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Dr M.D. Nahan, MLA  
Chair, Parliamentary Inquiry – Domestic Gas Prices  
Economics and Industry Standing Committee  
Parliament House  
Perth Western Australia 6000



25 June 2010

Dear Dr Nahan

## Parliamentary inquiry into domestic gas prices

Thank you for the opportunity to make a submission to the inquiry into domestic gas prices. Horizon Power ("Horizon") wishes to provide comments with respect to:

1. the price of gas for customers throughout Western Australia and in other States,
2. the structure of the gas market,
3. the contrast between domestic gas prices in Western Australia and international LNG prices and LNG contracts that govern these international prices, and
4. any measures that could be implemented to reduce the price of gas in Western Australia.

Horizon's response is attached in a separate document.

Please contact Gordon Rule on 08 6310 1868 or myself on 08 9159 7243 to discuss any aspects of Horizon's submission in further detail.

Yours sincerely



Rod Hayes  
Managing Director



# Parliamentary Inquiry into Domestic Gas Prices

Horizon Power Consultation Response

## 1. INTRODUCTION

Horizon Power ("Horizon") wishes to provide comments with respect to:

1. the price of gas for customers throughout Western Australia and in other States,
2. the structure of the gas market,
3. the contrast between domestic gas prices in Western Australia and international LNG prices and LNG contracts that govern these international prices, and
4. any measures that could be implemented to reduce the price of gas in Western Australia.

## 2. PRICE OF GAS FOR CUSTOMERS IN WESTERN AUSTRALIA AND OTHER STATES

Comparison of gas prices is difficult as pricing is not transparent other than in the spot market in Victoria. Table 1 and Figure 1 show historical average prices. For Western Australia these prices are the average over all contracts and do not adequately reflect the price for new gas or for gas under contract but subject to repricing. The Victorian spot market is 10-20% of traded wholesale gas but the spot price is taken as a good indicator of the underlying bilateral contract prices.

**Table 1: Australian domestic gas price and LNG export price**

		2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	Source
Natural gas	\$/GJ	2.16	2.34	2.5	2.59	2.71	3.34	3.72	3.32	1
Natural gas	\$/GJ	2.80	2.60	2.69	2.69	2.65	2.95	3.02	3.75	2
LNG	\$/GJ	7.87	7.4	5.96	6.4	7.39	6.92	7.88	11.41	3

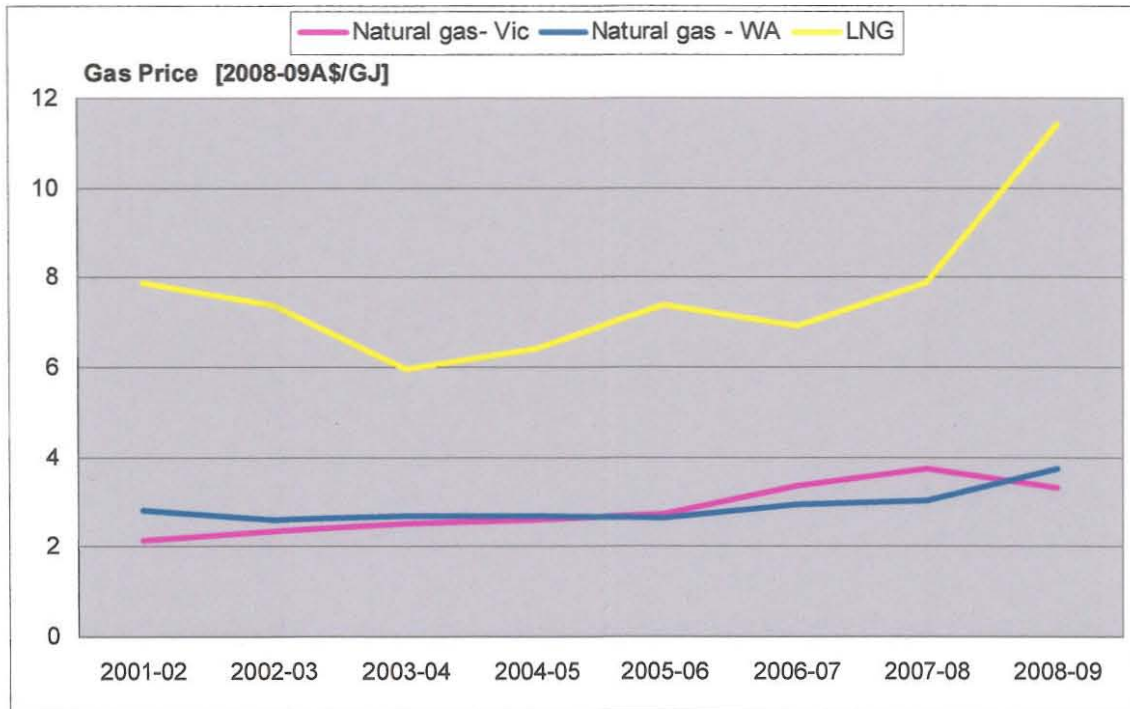
1 ABARE Financial year average of daily spot prices in the Victorian Gas market

2 WA Mineral & Petroleum Statistics Digest 2008-09

3 ABARE Export unit value

Note Eastern Australia: Prices since 2005-06 affected by drought - water scarcity reduced coal-fired power output, increasing demand for gas.

**Figure 1: Western Australian and Victorian gas prices and LNG price**



The cost of pipeline transport must be added to these prices to give the delivered cost to the customer. The transport cost is a function of the customer's location and load factor. The standard pipeline tariff is an indicator of this cost and is \$1.54/GJ for the DBP and \$4.14/GJ for the GGP<sup>1</sup>.

Recent prices indicate the direction each market is heading. In Western Australia the short term gas price reached \$17/GJ in July 2008 following the Varanus Island disruption<sup>2</sup>. Santos reported two gas sales in 2007 at well-head prices calculated to be in the range \$8.80 - \$10.40<sup>3</sup>. The recently repriced Alinta gas supply contract with NWS JV achieved a reported price in excess of \$8<sup>4</sup> and Woodside stated that it expected other contract prices to move to this level. In contrast, gas prices eased in Victoria in 2009 following the expansion of Victorian Transmission system (completed 2008) and the easing of the drought.

In a recent study for gas prices for the electricity generation market in Western Australia ACIL Tasman has estimated an 80% interval range for the spot gas price of \$5-15 centred on \$9, and a long term contract price of \$3.50-10.50 centred on \$7.50<sup>5</sup>. The contract price

<sup>1</sup> ACIL Tasman Gas prices in Western Australia, May 2010

<sup>2</sup> State of the Energy Market 2009

<sup>3</sup> ACIL Tasman Gas prices in Western Australia, May 2010

<sup>4</sup> Woodside Petroleum, 'ASX announcement 1 Sept 2009

<sup>5</sup> ACIL Tasman Gas prices in Western Australia, May 2010

range reflects the prices under contracts operating at historical prices and the price for new or repriced gas. This suggests an increase in gas price of two to three times the recent historical price.

### 3. GAS MARKET STRUCTURE

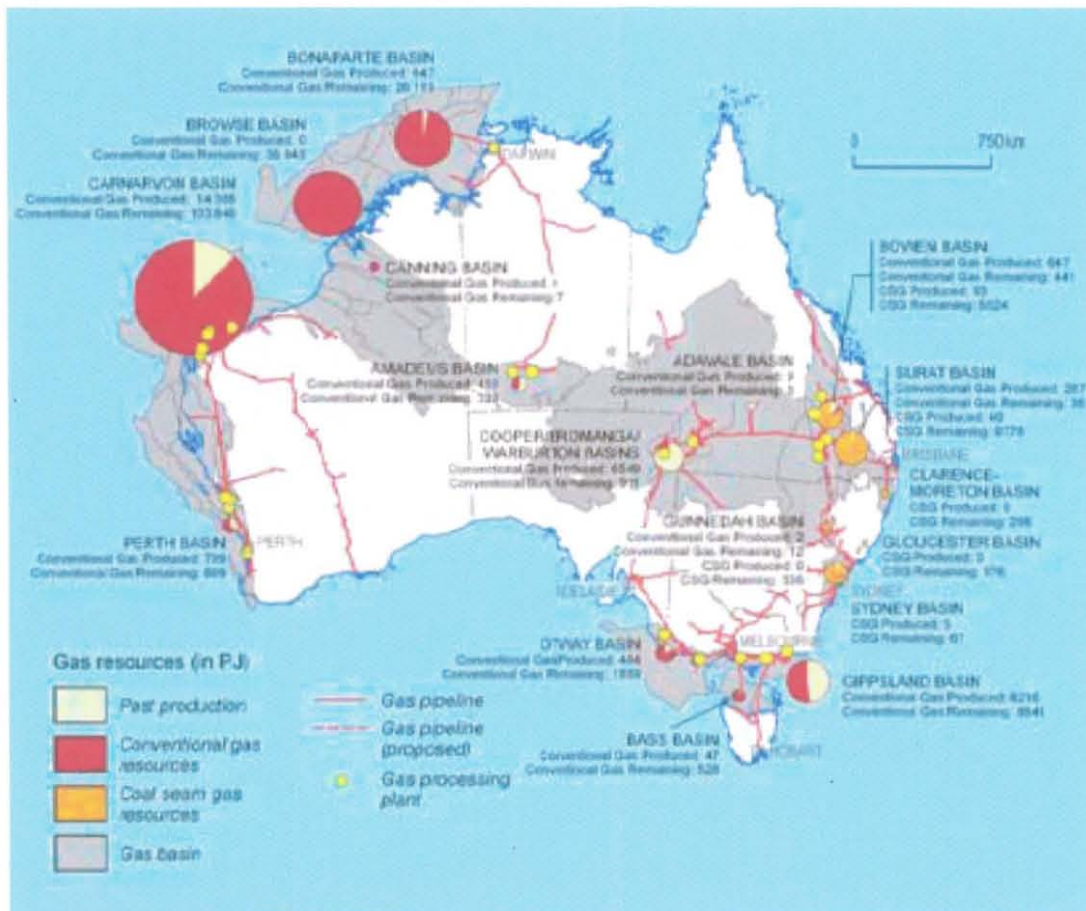
Horizon believes that the difference in gas prices between Western Australia and Victoria are a consequence of the different market structures and, in particular, the concentration of market power in the hands of the gas producers in Western Australia.

Figure 2 shows the gas basins and pipelines in Australia and Table 2 the major gas basins in Western Australia and Victoria. 99% of gas in Western Australia is produced from the Carnarvon basin and the bulk of this by just one producer: NWS JV. There is no interconnection of the gas market between Western Australia and the eastern states. The Victorian market sources gas from three basins in that state and with the interconnection of the gas markets in the eastern states there is price pressure from basins outside the state. In particular, while coal seam gas ("CSG") from Queensland may never physically enter the Victorian market, the abundance and price of this gas will have a major impact on gas prices in Victoria as a consequence of the interconnection of the markets but will not have a direct impact on gas pricing in Western Australia.

CSG is one example of 'unconventional gas'. This term includes shale gas and tight gas, gas which is produced from sources hitherto largely ignored by the oil and gas industry. Both Western Australia and the rest of Australia have considerable reserves of such gas. There has been limited success to date in developing such gas in Western Australia and this potential supply does not yet appear to have affected price from existing sources.

Table 2: Major gas basins<sup>6</sup>

State	% of Australian conventional gas production	Basins	% of production
Western Australia	64	Carnarvon	99
Victoria	17	Gippsland	75
		Otway, Bass	25

Figure 2: Gas resources and pipelines<sup>7</sup><sup>6</sup> ABARE: Energy in Australia 2010<sup>7</sup> Source: Geoscience Australia / ABARE: Energy in Australia 2010

The upstream gas markets in Western Australia and the eastern states differ significantly in market concentration. As shown in Table 3 the Western Australian upstream domestic gas market is very highly concentrated whereas that in the eastern states is less so.

**Table 3: Upstream market concentration based on total uncontracted reserves<sup>8</sup>**

	Eastern Australia		Western Australia			
	Joint Venture basis	Company basis	All reserves		"Domgas" reserves	
			Joint Venture basis	Company basis	Joint Venture basis	Company basis
HHI	23	17	19	14	28	32
Market concentration	High	Medium	High	Medium	High	High

HHI Herfindahl-Hirschman Index  
 <10 Competitive market  
 10-18 Medium level of concentration  
 >18 High level of concentration

"If the NWSJV is excluded the short-term upstream HHI in Western Australia is 100 and if it is included it is 88."

The downstream gas markets in Western Australia and the eastern states differ less significantly in market concentration. Figure 3 shows that in both cases 6-10 buyers account for 90% of contracted wholesale gas. Table 4 shows that downstream market concentration is less in Western Australia than in the eastern states and that concentration in the retail market in eastern states is high.

The contrast between upstream and downstream market concentration in Western Australia shows that producers have market power whereas the contrast in the eastern states shows that neither producers nor consumers enjoy significant market power. This is reflected in the gas price.

<sup>8</sup> Report to the Joint Working Group on Natural Gas Supply, McLennan Magasanik Associates, July 2007

**Figure 3: Gas contracted by buyers – Western Australia and eastern states<sup>9</sup>**



**Table 4: Downstream market concentration<sup>10</sup>**

	Gas buyers		Eastern retail markets	
	Eastern Australia	Western Australia	Gas	Electricity
HHI	18	16	33	16
Market concentration	Medium	Medium	High	Medium

The downstream gas markets in Western Australia and Victoria are structurally different by end-use also. The Western Australian market is dominated by industrial users and electricity generation while the Victorian market is dominated by retailers. The Victorian market has a pronounced winter peak demand while that in Western Australia has a domestic demand winter peak and an electricity generation demand summer peak. All other things being equal, the peakiness of the Victorian market should lead to higher prices than in the Western Australian market.

<sup>9</sup> Report to the Joint Working Group on Natural Gas Supply, McLennan Magasanik Associates, July 2007

<sup>10</sup> Report to the Joint Working Group on Natural Gas Supply, McLennan Magasanik Associates, July 2007

**Figure 4: Gas market structure<sup>11</sup>**



The market power of producers can be mitigated by threat of competitive entry. This is clearly the case in the eastern Australian states where the interconnection of markets allows competition between basins and the threat of CSG overhangs the market. This is not the case in Western Australia. Table 5 shows the existing and prospective future gas producers in the Carnarvon basin. Only two prospective producers – Pan Pacific Petroleum and Exxon – are not existing producers, largely eliminating price competition as a means of entering the market. The Carnarvon basin currently produces 99% of Western Australia's gas and this is unlikely to change in the medium term. Threat of competitive entry from the Perth basin or from unconventional gas fields is limited. Threat of competitive entry from the Browse basin is limited as the prospective producer – Woodside – is an existing producer. Neither consumers nor prospective market entrants have countervailing power in the upstream gas market in Western Australia.

Apache and Kufpec have chosen to sell Julimar/Brunello gas as LNG as part of the Wheatstone project. In making this decision Apache's CEO noted that "For price, it's the domestic market, for quantity it's the LNG market"<sup>12</sup>. This suggests that Apache, at least, expected a domgas price higher than LNG netback.

Existing producers are reluctant to place additional gas into the domgas market. Chevron says it does not expect to be delivering its full quota of 300TJ/day until 2021 because of an expected oversupply in the domestic market<sup>13</sup>. In a normal market one would anticipate that the actual or potential entry of an additional 150TJ/d would have an effect on price.

<sup>11</sup> Report to the Joint Working Group on Natural Gas Supply, McLennan Magasanik Associates, July 2007

<sup>12</sup> Reuters, 4 June 2009

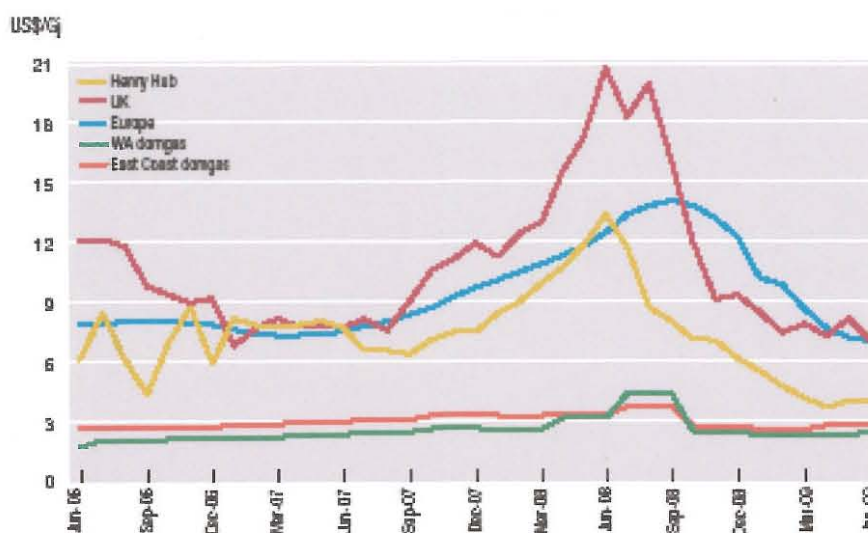
<sup>13</sup> West Australian 16 June 2009

Table 5: Carnarvon basin gas producers

Project	Processing Hub	Domgas	Export LNG	Production	Capacity [TJ/d]	Partners											
						Domgas	Apache	BHP Billiton	BP	Chevron	Exxon	Kufpec	Pan Pacific	Santos	Shell	Tap	Woodside
Harriet	Varanus	X		Now	120	59%						19%				12%	
John Brookes	Varanus	X		Now	240	55%								45%			
NWS JV	Burrup	X		Now	660			8%	17%	17%					8%		50%
NWS LNG/IPJV	Burrup	X	X	Now				17%	17%	17%					17%		17%
NWS China LNG	Burrup	X	X	Now	n/a			13%	13%	13%					13%		38%
Reindeer	Devil Ck	X		2011	120	55%								45%			
Macedon	Onslow	X		2012	200	29%		71%									
Maitland		X		?		49%							10%	19%		22%	
Pluto	Burrup	?	X	2016?													90%
Gorgon	Barrow Is	?	X	2016?	150					47%	25%				25%		3%
		?	X	2021?	300												
Wheatstone	Burrup	?	X	2016?		25%				50%		25%					
Julimar/Brunello <sup>1</sup>	Burrup	?	X	2016?	0 <sup>1</sup>	65%						35%					
Scarborough	Onslow	?	X	2020?	?			50%			50%						

#### 4. LNG PRICE

The principal factor affecting the price of gas in Western Australia is the direction of gas away from the domestic market into export LNG to secure the 'international LNG price' rather than the domestic gas price. Figure 5 shows Australian and international gas prices. The gas price differs quite substantially in many overseas markets. There is no apparent nexus between Australian and international prices. The gas price is determined in the market in which it is sold; there is no 'international gas price'.

Figure 5: Average natural gas prices<sup>14</sup>

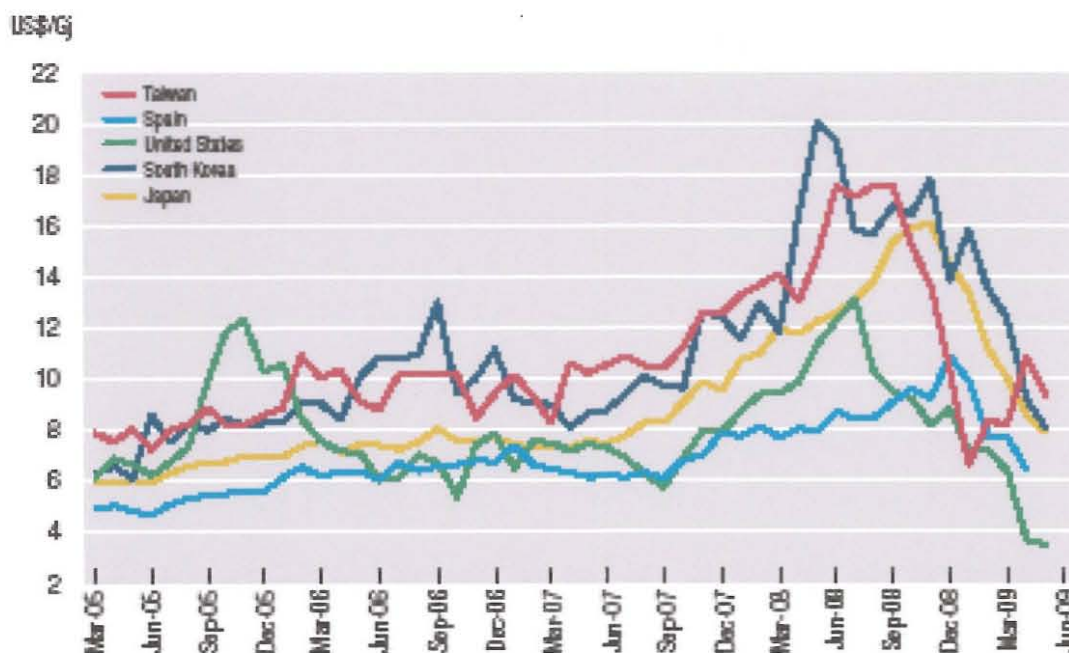
<sup>14</sup> Western Australian Minerals and Petroleum Statistics Digest 2008-09

In the absence of an 'international gas price' is there a 'world LNG price'? Figure 6 shows the LNG price in a number of markets. There are significant differences between prices enjoyed in different markets, that is, there is no 'world LNG price'. Freight differentials may explain some of the difference in LNG import prices but the pricing behaves differently in different markets. In particular, Figure 6 shows that prices in Taiwan, Japan and South Korea behave similarly to each other but quite differently to prices in the US and Spain. That is, LNG pricing is different where there is a domestic gas industry. Again, pricing is market based.

Freight from Australia to its various LNG markets should be similar; as such, Australian export prices for LNG should be similar. Despite this, there remain significant differences between the prices enjoyed by Australian LNG in different markets, as shown in Figure 7.

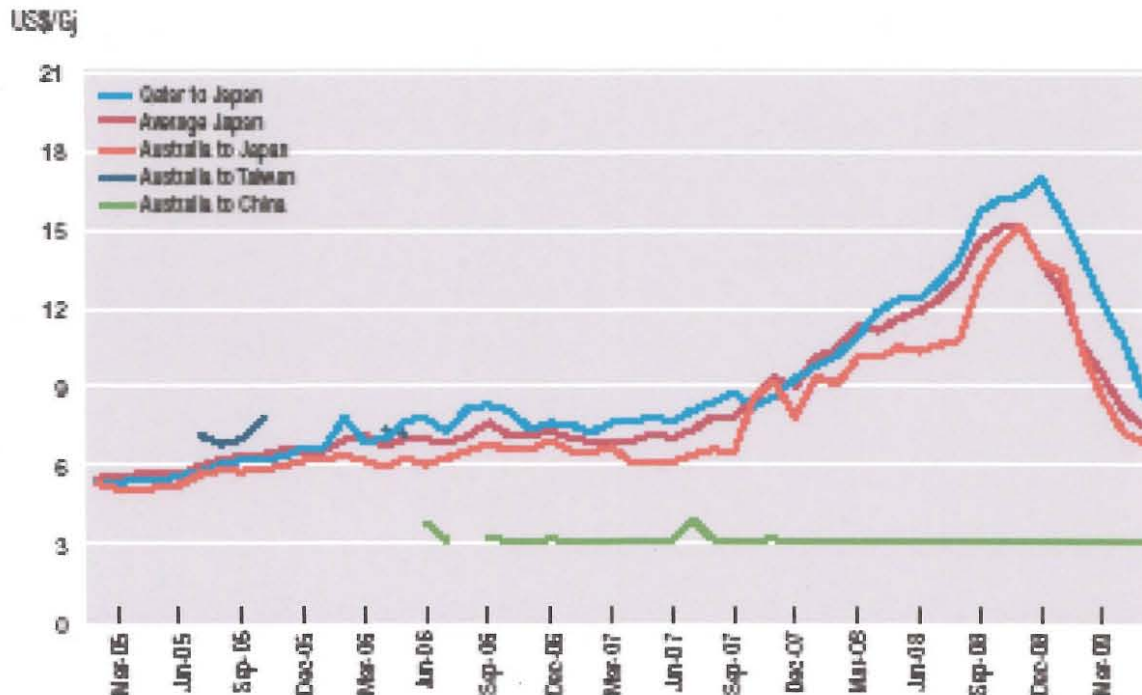
It is entirely unclear that there is a 'world LNG price' or even an 'Australian export LNG price'.

**Figure 6: Average LNG import prices<sup>15</sup>**



<sup>15</sup> Western Australian Minerals and Petroleum Statistics Digest 2008-09

Figure 7: LNG import prices<sup>16</sup>



It is important to establish what is the 'LNG price' if one is to determine a domestic gas price based on this. Also, as shown in Figure 5 and Figure 6 there is no simple nexus between LNG import prices and domestic prices in, at least, the United States market.

The potential for unconventional gas to dramatically increase supply in some markets such as the United States may redirect LNG trade and see Australian LNG exporters facing increasing competition in their existing markets. This potential impact has yet to be seen flowing through to domestic gas pricing.

Using an oil price of US\$80/bbl (and a number of other assumptions) ACIL Tasman calculated from an LNG delivered price a domgas equivalent price of A\$7.85/GJ. Using a greenfields project costing it calculated the price to be A\$6.50/GJ. These prices are at the midpoint of the range it calculated for a major portfolio gas commodity cost for the electricity market<sup>17</sup>. If LNG export is the alternative to domestic gas sales it is unclear why the domestic price should be any higher than A\$6.50/GJ on the assumptions used above but recent domestic prices have been significantly greater than this.

Horizon is not privy to export LNG contracts and cannot comment in detail on the differences between these and domestic sales contracts. It is generally understood, however, that these

<sup>16</sup> Western Australian Minerals and Petroleum Statistics Digest 2008-09

<sup>17</sup> ACIL Tasman Gas prices in Western Australia, May 2010

contracts are long term and contain guarantees with respect to the reserves that back the contracted volume. The term offered for domestic sales appears to be shortening and reserves guarantees are seldom offered. As such, the 'value' of a domestic gas contracts is less than that for an export LNG contract. The principal customers for domestic gas in Western Australia are unlikely to have an inferior credit rating than that for export sales. For at least these reasons, one would anticipate the domestic gas price should be lower than the LNG netback price on a risk-adjusted basis.

## 5. MEASURES TO REDUCE THE GAS PRICE IN WESTERN AUSTRALIA

There does not appear to be a nexus between the domestic gas price and a 'world LNG price' either in the eastern states or in overseas markets (where there is domestic gas production). There can only be a nexus created by exercise of market power by the gas producers. To mitigate the use of such market power Horizon recommends consideration of the following measures to reduce the price of gas in Western Australia:

- Encourage exploration and development of new gas fields,
  - Enhanced geological data collection and dissemination,
  - Provision of infrastructure for exploration,
  - Streamlined approval process for on-shore and near-off-shore development,
  - Royalty reduction for domestic production; that is, swap gas for royalties,
  - Encourage development of unconventional gas sources by all of the above measures,
- Encourage development of discovered gas fields,
  - Strict application of retention lease arrangements,
    - Make these arrangements more transparent,
  - Strengthen commerciality test,
    - Use it or lose it,
    - Who decides if development is commercial – the proponent or a third party,
    - Commerciality test is for the total project, no separate test for domgas component of LNG export project,
  - Require lease holder to offer lease for auction if it does not commit to development: this monetises the value of exploration,
  - Third party access to upstream facilities – pipelines, processing plants,

- Joint marketing,
  - Review authorisation of joint selling,
    - The market has changed significantly since 1984 when there was only one buyer,
    - Effective separate selling will require that JV partners do not have right of veto over other partners' sales,
    - Separate selling will require lifting agreements for domestic gas analogous to those for export LNG ,
  - Establish short term trading market (commodity and pipeline capacity) to assist JV partners in balancing their marketing,
  - Alternatively: authorise aggregation of buyers,
- Gas reservation,
  - Continue to require that a portion of all gas be reserved for domestic use, and
  - Require domgas to be co-produced with export LNG – this will establish a domestic gas price based on total gas supply: export + domestic.