



22 October 2008

The Infrastructure Coordinator
Infrastructure Australia
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Dear Infrastructure Coordinator

Discussion Paper 1: Australia's Future Infrastructure Requirements

The Australian Pipeline Industry Association (APIA) welcomes the opportunity to respond to the discussion paper on Australia's Future Infrastructure Requirements.

Australia's gas transmission infrastructure comprises about 21,000km of high-pressure gas pipelines providing Australia's demand centres with about 20 per cent of the nation's primary energy needs.

The gas transmission industry is heavily regulated and APIA considers that, in relation to economic regulation and tariff setting, the Australian Energy Regulator, and its equivalent in WA, incorrectly places too much focus on driving down the price of transportation. Whilst this creates a short term gain for end users, in the long term:

1. it creates an incentive for the industry to invest in the capacity of this critical infrastructure in a lumpy, economically inefficient manner to avoid regulatory impact, ultimately leading to higher gas prices in the longer term; and
2. it could lead to underinvestment in gas transmission infrastructure in the longer term, as the providers of capital seek better returns elsewhere. In light of the expected increase in demand for gas in a carbon constrained economy, this has significant consequences for Australia.

In its deliberations on Australia's longer-term infrastructure requirements, Infrastructure Australia should also consider the benefits of regulatory systems that encourage long-term, speculative and economically efficient investments.

We look forward to your response and continuing discussion regarding this important issue.

Yours sincerely

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Chief Executive

Australian Pipeline Industry Association

Infrastructure Australia – Future Infrastructure Requirements Discussion Paper

AUSTRALIA’S GAS TRANSMISSION INFRASTRUCTURE

Introduction

APIA welcomes the opportunity to comment on Infrastructure Australia’s Discussion Paper 1: Australia’s Future Infrastructure Requirements

APIA is the peak national body representing the interests of Australia’s transmission pipeline sector. APIA’s current membership is predominantly involved in high-pressure gas transmission. APIA’s members include contractors, owners, operators, advisers and engineering companies and suppliers of pipeline products and services. APIA’s members own, operate and service the gas pipelines that supply today’s gas market and are likely to be the key investors in new pipelines and capacity expansions of existing pipelines that will be needed in order to meet the growing needs of the energy market over the next 20 years and beyond. This investment in gas pipeline infrastructure will be essential for Australia’s economic growth and as part of Australia’s strategy for reducing its greenhouse gas emissions.

Users of APIA’s member’s assets include some of Australia’s largest companies, including, BHP Billiton, Origin, TruEnergy, Santos, Woodside, Xstrata, ExxonMobil, AGL and major power generators.

Transmission pipeline infrastructure differs from low-pressure distribution infrastructure that supplies households with water and natural gas. This submission focuses on issues facing long-distance, high-pressure gas transmission pipeline infrastructure.

Transmission Pipeline Infrastructure in Australia

Australia’s transmission pipeline infrastructure comprises approximately 29,000km of transmission pipeline, of which some 21,000km are high-pressure gas transmission pipelines. These high-pressure gas transmission pipelines span the significant distances between Australia’s gas fields and its population and industrial centres, supplying the nation with 1158 PJ (petajoules) of natural gas that accounted for 20% of Australia’s primary energy consumption in 2006-07¹. One PJ of natural gas is the energy equivalent of about 43,000 tonnes of black coal or 29 million litres of petrol.

Other substances transported by transmission pipelines include oil, water and slurry. Transmission pipelines will also play a key role in the emerging carbon capture and storage industry, transporting carbon dioxide from production sources to appropriate reservoirs for geological sequestration.

Transmission pipeline infrastructure is a critical component of Australia’s physical infrastructure and plays a fundamental role in assisting Australia achieve its

¹ ABARE Energy Update 2008, p5

economic, environmental and social goals by providing an inexpensive, low emission, domestically produced source of energy to Australia.

Australia's Future Gas Transmission Infrastructure Requirements

Natural gas consumption is expected to grow strongly in Australia, reaching 1982PJ per annum in 2029/30, an average annual growth rate in consumption of 3.1%, making it the fastest growing fossil fuel energy source². Government programs focussed on climate change, such as the Carbon Pollution Reduction Scheme (CPRS), have the intention of moving Australia to a less carbon intensive economy, and it is likely, but not assured, that this will result in an even greater growth in demand for natural gas, as gas-fired power generation has lower greenhouse gas emissions than conventional coal fired generation.

It is in Australia's interests for the infrastructure needed to meet this gas demand growth to be constructed and operated as efficiently as possible. This will ensure natural gas is supplied to end users at an appropriate price.

In order to meet the expected ongoing need for gas infrastructure the policy environment must ensure that the private sector continues to be attracted to investment in natural gas infrastructure, particularly gas transmission pipelines. This is particularly the case given the current global economic environment and scarcity of capital.

Currently, all major transmission pipeline infrastructure is privately owned and, to ensure Australia's natural gas demand continues to be met, investment is anticipated to come solely from the private sector. Gas transmission infrastructure is highly capital intensive. Creating an environment that is conducive to new investment is pivotal to gas continuing to significantly contribute to economic growth via maintaining the existing asset base, facilitating competition between sources of supply and meeting expected growth in demand at minimal cost.

The Garnaut Climate Change Review's Final Report identifies the gas transmission sector as:

"...an example of a network infrastructure market working efficiently without government intervention."³

This submission will identify impediments to maximising the economic efficiency of procurement of gas transmission infrastructure in Australia.

² ABARE Energy Projections to 2029/30, p25

³ The Garnaut Climate Change Review, Final Report, Chap 19, p 453

Impediments to the efficient procurement of Australia's gas transmission infrastructure.

Economic Regulation of Gas Transmission Pipelines

Gas transmission infrastructure is not automatically subject to regulation. Infrastructure is classified as either covered or uncovered. Covered infrastructure is subject to access arrangement rulings by the Government's economic regulator, setting out tariffs that can be charged for transportation of natural gas. Tariffs for uncovered infrastructure are determined through commercial negotiation between the infrastructure owner and interested parties.

A pipeline will be uncovered, and thus not subject to access arrangements set by economic regulators, if it has limited market power. A typical instance where a pipeline has limited market power is one in which the pipeline is built or expanded to meet its customers' demand, i.e. its capacity is fully built to meet contracts with end users. **A gas transmission investor may seek to minimise regulatory intrusion by only funding new or enhanced infrastructure capacity when the new capacity is fully contracted or is funded by the proposed users**

As from 1 July 2008, the Australian Energy Regulator (AER) is the economic regulator for covered natural gas transmission and distribution pipelines in all states and territories (except WA, where the Economic Regulation Authority (ERA) has jurisdiction). The AER is a constituent part of the ACCC and has a long history on electricity regulation, which is, by the nature of that business model, highly regulated.

Economic regulation of the energy sector in Australia is complex and regulation of the gas transmission industry is no exception. This primarily arises from the fact that energy infrastructure tends to be perceived by policy makers as being natural monopoly infrastructure, and it is then assumed that these natural monopolies will abuse their market power. APIA recognises that there is an appropriate role for regulation of natural monopoly infrastructure, where there is insufficient competitive pressure or countervailing power to constrain the market power of a natural monopoly.

What should be noted, and is often overlooked, is the fact that pipeline businesses, even the larger businesses, operate in an environment where their customers are significantly larger than the pipeliners. These businesses operate with a degree of market power in their own markets, bringing significant countervailing market power. In such an environment excessive regulation delivers neither efficiency nor effectiveness.

APIA is keen to see an appropriate balance so that regulation is only applied where it is needed and to the extent that it is needed in order for the market to operate effectively and efficiently. The fact that much of Australia's gas is supplied through unregulated pipelines should indicate, as identified by Professor Garnaut, that the

markets developed by the private sector operate efficiently. Indeed, in the markets overseen by the AER, only 34% of gas transmission pipelines are covered.⁴

While APIA contends that it is sufficient for the purposes of this submission to discuss the consequences of the regulatory environment imposed on the gas transmission sector, we would be happy to further discuss the complexities of the regulatory environment should Infrastructure Australia require such information. For specific discussion of regulatory issues that impact on investment decisions, see Attachment 1.

The approach taken by economic regulators is usually to approve access arrangements for gas transmission pipelines that allow a low rate of return for pipeline investors and thus provide the users of pipelines the lowest possible transportation tariffs. This approach ignores several facts:

- unlike the relationships between energy retailers and consumers, which are also overseen by economic regulators, the relationship between gas transmission infrastructure and its users are relationships between large, sophisticated entities and, in most cases, the users are the larger parties. i.e. **Therefore, the users of gas transmission pipelines do not require government intervention to ensure efficient market outcomes;**
- the legal separation of the owners and operators of transmission pipelines from gas wholesalers and retailers mandated in early industry reforms has largely removed incentives for discriminatory behavior by pipelines. **Government intervention in the gas transmission market is not required for the purpose of regulating competition between wholesalers and retailers in the energy market;**
- in driving down the rate of return available to gas transmission investors, the economic regulators are **decreasing the attractiveness of gas transmission and this can lead to underinvestment;** and
- in order to avoid the risk of low rates of return mandated by a regulator, **investors can minimise regulatory exposure through a variety of means, some of which may lead to inefficient investments.**

Regulatory Impacts on Investment Decisions

Gas transmission infrastructure is long-lived and capital intensive. Pipeline infrastructure investment is sunk which means that pipeline assets are particularly vulnerable to both commercial and regulatory stranding and regulatory risk.

Regulatory risk is a key consideration for transmission investors and financiers. In general, the risk of low 5-year regulatory tariffs creates a disincentive to build uncontracted capacity in gas transmission infrastructure. Any pipeline capacity that is not contracted or utilised can be subject to prices set by the economic regulator or alternatively can be subject to regulatory stranding.

In this environment, infrastructure investors appear to be generally reluctant to build speculative capacity. This does not usually occur today. APIA is not aware of the provision of any speculative capacity to market by gas transmission pipeline investors in recent times.

⁴ Steve Edwell, AER Chairman, Presentation to APIA 2008 Conference, 14 October 2008

Building of speculative pipeline capacity requires investors taking a risk on possible returns. While regulatory risk is not the only issue, it is a real concern. Obviously, with each access arrangement:

- there is significant cost involved in the implementation and appeal processes;
- considerable time is taken to resolve those issues (up to 3 years);
- the revision of those documents starts every 5 years on a very long-term asset; and
- there is a lack of incentive for regulators to consider parties other than the “consumer”.

Regulatory risk increases the cost of providing gas transmission services, which imposes significant social costs through:

- undermining the incentive to invest – regulators approving low returns can signal to investors that only limited capital should be invested in the gas transmission sector. ;
- delaying investment – the increased risk associated with regulation means that investment can be delayed until, for example, greater throughput can be achieved (or a target level of throughput becomes more certain) making the investment less risky and thus commercial. This imposes a cost on society to the extent that the benefits from the investment are foregone for the duration of the delay; and
- distorting investment – regulatory risk will tend to result in smaller pipelines being built as a means of protecting investors against regulatory risk. Limiting pipeline size is especially attractive if there is a risk that regulators will strand any excess capacity without allowing an offsetting premium to be earned when at-risk capacity experiences high demand. Reducing pipeline size imposes cost on the community on account of foregone scale economy benefits and increased likelihood of capacity constraints.

APIA considers the last point to be particularly relevant. **In increasing the regulatory risk by driving down the rates of return, the economic regulators are providing an incentive to investors to build smaller, uncovered pipelines initially and subsequently expand capacity only when it is fully contracted. This investment style requires the use of greater amounts of capital than would have been required if the capacity was constructed speculatively in the initial investment phase, creating the perverse outcome of higher capital costs, which are recovered through higher transportation costs to end users of gas.**

It is not possible to say what speculative capacity would be built if the position of economic regulatory agencies were to change, however it is reasonable to note that **in the current Australian gas market it is common practice to build for initial demand and then supplement additional demand with further compression and looping.** Economically, in most cases it would be more beneficial to put in a larger pipeline in the first place. As noted above, only 34% of gas transmission pipelines in the AER’s jurisdiction are covered, a clear indication that industry seeks to minimise regulatory risk.

Conclusion

The PC, in its Review of the National Gas Access Regime, 2004, identified that the overarching objective of gas regulation should be:

*“To promote the economically efficient operation and use of, and **economically efficient investment in**, the services of transmission pipelines and distribution networks, thereby promoting effective competition in upstream and downstream markets.”⁵*

Demand responsive investment should not be considered a result of successful regulation. Companies are investing in transmission pipelines in an economically inefficient manner, and the risk of economic regulation and inappropriate tariffs does not provide any motivation to do otherwise.

The Productivity Commission has also correctly identified that economic regulators are faced with the problem of:

“the trade-off between regulatory errors that overcompensate service providers and those that undercompensate. Regulatory error that undercompensates service providers could discourage investments of considerable benefit, with flow-on effects for investment in related markets. On the other hand, regulatory error that overcompensates service providers distorts decision making. The Commission considered that both types of regulatory error are likely to distort investment and have adverse efficiency implications....

.....the Commission accepts that there is a potential asymmetry in effects:

- Over-compensation may sometimes result in inefficiencies in the timing of new investment in essential infrastructure (with flow-ons to investment in related markets), and occasionally lead to inefficient investment to by-pass parts of a network. However, it will never preclude socially worthwhile investments from proceeding.*
- On the other hand, if the truncation of balancing upside profits is expected to be substantial, major investments of considerable benefit to the community could be forgone, again with flow-on effects for investment in related markets.*

*In the Commission’s view, **the latter is likely to be a worse outcome.** Accordingly, it concurs with the argument that access regulators should be circumspect in their attempts to remove monopoly rents perceived to attach to successful infrastructure projects.”⁶*

It is essential that the regulatory framework and the policy that underlies it is based on an accurate understanding of the distinctive characteristics of gas transmission (as opposed to electricity transmission, see Attachment 2 for more information on the differences between the gas and electricity transmission markets) in order to achieve the appropriate balance of regulation.

⁵ PC Review of the National Gas Access Regime, 2004, Recommendation 5.1, p180

⁶ PC Review of the Natural Gas Regime Position Paper, 2001, pp 82-83

While projections suggest that there will be a need to invest in infrastructure to meet forecast demand, policy developments currently under consideration by government (such as policies to address climate change) could have an adverse impact on the demand for energy and/or the price of supplying energy. Accordingly, investors are facing additional risks in making investment decisions.

The rate of return allowed is fundamental to future investment in energy infrastructure, particularly pipeline infrastructure. To ensure consumers across Australia can benefit from the provision of reliable and competitively priced energy, it is critical that energy infrastructure is reliable and investment in this infrastructure is maintained and increased.

The rate of return for gas transmission pipelines should be determined with a view towards efficient long-term investment and policy objectives, not with a short term view to achieving the lowest transportation costs. If more efficient investments are being made, this has the potential to result in a lower transportation costs for gas in the longer term.

As the Productivity Commission has identified, it is preferable, and of lower cost to the Australian economy, for economic regulators to err on the side of overcompensating infrastructure investors to ensure that Australia's necessary infrastructure is provided. As evidenced through the inefficient investments of the gas transmission industry to avoid regulation, the economic regulators of this industry are erring on the side of undercompensating infrastructure investors, and are failing to consider that the customers of gas transmission pipelines are sufficiently sophisticated to negotiate commercially with the gas transmission industry.

This is evidenced through the provision of gas supply to gas users by the majority of gas transmission industry that is unregulated (66% of gas transmission pipelines in the AER's jurisdiction are uncovered). Government regulation is impacting on the efficiency of this market, by not allowing investors to generate appropriate returns for speculative, economically efficient investments in spare capacity.

APIA believes that the challenges facing energy infrastructure industries are best addressed by economic regulators determining a reasonable range for rates of return and selecting an estimate at the higher end of the range to encourage economically efficient investment in spare capacity, and to ensure gas transmission pipelines continue to be attractive investments.

A rate of return from the upper end of the range may encourage some overinvestment, however, this would result in spare capacity which would either be sold at a discount. A rate of return at the lower end of the range encourages underinvestment and, over time, this tends to result in a restriction of energy supply to consumers. Of these outcomes, the first option is less disruptive to users and potential users. Underinvestment in the maintenance and economic expansion of energy infrastructure would have a detrimental effect on long-term system operation and security of supply. The impacts of such underinvestment cannot be easily reversed.

ATTACHMENT 1

Excerpt from APIA submission to the Exposure Draft of the Natural Gas Law,
December 2006

Chapter 16

ATTACHMENT 2

Differences between gas and electricity markets.

- **Physical differences** - gas and gas transmission pipelines have different physical characteristics from electricity and electricity assets. In particular :
 - Storage - pipelines act as storage vessels for gas.
 - Flow - in a majority of transmission pipelines gas flows in one direction, while in electricity transmission, the electricity moves multi-directionally.
 - Recoverability - the provision of electricity is instantaneous whereas for gas there is a time lag. The ability of electricity to be available when a generation plant comes back on line is almost immediate; this is not the case for gas.
 - Compressibility - gas is physically compressible. This impacts on investments considerations relating to pipeline expansion.

- **Locational differences** - gas transmission pipelines connect naturally occurring gas fields with end users. As such, there is little discretion as to where pipelines are located. However, as electricity is generated rather than extracted, there is greater discretion as to where electricity generation and transmission assets are located.

- **Market operations and arrangements differences** - the gas market has a different role and structure from the electricity market.
 - Role of the grid - the role of the electricity grid in the operation of the market is significantly different from the role of gas transmission pipelines. The electricity transmission grid has a key role integrating the electricity market. In contrast gas transmission pipelines have a lesser integration role as they tend to link individual production regions to market centres over long distances with varying degrees of interconnection.
 - Market dispatch arrangements - gas has less complicated market and dispatch arrangements as gas has more predictable flows and demand due to the contracting regime that exists in gas, the ability to use storage and fewer complex network interactions.

- **Investment differences** - gas pipeline investment is typically entrepreneurial in nature and is underpinned by commercially negotiated bilateral contracts for pipeline capacity. The commercial contracting approach results in pipeliners being focused on ensuring new investment is economic and underpinned by emerging and existing contracted demand. Electricity transmission and distribution investment is more likely than gas investment to be driven by planning and regulatory obligations and is less likely underpinned by explicit contracts.

- **End use markets** - gas usage is dominated by power generation, including power generation for the mining sector, and major industrial users such as fertiliser plants and mineral processing plants. In most states, gas is generally an input into electricity production rather than a competing energy source.

Electricity usage is much more widely spread across different geographical and demographic markets. In addition, most gas end use markets have at least a degree of competition with alternative fuels or end user production options.

- **Investment Recovery and Stranding**
 - recovery of the majority of electricity transmission and distribution investment is achieved by including the investment in interconnected, regulated networks. Recovery of gas transmission investment is often more problematic due to the point-to-point nature of gas assets and the concentration of gas end users. These factors mean that non performing gas transmission investments are more easily identified and stranded. In addition, gas pipelines are also at risk of being stranded due to field depletion or large end-users seeking supplies from alternative fields, moving sites or closing sites;
 - the gas regulatory regime can, in many circumstances, leave transmission pipelines with un-contracted capacity receiving no revenue, whereas the electricity regulatory regime usually includes all of the asset's productive capacity in the regulated revenues