

17 November 2008

The Australian Energy Market Commission PO Box A2449 Sydney South NSW 1235

Via email to submissions@aemc.gov.au

APIA Submission, Scoping Paper October 2008 - Reference EMO 0001

The Australian Pipeline Industry Association (APIA) welcomes the opportunity to respond to AEMC's Review of Energy Market Frameworks in light of Climate Change Policies Scoping Paper (the Paper).

The increased use of gas for electricity generation is one of the few immediate steps that the stationary energy sector can take to significantly reduce its emissions. Gas is also a significant input and energy source for users other than electricity generation.

Gas is not electricity and APIA is concerned that the impact of climate change policies on energy market frameworks should not be detrimental to the future of gas infrastructure. APIA would highlight to the AEMC that there are inconsistencies between the National Gas Law (NGL), National Electricity Law (NEL)and the Renewable Energy Target (RET). The NGL and NEL have the objectives of promoting efficient investment in gas and electricity services and the RET forces the market to choose less than economically optimum investments.

The attached response summarises our position. We would be happy to elaborate further if required.

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

Yours sincerely

CHERYL CARTWRIGHT Chief Executive



APIA Response to the AEMC Review of Energy Market Frameworks in light of Climate Change Policies

Introduction

Gas usage in Australia

Australia's transmission pipeline infrastructure comprises more than 30,000km of transmission pipelines, 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.

In 2005, prior to the proposal for an emissions trading scheme, the Australian Bureau of Agricultural and Resource Economics (ABARE) forecast that natural gas consumption would 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. The use of gas in Australia is forecast to increase markedly in light of climate change policies, particularly for electricity generation. As natural gas is a cleaner fuel than coal for electricity generation, it is expected that the CPRS will encourage a shift towards gas-fired power generation. However, this is not a foregone conclusion; the compensation given to coal-fired generation under the CPRS, the significant government resources being devoted to carbon capture and storage (to ensure continued use of coal) and the 20% Renewable Energy Target all provide incentives for investors to consider power generation options other than gas. Additionally, the likely development of a LNG terminal in Queensland will have a significant impact on the gas market in the Eastern states.

Most recently, Environment Victoria³ has called for a 30% alteration in the stationary energy fuel mix from coal to gas, requiring the installation of an additional 2000MW of gas-fired generation and a more than doubling of gas's share of the fuel mix. Environment Victoria notes in relation to the stationary energy sector's impact on emissions and climate change policies:

"The most significant early impact here comes from the use of gas as early as possible to deliver early reductions in greenhouse gas emissions. Indeed, possible uncertainty in short term investment in coal-fired generation presents an early opportunity for a greater reliance on Gas Powered Generation (GPG) to meet Victoria's base-load energy requirements. Whether coal-fired generation completely goes off-line, or even just varies its

¹ ABARE Energy Update 2008, p5

² ABARE Energy Projections to 2029/30, p25

³ Environment Victoria, Turning it around: climate solution for Victoria, November 08, p33

generation activities in the interim period until CCS comes on-line, there is certainly an opportunity to move to a greater reliance on GPG. However, it is stressed that this wedge would require **urgent and major energy infrastructure investment** in Victoria."

APIA addresses its key concerns in relation to the potential impact that climate change policies could have on market frameworks and on the development of energy infrastructure in Australia.

Inconsistency between the National Electricity Law and the Renewable Energy Target

Schedule 7 of the National Electricity Law (NEL) puts forward: "The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—

- (a) price, quality, safety, reliability and security of supply of electricity; and
 - (b) the reliability, safety and security of the national electricity system."

Through the Renewable Energy Target (RET), the Australian Government is committed to ensuring 20 per cent of Australia's electricity supply comes from renewable energy by 2020.

Given that, at this point in time, renewable energy is not the most economically efficient investment in electricity services, the AEMC could use this review to identify how it will deal with the inconsistency of applying the NEL, with its objective of promoting efficient investment, on a market impacted by the RET.

It is also possible that the Carbon Pollution Reduction Scheme will create a similar inconsistency.

THE SCOPING PAPER'S QUESTIONS

1. Convergence of gas and electricity markets

Scoping Paper Question 1. How capable are the existing gas markets of handling the consequences of a large increase in the number of gas-fired power stations and their changing fuel requirements?

Implicit in the Scoping Paper is a concern that existing gas market structure and practices will not be sufficiently flexible and responsive. APIA believes this view is unfounded.

APIA considers that existing gas markets, particularly gas transmission markets, operate in such a manner that the consequences of a large increase in the number of gas-fired power stations will be able to be accommodated by normal commercial means.

As Professor Garnaut, in the Garnaut Climate Change Review Final Report notes on Gas Transmission:

"Australia's gas transmission system is privately owned, and today serves the dual purpose of connecting gas fields to gas markets and interconnecting regional systems. Interconnections provide a degree of supply diversity and security. While the potential impediments to private provision of optimal amounts of network infrastructure, such as first-mover and free-rider barriers, are not absent from the gas market, there is evidence that the market has been able to overcome them.

Australia's east coast gas transmission system has expanded rapidly over the last 30 years through private sector investment, with little government intervention. The construction of the SEA gas pipeline connecting the Victorian and South Australian gas systems through its link between Port Campbell and Adelaide provides a recent example. The pipeline connected the joint interests of gas producers in Victoria and a gas generator and gas retailers in South Australia, and was ultimately constructed as a three-way joint venture.

The majority of Australia's gas transmission pipelines are not regulated. Pipeline developers and owners, who can contract directly with shippers, use pricing structures that have avoided such a requirement. This contrasts starkly with the electricity market.

There is no reason to suggest that existing impediments would be any more significant following the introduction of an emissions trading scheme. This is an example of a network infrastructure market working efficiently without government intervention."⁴

The gas transmission market is well placed to accommodate significant new demand, particularly from new gas-fired power stations, which have longer development and construction timeframes. It is the experience of the industry, when negotiating to supply a new user with gas transmission services, that the procurement of gas transmission capacity is not an impediment to the development of major projects. In most cases, even where it is necessary to build a new pipeline, the procurement and/or development of gas transmission capacity will be achieved prior to the completion of the infrastructure that is driving the demand for, or supply of, gas.

The Scoping Paper (p17) makes a comment that there is a risk existing gas markets will not be sufficiently flexible and responsive to the expected increased volumes and more sophisticated consumption patterns of gas-fired generators, suggesting that a key issue is the ability to trade efficiently in the short term. APIA does not consider that this is an issue.

The gas market operates primarily through a bi-lateral contracting model, and this model (whether it be the utilisation of existing capacity or the provision of additional capacity) has the flexibility to efficiently take into consideration changing current and new user needs and demand profiles.

In addition to contractual flexibility, of its nature, gas transmission infrastructure typically also provides storage flexibility, making it well equipped to deal with fluctuating demand.

Gas markets have clearly demonstrated they are capable of reliable supply to gasfired generators in Australia, with some 15% of East Coast electricity (in some states much higher) and 60% of West Coast electricity being fuelled by gas.

⁴ Garnaut Climate Change Review – Final Report, p453

The Scoping Paper (p17) also comments on the possibility that there is a risk of an increased scope for "contractual congestion", if new gas users are unable to secure adequate access to existing pipelines through contractual negotiation.

This perceived risk will be dealt with in the response to Q17.

APIA considers that there may be an issue if the rules for the electricity market are changed to encourage electricity infrastructure development in a way that does not reflect the true cost of that infrastructure. For example, a cost might be socialised to bring wind generated (or geothermal) power from a remote location but a gas transmission pipeline company will have to charge its customers for the provision of its infrastructure.

<u>Scoping Paper Question 2. What areas of difference between gas and electricity markets</u> <u>might be cause for concern and how material might the impacts of such differences be?</u>

Gas and electricity markets have substantial differences and seeking consistency for consistency's sake is likely to lead to market distortions as gas and electricity <u>are</u> <u>different energy forms with differing economic drivers.</u>

APIA is concerned that the Paper implies that the gas market is not as efficient as the electricity market. The operation of existing gas markets in Australia presents ample evidence that market operation through bi-lateral negotiation is both efficient and sufficient. Many national and world markets are based on bilateral trades and contracting - even markets which, because of their high liquidity have a different structure, have developed from bilateral contracts.

Bi-lateral contracts are highly efficient for the Australian gas market, as they allow two sophisticated parties to enter into specific, mutually agreeable arrangements.

As already stated, it is not appropriate to seek consistency in gas and electricity markets as they deal with different energy forms.

- **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 transmission pipelines gas usually physically flows in one direction, while in electricity transmission, electricity moves multi-directionally.
 - Recoverability the loss of supply of electricity has an instantaneous effect on the market, whereas for gas there may be a substantial time lag before the market suffers the effect of a supply disruption.
 - Compressibility gas is physically compressible, with greater compression enabling greater capacity to supply a market and/or to sustain a market in the event of a supply disruption. While greater capacity can be achieve in electricity transmission by adding more copper or increasing the voltage, there is no storage effect. This impacts on investment considerations relating to both initial pipeline development and expansion.
- **Locational differences** gas transmission pipelines connect 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 in the integration of the electricity market. In contrast gas transmission pipelines have a lesser integration role as they tend to be point-topoint, linking production regions to market centres over long distances with few offtakes in between.
 - Market dispatch arrangements gas has less-complicated market and dispatch arrangements as the storage capability of gas infrastructure enables brief excursions in market demand to be met without a system that requires the energy suppliers to closely match the changing profile .
- **Investment differences** gas pipeline investment is private in nature and most is currently unregulated. Both regulated and unregulated pipelines are underpinned by commercially negotiated long-term bilateral contracts for pipeline capacity. The commercial contracting approach results in pipeliner companies being focussed on ensuring new investment is efficient and economic and underpinned by emerging and existing contracted demand. With the current economic regulatory environment and without these contracts, new gas infrastructure is very unlikely to be financed or constructed.
- End-use markets gas usage is dominated by power generation; other end uses include direct inputs to major industrial users such as fertiliser plants and large manufacturers, in addition to the domestic use of gas for heating. 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.

These areas of difference are important and are not areas for which consistency between the markets should be an objective.

2. Generation capacity in the short term

<u>Scoping Paper Question 3. What are the practical constraints limiting investment responses by the market?</u>

In the NEM, generators are only paid for electricity that is supplied to the market. As gas-fired generation, along with hydro, is able to quickly ramp-up and ramp-down, electricity generated from these sources is the most likely to be directed to ramp-down when intermittent, renewable sources are able to generate electricity.

As current climate change policies are likely to promote the development of wind and solar energy, this will create greater uncertainty in revenue for investors in gasfired power generation and thus may (absent incentives) actually result in some underinvestment in gas-fired generation, particularly in the short term. APIA considers this could be a perverse outcome of policies to mandate renewable energies. Nevertheless, with the right risk-reward structure, gas-fired generation is ideally suited to complement intermittent renewable generation, and consideration should be given to providing sufficient incentives for investment in gas-fired power generation to ensure reliability of supply.

As correctly identified in section 3 of the Paper, the economic case for investing in back-up generation that may be used infrequently is challenging and should be a central issue identified for further consideration by the review.

Clearly, increased provision of gas-fired power generation capacity is the major contribution the stationary energy sector can make to emissions reduction in the short and medium term.

3. *Investing to meet reliability standards with increased use of renewables* <u>Scoping Paper Question 7. What responses are likely to be most efficient in maintaining reliability?</u>

Gas-fired generation is highly demand responsive. Investment in gas-fired generation should be encouraged in order to offset the intermittent generation of many renewable energy sources, particularly wind and solar.

5. Connecting new generators to energy networks

Scoping Paper Question 12. How material are the risks of decision-making being "skewed" because of differences in connection regimes between gas and electricity, and why?

APIA considers that the difference in transmission pricing rules between the electricity and gas markets are a cause for concern that could be exacerbated by the application of climate change policies.

A generator is paid (largely) the same regional price for electricity irrespective of where it is located <u>within</u> a NEM region (i.e. Non-locational pricing). Locating next to a load can yield substantial savings by deferring the need for additional electricity transmission infrastructure to bring power from more distant generation; however as non-locational pricing is the norm under the NEM, there is no market incentive to do so.

Gas is relatively cheap to transport compared with other fuel types and thus gasfired generators can be located more flexibly than other forms of generators. Most coal-fired generators are located at the mine-mouth because of the high cost of moving coal. Renewables, with the exception of solar, are fixed.

While generators can be paid network support payments for locating close to demand, these payments are too uncertain and variable to form a bankable revenue stream to support the construction of new plant.

If gas-fired power generation is required to increase due to climate change policies, as predicted, electricity transmission may well become a competitor with gas transmission. Consideration needs to be given to ensuring that the 'playing field' is not further tilted to disadvantage gas transmission.

Scoping Paper Question 13. How large is the coordination problem for new connections? How material are the inefficiencies from continuing with an approach based on bilateral negotiation?

As quoted above from the Garnaut Climate Change Review Final Report, securing new connections for gas supply through bilateral negotiation is not an inefficient process. The counter-parties have strong commercial incentives to ensure new connections are undertaken in short time frames and at efficient cost.

APIA agrees with the Scoping Paper that:

"More generally there is a need to minimise the costs of network investment during a period of rapid growth in connections and uncertainty. This may require some parties to form a view on the likely nature and scale of future demand."⁵

APIA acknowledges that, in an environment of rapid growth in demand, investment in transmission infrastructure could benefit from economies of scale if the risks were low enough for investors to be willing to invest in spare or speculative capacity. In the case of gas transmission, APIA considers that a primary contributor to the unwillingness of investors to do so is regulatory risk. This is dealt with in detail in the response to Q24.

6. Augmenting networks and managing congestion Scoping Paper Question 17. How material are the risks of "contractual congestion" in gas networks and how might they be managed?

APIA does not consider that the risks of 'contractual congestion' in gas transmission networks are material. Day-to-day variations in the use of pipeline capacity are now published through the National Gas Market Bulletin Board, and all participants in the market will be aware of any long-term contractual congestion occurring and, therefore, make adjustments to minimise it.

As noted in the Paper, the gas transmission industry is based on commercially negotiated contracts. If necessary, gas transmission services can be made available via pipeline capacity expansion when a pipeline's capacity is fully contracted.

In considering the commercial drivers for the provision of services and capacity expansion it should be recognised that many transmission pipelines compete "head to head" with other pipelines and, as such, it would not be in a pipeline company's commercial interests to unnecessarily delay services and risk losing market share to a competing pipeline company.

8. Financing new energy investments

Scoping Paper Question 23. What factors will affect the level of private investment required in response to climate change policies?

Gas transmission infrastructure is long-lived and capital intensive. Once constructed, pipeline infrastructure is a sunk cost, which means that pipeline assets are particularly vulnerable to commercial stranding and, in the case of regulated pipelines, the risk of regulatory stranding.

Of these risks, commercial risks are most important as they impact on both regulated and non-regulated pipelines. Given the current global financial crisis, the investment environment for all industries is likely to be affected by international events for a yetto-be-determined period.

Regulatory risk is a key consideration for investors and financiers of regulated pipelines. In general, low tariffs handed down by regulatory decisions have created a substantial disincentive to build uncontracted capacity in gas transmission infrastructure.

<u>Scoping Paper Question 24. What adjustments to market frameworks, if any, would be desirable to ensure this investment is forthcoming at least cost?</u>

APIA believes that established market frameworks, such as bilateral contracting in gas, are the most desirable frameworks to ensure continued investment in gas transmission pipelines at least cost. APIA has only recently been integrally and extensively involved in the introduction of the National Gas Law that became effective on 1 July 2008. The application of that legislation by the AER will be critical to the future of gas infrastructure development in Australia.

While there will be a need to invest in infrastructure to meet forecast demand, climate change policy developments currently under consideration by government may have an adverse impact on the demand for energy and/or the price of supplying energy and/or the demand for natural gas.

One important determinant of the current framework for regulated pipelines is the regulation of access arrangements. In considering this framework regulators need to consider the impact of their decisions. The Productivity Commission has 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

The rate of return allowed for regulated gas transmission pipelines is fundamental to future investment in pipeline infrastructure. It has always been APIA's position that the rate of return for regulated gas transmission pipelines should be determined with a view towards efficient long-term investment and policy objectives taking into account current uncertainties, not with a short-term view to achieving lowest immediate costs. If more efficient investments are being made, this has the potential to result in lower transportation costs for gas in the longer term as well as providing the means for gas-on-gas competition.

In conclusion

APIA considers that existing market frameworks, despite a history of over-zealous economic regulatory intervention, are adequate and sufficiently flexible to cope with the likely growth in gas-fired power generation. However, as outlined above, the playing field may be tilted to the detriment of gas infrastructure if the wrong incentives are applied through new policies to address climate change. Such an outcome would actually be to the detriment of reducing carbon emissions.

APIA will be keen to assess the AEMC's scenario modelling of climate change policies.

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