup>.

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 within which he has no contractual rights.

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<sup>16</sup> Vencorp Submission to the ACCC seeking the authorization of the Market System Operating Rules, 18 July 2002, <http://www.accc.gov.au/gas/fs-gas.htm>

<sup>17</sup> The reserve trader provisions themselves are a market intervention that could leave the electricity market vulnerable to future inefficiencies by creating a dual market.

A further risk of inefficiency is that the model used may reduce the incentives of the transmission pipeline, GasNet, to seek out economies. GasNet simply does as it is instructed by VENCORP, which specifies how much gas is to be carried and how much is to be in the pipeline at the end of each day (“linepack”). This dampens GasNet’s incentives to take actions with a view to increase capacity availability within its existing pipes. Market carriage in general is likely to bring GasNet to adopt a more conservative business approach than might be optimal.

Of course, 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. Hence a customer, unless it thought that future capacity would be in short supply, would not sign a contract at a premium price covering the period beyond that “re-set”. The customer would normally be confident that the regulator would reduce the price in view of the newly discovered capacity.

In addition, the difference between the two forms is reduced to the degree, as some maintain happens in South Australia, that the government is persuaded to intervene when shortages arise thereby nullifying the contracts users have with the pipeline.

Thus the difference may not be great between the two carriage methods from the perspective of incentives on the operator to find low cost augmentations or innovative means of better selling capacity.

Yet market carriage remains a system with additional shortcomings to those inherent in all regulated systems. Its expansion is driven by a government agency. Contract carriage is more directly responsive to commercial drivers. Augmentations respond to the willingness of customers to incur costs and would also provide those customers with some form of rights (probably financial rights) over the capacity their contracts has created. Thus a new gas fired generator would pay for an expansion and have rights to the increased capacity, thereby ensuring that the capital expenditure is highly responsive to commercial need.

If the Victorian system were to be changed to the conventional contract carriage approach, consideration of a non-disruptive way for this to occur would be required. This would probably entail vesting users their existing implicit quantity and destination rights. These would be tradeable, probably on electronic bulletin boards, and holders of firm capacity rights would not be able to hoard them.

Multiple entry and exit points complicate pipeline management. In this respect, the Victorian system is somewhat more meshed than other Australian systems, though not more than many US systems that operate on contract carriage bases. The more meshed nature of the Victorian system means the pipeline would require a body that ensures it is kept in balance. If this were to be GasNet, that business—in line with US practice—would probably not be permitted to buy and sell capacity contracts since it could then favour its own resource over those of other businesses.

Regulation in general is having adverse effects in a great many ways. What is really required is to remove the regulatory coverage at the earliest opportunity, that is as soon as competition has eroded the previous monopoly power. Nonetheless, the move to a contract carriage is an interim step that will allow some efficiency improvements.

### Operating costs of the Victorian system

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, it does appear that the O&M costs of GasNet and VENCORP at 28 per cent of 2003 forecast revenue appears to be relatively high.

## Gas and electricity market asymmetries

### *Different VoLL levels*

It is claimed that the market carriage system employed in Victoria brings gas and electricity into better alignment.

Establishing signals and other decision structures to promote optimal investment in electricity transmission has been highly contentious. In Australia, unlike many other countries, vast distances tend to make transmission costs, especially transmission augmentations, far more important than in densely populated markets. The UK approach has been to smear most electricity transmission costs across all users and suppliers and to build new lines as the regulator decides this is warranted. This analogy with the planning and provision of roads may have merit in the UK where transmission forms only about five per cent of the total electricity bill and excessive expenditure may not result in serious distortions to the final consumer. However, augmentation in Australia's "long stringy" system can be no less expensive than resolving a localised power shortage by building new generation.

As with gas, electricity faces considerable controversy over whether to adopt a centrally planned augmentation system or allow market provision.

These matters aside, the two 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<sup>18</sup>. 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. Recent shortage events have highlighted the risk, perhaps increasing risk, of this cap being reached.

In fact gas prices in Victoria, even on a day when there were forced disconnections 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.

It may however be that permitting such high prices would not bring forward much additional capacity. While this is certainly true in the short run, allowing prices to rise to several fold their existing level would bring great incentives for users and retailers to contract for additional storage capacity and perhaps more robust links between the markets.

### ***Different duration of bids***

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.

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<sup>18</sup> As the \$800/Gj is set as the average price for the day it is effectively much higher than the average electricity VoLL price which is based on a five minute spike.

### ***Setting the price levels for regulated facilities***

A further issue with the present arrangements in energy results from revenue capping of the electricity transmission businesses earnings. Revenue capping rather than price 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.

Although GasNet has a revenue "target" this is more akin to a price cap and the business obtains the benefit of increased gas flow. However, as gas and electricity are increasingly in competition, electricity's regulatory arrangements should be aligned to those of gas.

### ***Changing the Victorian arrangements***

Australia is suffering from energy market reform fatigue. But as markets once introduced throw up new areas that require consequent change this seems inevitable. The alternative of stopping the reform is likely to bring a return of many of the earlier inefficiencies.

The reforms to update the Victorian gas arrangements would not entail draconian change. They 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.