Submission to the Queensland Government on its Proposed Gas Reservation Policy

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Summary

Queensland's reserves of Coal Seam Gas (CSG) are a major asset. Development of the gas may have been assisted by regulations that require 13/15 per cent of electricity in the state to be generated by gas. Some deposits may also benefit from a subsidy if they are classified as a "renewable" form of Energy under the Commonwealth's Renewable Energy (Electricity) Act 2009.

Queensland's CSG reserves are likely to be greater than Australian (conventional) natural gas reserves. Already, even though the industry is in its infancy, Queensland has become a net gas exporter to other states. Proposals are in train for major facilities geared to international exports.

The proposal by the Queensland Government to reserve a portion of the state's gas for domestic consumption would retard the development of the CSG industry. Moreover, notwithstanding its intent, such a policy would increase prices to domestic customers.

The proposal would add to the costs and risks of proving up sufficient reserves necessary to ensure an export-oriented project is bankable. In the process this would also mean a reduced availability of gas for domestic uses.

New CSG supplies require relatively little capital expenditure and can be brought on stream as needed. Because of the need for expensive liquefaction facilities and in view of the abundance of the reserves, the proposed regulation therefore serves no positive purpose but has a capability of retarding development and adding to costs.

[1] Special thanks to Max Kimber for assisting in preparing this submission.

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Introduction

As a source of energy, Coal Seam Gas (CSG), sometimes referred to as Coal Seam Methane, was virtually unknown a quarter of a century ago. Previously, its potential to cause explosions made it a liability in coal mines. Pioneering US developments were originally based on tax breaks which have now expired and US CSG developments have continued to grow due to technology induced cost reductions and higher gas prices. CSG now accounts for one tenth of total US gas used and the US is the world's largest producer.

A natural gas deposit located near a main population centre or on an established, underutilised pipeline is likely to provide cheaper gas than any CSG source. This is because natural gas deposits are almost certain to be far more volumetrically extensive than CSG deposits which are trapped in coal and need to be tapped sequentially. However, CSG from coal close to the surface and located hundreds rather than thousands of kilometres from major markets will normally offer cheaper delivered energy.

Gas will be a general beneficiary from the Commonwealth's ETS legislation because its use results in only half the level of CO_2 emissions of coal per unit of energy.

In addition, some CSG falls into the category of "waste coal mine gas" which is defined as a renewable energy under the Renewable Energy (Electricity) Act 2009 and is thereby eligible to receive a subsidy from electricity consumers. This is currently valued at $35 per MWh. It would not be the Commonwealth Government's intent for new sources of CSG to be brought into this subsidy regime, though the recently opened 45 MW Moranbah North power station falls into that category[2].

Queensland and Australian Resources

Queensland has over 12 per cent of its electricity generated by gas, (compared with 5 per cent and 2 per cent in Victoria and New South Wales respectively) and over half of this is CSG. Although formerly a market for gas from the Cooper-Eromanga Basin, Queensland is now a net exporter of gas to Adelaide and Sydney along the South West Queensland Pipeline.

The state has long-standing requirements on electricity suppliers to generate 13 per cent of supply (15 per cent from 2010) from gas. Major customers (smelters) using over 750 GWh per year are exempt from the requirement. These account for over 20 per cent of the load.

[2] See http://www.dme.qld.gov.au/media_centre.cfm?item=793.0

The fact that gas already supplies electricity in excess of the required non-smelter share indicates the existing regulation may not have imposed a significant supply distortion, though a strong view within the industry is that it did, at least, expedite an increase in gas fuelled electricity generation. This does not mean that such regulation is costless.

ABARE lists proven CSG resources at 12,800 PJ in 2007[3]. Queensland production has expanded rapidly to reach over 122 PJ in 2007/8 (NSW production was under 10 PJ and no other Australian jurisdiction presently produces CSG).

Table 1 provides details of Australian gas production by state.

Table 1 Australian Gas Production by State

	2001-02 PJ	2002-03 PJ	2003-04 PJ	2004-05 PJ	2005-06 PJ	2006-07 PJ	2007-08 PJ
Queensland							
Conventional	21	26	25	28	26	22	17
Coal seam methane	16	26	33	37	57	81	122
Total	37	52	58	65	83	104	139
Victoria	259	253	301	301	288	298	312
South Australia	242	220	164	159	153	145	124
Western Australia	770	837	853	1 020	1 074	1 129	1 141
Northern Territory	19	18	17	19	20	22	22
New South Wales							
Coal seam methane	8	8	8	8	10	10	5
Total Australia	1 335	1 389	1 402	1 572	1 629	1 708	1 743

Source: AB ARE

There are about a dozen projects in Queensland currently producing CSG. Major suppliers include Santos, Origin, Shell/Arrow, BG/Queensland Gas, TriStar Petroleum, and BHP.

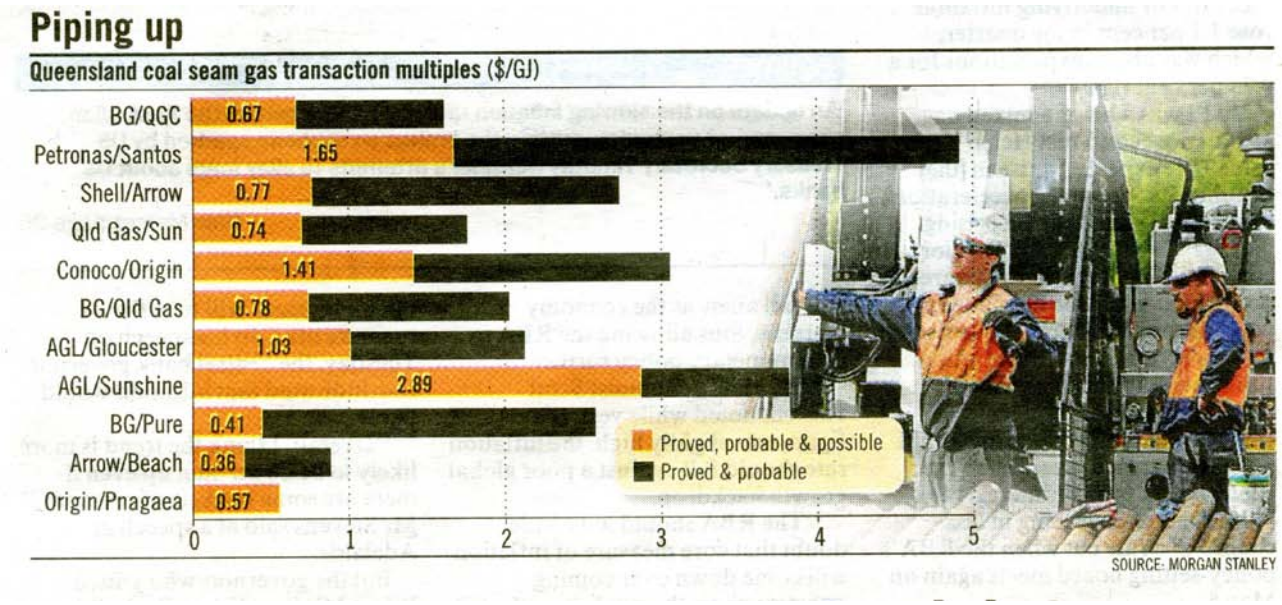
Three CSG electricity generation projects identified in Table 2 are listed by ABARE as being under construction.

[3] ABARE *Energy in Australia 2009*

Table 2 Projects Under Construction

CSM						
Braemar 2	ERM Power/ Arrow Energy	40 km W of Dalby, QLD	Expansion, under construction	2009	450MW	$546m
Condamine	QLD Gas Company & ANZ Infrastructure Services	8 km E of Miles, QLD	New project, under construction	2009	140MW	$170m
Darling Downs	Origin Energy	40 km W of Dalby, QLD	New project, under construction	late 2009	630MW	$951m (inc pipeline)

The value of in-place reserves has been estimated from transactions indicated below.



Source: Reproduced from Street Talk, AFR, 23 April 2009

Even on present proven reserve levels some 100 years of supply is available at current production levels. However this understates the amount of supply since, as in other energy areas, it is expensive to explore for and prove resources and both Proved and Probable levels of reserves considerably understate the likely levels.

Australian CSG inferred reserves are comparable to reserves in the USA. They are estimated to comprise some 275,000 PJ and are actually in excess of conventional natural gas reserves (estimated at around 160,000 PJ).

Table 3 outlines the details.

Table 3 Inferred Coal Seam Methane Reserves in NSW and Queensland

	(PJ)
New South Wales	97,242
Sydney	28,576
Gunnedah	27,816
Clarence–Moreton	40,850
Gloucester	na
Queensland	
Bowen	152,000
Surat	25,000

Source: Kimber and Moran[4]

In terms of established world reserves, Australia's share is only 1.4 per cent. Australia accounts for 0.8 per cent of consumption and 1.2 per cent of production[5]. Hence, although a valuable source of supply, Australia is not able to influence world markets. The relatively small share of the total is also accompanied by a cost profile that offers Australia few advantages. Exportable gas from the Persian Gulf states is generally available at lower exploration and pipeline costs than gas from Australian sources, though Australia is better placed to supply some markets like the US West Coast, Japan and China. Australia may also have advantages as a result of its political stability.

[4] http://www.ipa.org.au/library/Energy34.pdf

[5] http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2008/STAGING/local_assets/2009_downloads/statistical_review_of_world_energy_full_report_2009.pdf

Issues in the Development of Queensland Coal Seem Gas Exports

Marketing and Project Development

Long term contracts are an essential aspect of gas projects involving high capital costs. Lenders will not provide financial resources unless they are reasonably assured of a price and quantity mix that is not available if transactions are confined to spot markets.

The nature of the agreements involves market windows for major contracts that once fulfilled do not arise again for some time. The windows themselves reflect pricing expectations on the part of both buyer and seller. Until recently, consideration of exports was based on a gas price in the US of over $US8 per million British thermal units, (1.055 GJ). The current price is $US5.70 and, compounding the effects of this on the viability of new projects, the US dollar has fallen to around $A1.13 compared to $1.33 a year ago.

MMA's estimated costs[6] of a major new project in 2008 are reproduced as Table 4 below.

Table 4 3Mtpa LNG Facility industry costs ($2008/GJ)

Production	$3.28/GJ
Transmission	$0.47/GJ
Liquefaction	$5.01/GJ
Shipping	$1.20/GJ
Usage/Losses	$0.58/GJ
Total	**$10.54/GJ**

Source MMA

On those figures a project would not be viable since the current price in the US is less than $10.54 per GJ[7]. Indeed, shipping and liquefaction costs would rule out any new project at the present time. This underlines the precarious nature of the economics of major projects.

[6] http://www.dip.qld.gov.au/resources/project/liquefied-natural-gas/final-mma-1-may-09.pdf

[7] Lower prices are presently being received. The AFR of 30 July 2009 quoted: "Woodside received $6.37 a gigajoule for the North West Shelf LNG it sold in the first quarter, down from $10.01 a gigajoule in the first quarter."

Reservation of Supplies

The Premier identified two options summarised in the Regulation Impact Statement (RIS). The first canvassed a gas reservation policy requiring producers to make available the equivalent of between 10 per cent and 20 per cent of gas production. The second would quarantine prospective gas production areas in order to secure areas for future domestic use.

Requiring the setting aside of a proportion of production for domestic use can only mean imposing a cost increase unless, of course, there is no premium from overseas sales, in which case there is no reason to put in place a set-aside policy.

While there is precedent for such approaches with WA gas (further discussed below), it is highly unusual to, in effect, impose an export tax on a product with the revenues hypothecated back to domestic consumers of the same product. Most concerns are with governments encouraging or acquiescing in the opposite policy, dumping domestically produced goods on overseas markets at prices below those charged at home.

Administrative machinery is in place to address dumping cases, many of which evaporate as a result of the higher prices in the domestic market attracting competitors which reduces the price. In the case of domestic subsidies however this will not occur.

A number of distortions are created by a domestic reservation policy:

1. The producers have to incur higher costs to the degree that the overseas price exceeds the domestic price. This reduces the profitability of prospective projects and will choke off some developments. Commonly, the mechanism for this will follow from additional costs of a requirement to "prove up" additional resources so that 10-20 per cent can be allocated to sales that are less profitable.

2. By definition, if supplies are reserved for certain purposes, that reservation also involves the supplies attracting a lower price than they would otherwise receive. Were that not the case there would be no need for the regulation. This could have a number of consequences

    a. Competitive products will also see lower prices and some loss of market from the knock-on effects. The effects of this are most likely to be felt in natural gas, coal and other energy products including "exotic" renewables.

    The measure requires an export project to prove up 20 per cent more gas than it requires, with the surplus production from the additional reserves being sold at a discount to the overseas price. The higher the reservation percentage, the lower the realised price of the output it comprises in Australia and the greater the imposition on the producer.

The effect is illustrated in Table 5 below where 20 per cent of supplies are reserved for domestic production. This shows the overall return as foreseen in 2008 and at present where the US price has considerably softened.

Table 5 Revenue Dilution with 20 per cent Required Domestic Allocation

	2008	2009
Australian domestic price	$4.50	$4.50
US $A price	$9.50	$7.00
Aggregate return based on 80/20	$8.50	$6.50

If the intended effect of diverting production from exports to Australian consumers takes place, the lower prices will have clear and obvious implications in retarding, perhaps aborting, the development of the very valuable export industry itself.

b. If increased production is forced by regulation the output will involve a cost to Queensland but any benefits are likely to spill-over into other states. This is likely to mean increased gas sales being made into NSW and SA. The increased sales will represent, in that case, lower levels of output to the extent that there are costs attached to new ventures, and a transfer of revenue forgone by Queenslanders from export markets to other Australian consumers.

c. Ironically, the deterrent effect of a reservation policy is likely in the longer term to lead higher gas prices for Queensland customers. This is because in developing an export facility, a producer will assemble supplies sequentially. In doing so, prior to the facility entering full operational capacity, it will be profitable and provide a cash flow to sell some developed gas supplies onto the domestic market, necessarily at a discount. If the policy is a disincentive to the export oriented facility, such benefits will, of course, be denied.

3. Some administrative costs would be required to ensure any set-aside was genuine. Presumably, in order to ensure that is a genuine increase in supplies allocated to domestic uses, measures would need to be in place to prevent export developers

swapping gas supplies with developers who would always be oriented to the domestic market.

The alternative of setting aside production areas for domestic use also has potentially costly disadvantages. It creates a two-tier supply market with the reserved tier being valued at a discount to the presumably more profitable export tier. This is almost certain to bring a reduced level of development to the domestic tier.

Flow of Costs and Benefits from a Reservation Policy

The Western Australian Government currently has a form of gas reservation which requires the diversion of a percentage of North West shelf gas to Perth. This represents a major impost on the projects and facilitates the negotiation of a cheaper price for gas used within Western Australia. It carries many of the downsides that the Queensland Government's proposal would entail.

However, the Queensland proposal carries the potential to be considerably more harmful. This is because the Queensland local market supply is for almost any project under contemplation much more lucrative and less risky than an export venture. For the North West Shelf gas exports are more valuable than local supply since the latter needs to be transported 1,700 kilometres to Perth. Moreover, the smaller scale nature of developments involving CSG mean there is far less risk entailed in individual developments for the local market, a supposition that is born out by the development of the Queensland CSG industry with minimal regulatory assistance

Queensland presently has about 12 per cent of its electricity generated by gas (over half of which is CSG). That is a considerably higher share than the other eastern states which are similarly well endowed with low cost coal – Victoria has about 5 per cent and NSW less than 2 per cent gas. Queensland is closer to being fully satiated by gas in view of the competitiveness of the State's coal.

The outcome of a Queensland Government *de facto* subsidy to domestic use of gas is that any benefit would flow to other states. In effect this means the state is penalising the development of its own industry while subsidising consumers in other states.

A risk is introduced as well as additional costs on export-oriented industries. Introducing such risks and costs is seldom beneficial but this is especially the case with CSG deposits in Queensland given the extensive nature of the reserves and a ready local market that can be supplied at relatively low capital cost.

Quantifying the effects of all these matters is very difficult. However the Queensland Government's consultants (MMA/KPMG Econtech) have estimated that a 15 per cent reservation policy would bring a net cost in GDP terms of $67 million in 2005/6 dollars. For Queensland, the loss is put at $53 million.

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