INQUIRY INTO THE SUPPLY AND COST OF GAS AND LIQUID FUELS IN NEW SOUTH WALES

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LEGISLATIVE COUNCIL

Inquiry into the supply and cost of gas and liquid fuels in New South Wales

Santos submission | January 2015



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EXECUTIVE SUMMARY

This NSW Legislative Council *Select Committee on gas and liquid fuels supply* seeks to examine the operation of the Eastern Australian natural gas market. In particular what is driving gas prices higher for NSW families and businesses and what the NSW Government can do to ensure that reliable and affordable natural gas continues to be supplied to the citizens of the State. Many of the issues highlighted in this submission were covered in an earlier submission by Santos dated 21 June 2013 to the NSW Legislative Assembly *State and Regional Development Committee*.

NSW energy security is at the cross roads as the Eastern Gas Market develops rapidly. With 1.1 million families and 45 per cent of manufacturers relying on natural gas as their primary energy source, shortness of supply or supply at dramatically increased price will cause considerable harm in both economic and standard of living terms to the state and the nation.

NSW has the ability to become self-sufficient in its natural gas requirements for decades if it chooses to develop its indigenous natural gas reserves, thus ensuring less price volatility into the future. Failing to develop its resources will result in much higher and more volatile natural gas prices for local customers into the future.

The Eastern Gas Market is in transition

NSW is the only mainland Australian State that doesn't have a material natural gas industry. All other mainland States produce more than their indigenous demand and export the additional gas to NSW or to overseas customers. NSW currently imports 97 per cent of its natural gas requirements with roughly half coming from Victoria and half from SA and Queensland.

From 2015 three new LNG facilities in Gladstone, Queensland will begin supplying LNG to overseas customers effectively tripling the demand for natural gas in Eastern Australia. These facilities are obtaining their feedstock natural gas from CSG fields in Queensland that would not have been developed to supply the domestic market due to the billions of dollars of investment required to unlock them. In essence, the existing domestic market demand was not of sufficient scale to bring on these new sources of natural gas supply

These LNG facilities will also obtain a small percentage of their feedstock gas from third party gas suppliers. Again, much of this supply would not have been available to the domestic market due to the large capital required to supply. From 2016 approximately 60 per cent of Australian east coast gas will be exported which is comparable to other resource and primary products (e.g. beef, wool, coal, cotton etc) that export between 70 - 95 per cent of their products for similar reasons. Australian domestic markets alone are too small to underpin the scale necessary to economically develop the country's resources.

NSW historic gas supply contracts effectively expire in 2015-2016 and after this period NSW will need to compete for gas supplies with other States and customers within the Eastern Gas Market. Not developing its own natural gas resources will put NSW at a significant competitive disadvantage and result in customers paying unnecessarily high prices for gas on the East Coast.

Gas production costs are increasing

Like all resources and commodities, a prime driver for increased end cost to consumers are increases to the cost of producing the commodity in question. Natural gas is no different and its cost of production has been impacted by amongst other things, geological challenges, increased regulatory imposts, longer approval timeframes, labour and contracting services. During the last decade the finding and development costs for the petroleum industry have increased six-fold.

That said even at a forecast wholesale gas price range of \$6-9/GJ, Australians will continue to benefit from one of the cheapest gas prices in the region. For example, manufacturers in Japan and Korea will be paying 2-3 times what Australian manufacturers are likely to pay in the future.

Anti-fossil fuel activists have also had a role to play, employing tactics with a deliberate strategy of causing increased costs in an attempt to prevent ongoing supply of this essential product. Mr Buckingham MLC for example recently told a public forum:

"Australia is an expensive place to do business, my job is to make it more expensive, and that's what I hope to do..."¹

Existing gas infrastructure is insufficient

NSW currently obtains just over half of its gas from Victoria and a little under half from the north (SA and Queensland). Post 2015 natural gas from the north will predominately flow into Queensland. The Victorian infrastructure (processing plant and pipeline network) is not designed to accommodate supplying 100 per cent of the demand for the southern region of NSW, ACT, SA, Victoria and Tasmania. As such, independent forecasting is that natural gas supply into NSW will not be sufficient to meet current expected demand during peak demand periods.

Theoretically the Victorian infrastructure could be expanded but it is unlikely to be commercially viable given the high capital costs and the relatively small peak demand requirements of NSW. In any event relying on a single supply source of an essential energy input into NSW would expose the State to a higher level of risk than it currently experiences.

Additional NSW gas supply will positively impact on price

Basic economics of supply and demand demonstrates that more supply of a product will result in a lower price, all other things being equal. This is demonstrably true for natural gas as it is for other products. The most recent example is in the US where increased gas supply brought on by the shale gas revolution in that country as resulted in gas prices more than halving (US\$13/GJ in 2008 to <US\$4GJ in 2014). Increasing supply of competitive NSW indigenous gas will result in NSW families and businesses paying less for their gas than if these reserves were not produced.

Anti-fossil fuel activists have attempted to deny this basic economic reality by arguing that now there are LNG export projects which have linked the Eastern Gas Market to global markets no amount of new gas supply will make a difference to what NSW customer pay. This is fundamentally wrong for many obvious reasons including:

- These LNG projects do not represent an unlimited sink for new gas supply which is being put forward by the natural gas industries opponents. The LNG export facilities have a capped capacity of circa 1400PJs per annum and billions of dollars of additional capital would be required to expand this capacity.
- The US example shows that a market of 25,000PJs can half its price by increased supply so clearly a market a tenth the size would also show a sizeable change in pricing with material new supply.
- The argument also ignores the cost of transportation. If NSW continues to rely on transporting gas thousands of kilometres from interstate supplies (be it from SA, Victoria or the NT) versus transporting it less than 500km from north/west NSW, its customers will pay a premium for this extra cost.

Gas reservation policies are no answer

A proposal to "reserve" gas for domestic use in an attempt to lower price has been widely rejected. The Bureau of Resource Energy Economics (BREE), Council of Australian Governments (COAG), and the Business Council of Australia (BCA) have all recently outlined the case as to why natural gas reservation policies will not result in cheaper prices and would in all likelihood result in less gas

¹ Politics in the Pub – *What the frack?* - Jeremy Buckingham MLC – 17 July 2014 Available at <u>http://youtu.be/95w-BnxwNBQ</u>

development and perversely higher gas prices. In any event before NSW considers the impact or otherwise of reserving gas it needs to have some produced gas to reserve.

There have been recent calls for a "National" reservation policy, that is, other gas producing States such as SA, Queensland and Victoria should be forced to reserve their gas for the benefit of NSW which is choosing not to develop its own indigenous supplies. This option appears to be fundamentally flawed for a range of reasons including Constitutional, practical and commercial.

Regulation needs to balance development and environmental protection

Regulation and oversight of natural gas developments are necessary and strongly supported by the industry and Santos. There are well functioning regulatory regimes in SA and Queensland that strike the appropriate balance between gas development and environmental protection.

NSW's current regulatory environment is both uncertain and overly complex which results in additional cost with no additional environmental protection. As an example, exploration approvals that cost \$10,000 in SA and Queensland and take weeks to approve, cost upwards of \$500,000 and take nearly a year to approve in NSW. The costs associated with these approvals would ultimately be borne by the end consumers across NSW.

A coordinated and streamlined set of regulations for the natural gas industry that strikes the appropriate balance between development and environmental protection is called for.

The economic benefits are significant

The development of NSW natural gas would provide significant benefits to both regional communities and the state's economy as a whole. Manufacturing Australia has highlighted that close to 200,000 jobs are at risk if reliable and affordable supplies of natural gas are not maintained. The Narrabri Gas Project alone would create over 1,000 jobs, inject \$160 million into a Regional Community Benefit Fund and deliver \$1.6 billion in royalties to NSW.

Santos is proud of its contribution to the Queensland regional centre of Roma over the past 20 years. When compared to Narrabri, a similar sized regional town in NSW, Roma over the past 10 years has seen young people move back resulting in a 9 per cent growth in population (Narrabri has declined by 6 per cent), the local economy has doubled (Narrabri grew by less than a quarter over the same period) and the unemployment rate is less than half that of Narrabri. Roma is clear demonstration of how the natural gas industry can co-exist with regional towns, agriculture and substantially and sustainably add real value to the social fabric of these communities.

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TERMS OF REFERENCE

Legislative Council Select Committee on the supply and cost of gas and liquid fuels in New South Wales

That a select committee be established to inquire into and report on gas and liquid fuels supply, cost and availability in New South Wales, and in particular:

- (a) the factors affecting the supply, demand and cost of natural gas and liquid fuels in New South Wales;
- (b) the impact of tight supply and increasing cost of natural gas and liquid fuels on New South Wales consumers, including manufacturing, agriculture, energy production, small business, public services and household consumers;
- (c) the commercial conduct of gas producers and the operation of the international and domestic gas markets;
- (d) the adequacy of Commonwealth and State cooperation in gas market regulation;
- (e) the possible regulatory responses to protect New South Wales gas consumers from adverse market fluctuations and failures;
- (f) the impact of closures of liquid fuel refineries and storages in New South Wales; and
- (g) any other related matter.

ABOUT SANTOS

A proudly Australian company, Santos is a leader of the Australian natural gas industry, with more than 60 years of responsible gas exploration and production across the nation. Santos is one of Australia's largest domestic gas producers, supplying natural gas to all mainland Australian states and territories, ethane to Sydney (Qenos) and oil and liquids to other customers.

In Australia, Santos has operations in every major hydrocarbon province and has the largest exploration portfolio by area of any company. Santos has also assembled a large, well-situated acreage position in Asia.

The Cooper Basin oil and gas field in north-eastern South Australia and south-west Queensland, which Santos and its joint venture partners discovered and developed, is one of Australia's largest onshore resources projects.

Santos has been producing CSG in Queensland for almost 20 years. The company has been involved in CSG exploration in the north-west of NSW since 2008 and is the only company with significant CSG interests in both Queensland and NSW. Since its establishment as an oil and gas company in South Australia in 1954, Santos has a long track record of environmentally sustainable operations and working productively with rural communities.

NARRABRI GAS PROJECT

Santos' proposed Narrabri Gas Project will be located near the town of Narrabri, approximately 500 kilometres northwest of Sydney.

The Narrabri Gas Project has the potential to supply up to 200 terajoules of natural gas per day, or up to half of NSW's natural gas needs and it has been repeatedly stated that the gas will be made available for the NSW market. The gas will be extracted from coal seams in and around the Pilliga, near Narrabri and will be transported to NSW customers via a dedicated pipeline heading south from the Project area to connect to the existing Moomba to Sydney Pipeline.

The Project area covers approximately 98,000 hectares, however field operations will only be located on some one percent of that area. The gas will be supplied to the NSW market by up to 850 production wells across the life of the project, the majority of which will be drilled on State land. Santos has committed to drill wells on private land only with voluntary landholder agreement and is also working towards an agreement with the Gomeroi Native Title claimants who have a registered claim over the Project area.

Progress continues with the Environmental Impact Statement (EIS) close to finalisation. This is a critical step along the governmental approval pathway and we are taking the necessary time to ensure the document is of the highest standard.

The NSW Government's *Gas Plan* acknowledged that energy affordability and supply is a key concern. The Narrabri Gas Project has been designated by the Government as a "*strategic energy project*" as it could provide substantive amounts of natural gas into the NSW market.

The Project could also bring significant benefits to the region including 1,200 jobs during construction, 200 ongoing positions and a \$160 million Regional Community Benefit Fund to support local and regional programs and initiatives. The Project is also expected to deliver around \$1.6 billion in royalties to the State.

FACTORS AFFECTING THE SUPPLY, DEMAND AND COST OF NATURAL GAS IN NEW SOUTH WALES

Santos welcomes the opportunity to assist the NSW Legislative Council Select Committee on gas and *liquid fuels supply* examine the operation of the Eastern Australian natural gas market and in particular what is driving gas prices higher for NSW families and businesses and what the NSW Government can do to ensure that reliable and affordable natural gas continues to be supplied to the citizens of the State. Many of the issues highlighted in this submission where covered in an earlier submission by Santos dated 21 June 2013 to the NSW Legislative Assembly *State and Regional Development Committee*.

NSW energy security is at the cross roads as the Eastern Gas Market develops rapidly. With 1.1 million families and 45 per cent of manufacturers relying on natural gas as their primary energy source, shortness of supply or supply at dramatically increased prices will cause considerable harm in both economic and standard of living terms to the state and the nation.

NSW has the ability to become largely self-sufficient in its natural gas requirements for decades if it chooses to permit the development its indigenous natural gas reserves in a timely manner, by providing the necessary regulatory and investment certainty. A significant indigenous natural gas supply will ensure energy security and less price volatility into the future for consumers and industry across NSW.

Alternatively failure to develop NSW indigenous gas reserves will result in both higher and more volatile natural gas prices for local customers into the future, if they can obtain supply.

The Eastern Gas Market is in transition

Australia has three separate domestic gas markets: the Western Market, encompassing Western Australia; the Northern Market in the Northern Territory; and the Eastern Market, linked by major pipelines, that spans Queensland, NSW, South Australia (SA), Victoria and Tasmania. Santos' Moomba processing plant in north east SA is at the core of the Eastern Market – supplying gas to SA since 1969 and to Sydney since 1976 (see Figure 1 - emphasis added for Eastern Gas Market).

The Eastern Market is the largest of the three domestic markets in Australia, with an annual demand of approximately 700 petajoules (PJ) in 2014.





In the Western and Northern Markets, gas discoveries in the past three decades have provided supply well in excess of indigenous demand. As such, alternative markets for the gas were found via export. The Eastern Market is following a similar pathway and, by 2015, all three markets will be linked to global markets by LNG export facilities.

The development of an LNG industry in Gladstone to supply markets in Asia will:

- deliver valuable export dollars;
- reduce carbon emissions in the Asia Pacific region; and
- deliver positive benefits for Australia in both jobs and taxes.

The Eastern Gas Market is the focus of this submission because the gas used by NSW consumers and business is sourced within this discrete gas market and the gas price those customers pay is affected by the performance of this market.

Today NSW is the only mainland Australian state that doesn't have a significant indigenous natural gas industry. All other States produce more than their indigenous demand and either export the additional gas to NSW or to overseas customers. NSW currently imports 97 per cent of its natural gas requirements with roughly half coming from Victoria and and just under half from the Cooper Basin in SA and Queensland (as per Figure 2).

² Source: Geoscience Australia (2014a), BREE Gas Market Report 2014

³ Note that the proposed gas pipeline linking Newcastle to Queensland displayed in Figure 1 is highly speculative and that a number of the necessary planning approvals have now lapsed.



Figure 2: Eastern Gas Market - source of Gas Supply for NSW⁴

From 2015, the three new LNG facilities in Gladstone, Queensland will begin supplying gas to overseas customers effectively tripling the demand for natural gas in the Eastern Gas Market (see Figure 3). This has overturned the long settled price and supply certainties for domestic customers including in NSW.



Figure 3: Eastern Gas Market Demand Forecast⁵

⁴ Source: Energy Quest, Core Energy

⁵ Source: National Gas Forecasting Report For The Eastern And South-Eastern Australian Gas Region, AEMO, Dec 2014 <u>http://aemo.com.au/Gas/Planning/Forecasting/National-Gas-Forecasting-Report</u>

The demand for energy, and the higher prices that Asian customers are willing to pay for natural gas, has enabled the upstream gas industry in the Eastern Gas Market, in particular producers in the Cooper Basin and Queensland CSG producers, to identify and develop substantial reserves of gas that would otherwise not have been commercially viable to develop. This demand from overseas customers has fuelled the development of the Gladstone LNG industry.

Australia's small economy requires international scale to enable efficient production. Exporting natural gas unlocks future supply for the benefit of the domestic market in Australia. This means, reserves, gas processing capacity and transmission pipeline capacity have now been developed and are dedicated to delivering that gas to meet LNG demand. Without an export market at export prices, the gas would remain in the ground and there would in turn be limited or no investment in supplies for the domestic industry. This is a familiar scenario in Australia, and is reflected in the development of other resource industries, for example iron ore and coal.

It should be noted that the Gladstone LNG facilities will also obtain a small percentage of their feedstock gas from third party gas suppliers. Again, much of this supply would not have been available to the domestic market due to the large capital required to develop the supply. Going forward approximately 60 per cent of Eastern Gas Market gas will be exported which is comparable with other resource and primary products that export between 70 - 95 per cent of their products for similar reasons (see Figure 4).

Industry	Domestic	Export
Coal	20%	80%
Beef	34%	66%
Wheat	18%	82%
Wool	6%	94%
Cotton	17%	83%
East coast gas ⁷	100%	0%

Figure 4: All Australian industries rely on exports

It is now widely accepted that NSW may have gas shortages and challenges after 2016 when the existing supply contracts with NSW gas retailers from the Cooper Basin come to an end (see Figure 5). It is clear from this graph that, assuming that the stable red line is demand, there will be a significant shortfall in gas for NSW customers as contracts roll-off and instead the gas from the Cooper Basin and Queensland is contracted to supply export customers via the Gladstone LNG projects or domestic customers in Queensland and SA.

⁶ Source: RET, ABARES Agricultural commodity statistics 2012

⁷ Current gas production in eastern Australia



Figure 5: NSW & ACT demand and contracted supply 2014 – 2024⁸

Likewise, in its forecast of gas demand in NSW, the Australian Energy Market Operator (AEMO) predicted an annual shortfall of 2,083 terajoules in 2020 across 86 days, including 75 days occurring in cooler months.

As a result after 2016, NSW will be predominately supplied, as much as is possible, from Victoria. The supply will be impeded by transmission constraints, with gas flowing up the Eastern Gas Pipeline (EGP) as well as the NSW-Victoria interconnector (discussed below). This is despite adequate Moomba-Sydney Pipeline (MSP) capacity being available for supply from the Cooper Basin and/or Queensland into NSW as that gas is very unlikely to be available.

From 2016 NSW will increasingly need to compete for gas supplies with others in the Eastern Gas Market. If NSW gas resources are not developed it is unclear where the additional gas required to meet static demand will come from, notwithstanding any growth in demand.

As a result of not developing its own natural gas resources, the State will be at a significant competitive disadvantage and NSW based customers risk paying significantly higher gas prices. This would be despite the State having ample domestic gas reserves available which could fuel the future prosperity of NSW, meeting the needs of consumers, industry and helping finance government services.

Figure 6 shows the uncommitted 2P⁹ reserves and 2C¹⁰ resources in the Eastern Gas Market. NSW has large quantities of uncommitted 2P reserves and 2C resources which, if developed, would transform NSW from being completely dependent on gas from other regions, to being self-sufficient or a possible exporter to other regions.

⁸ Source: Core Energy and Santos analysis

⁹ Proven and Probable (2P) reserves are the relatively bankable estimate of potential gas available for production over the life of a project

¹⁰ Contingent (2C) resources are estimates of gas resources at a given date that may be recoverable from known gas accumulations, to commercialise these resources the project may need to overcome regulatory, technical or commercial challenges.



Figure 6: Uncommitted 2P Reserves and 2C Resources by State¹¹

In 2014 AEMO updated its *Gas Statement of Opportunities* (GSOO) to include a proposed 100 terajoule per day development at Narrabri in NSW. The analysis undertaken by AEMO found that the development would reduce the duration of predicted shortfalls in 2020 from 86 days to 4 days. The predicted shortfalls with (2014 GSOO) and without (2013 GSOO) the additional 100 terajoule per day output are shown in Figure 7 below.

It is noted that the scenario considered by AEMO in its 2014 GSOO equals half of the proposed 200 terajoule per day output that is currently expected from the Narrabri Gas Project. As identified by AEMO, the output, geographic location and development timing of the project could have significant positive implications for the gas market in NSW.

¹¹ Note it assumes all sanctioned or announced LNG projects are committed. Source: EnergyQuest November 2014 Report





More broadly, the Project would promote balance across east Australian, NSW and export markets. Exposure to only a few sources of gas supply means NSW has limited ability to manage structural imbalances and short term emergency supply circumstances.

Economic consultants ACIL Allen highlighted this in their report Future NSW Gas Supply and Usage¹³ stating that if NSW government policy did not constrain CSG development, NSW could become selfsufficient in gas in the long term.

It is to these various constraints that this submission now turns to.

Increasing Production Costs

Like all resources and commodities, a prime driver for increased end cost to consumers are increases to the cost of producing the product in question. Natural gas is no different and its cost of production has been impacted by gas reserves that are more difficult to extract for geological reasons, dry gas (which has no associated liquid hydrocarbons to supplement the revenue stream), increased regulatory imposts, longer approval timeframes, labour and contracting services. During the last decade the finding and development costs for the petroleum industry have increase six-fold¹⁴.

The impact of increased or uncertain regulation is discussed in detail later in this submission.

The gas reserves available, including in NSW are now technically more challenging as well as more time-consuming and expensive to access than would have been available in the 1980s for example.

¹² AEMO Gas Statement of Opportunities 2014 p.2 <u>http://www.aemo.com.au/Gas/Planning/Gas-Statement-of-</u> Opportunities ¹³ Dec

Report available at http://www.acilallen.com.au/cms_files/ACILAllen NSWGas2014.pdf

¹⁴ Oil and Gas Industry Cost Trends, EnergyQuest, 1 November 2014 p.6 quoting Credit Suisse data http://www.appea.com.au/wp-content/uploads/2014/11/APPEA-Cost-Report Final.pdf

An independent report prepared by EnergyQuest for the Australian Petroleum Production and Exploration Association (APPEA)¹⁵ examined how much oil and gas exploration and development costs have increased in recent years, and what the main drivers have been.

The EnergyQuest report found that:

- Petroleum industry costs have been increasing globally since 2000. Finding and development costs (F&DC) for new reserves increased six-fold between 2000 and 2013, from less than US\$5/barrel of oil equivalent (boe) to over US\$25/boe;
- According to IHS CERA, (the industry leading provider of oil and gas information and insights) global upstream capital costs have more than doubled since 2000 and operating costs have nearly doubled;
- The even greater increase in F&DC implies that reserve additions per dollar spent on development have also fallen;
- There have also been significant increases in Australia. In the three years to 2013, total Australian F&DC averaged \$4.16/gigajoule (GJ), 2.7-times the average for the three years to 2007; and
- High Australian labour costs are one of the drivers of higher costs. For example, Incitec Pivot, said it cost around \$1 billion to build its new ammonia plant in the US compared with \$1.4 billion in Australia. Labour costs would be 35 per cent of the total project in the US compared with 60 per cent in Australia.

Anti-fossil fuel activists have also played a role, employing tactics with a deliberate strategy of causing increased costs in an attempt to prevent ongoing supply of this essential product. Mr Buckingham MLC for example is recently told a public forum:

"Australia is an expensive place to do business, my job is to make it more expensive, and that's what I hope to do..."

People have the right to make their views known and to participate in public debate, however deliberate tactics that create unnecessary delays, waste valuable state resources such as police time and interfere with legally approved activity should not be acceptable. Such tactics are costing the NSW government revenue, increasing pressure and cost on valuable resources such as emergency services (police), risking the state's energy security and threatening regional employment.

Existing Gas Infrastructure is insufficient

New South Wales currently obtains 97 per cent of its gas from Victoria, SA and Queensland, the Eastern Gas Market and around 3 per cent from NSW CSG (AGL's Camden Gas Project, historically averaging supply of ~15TJ/d). NSW imports approximately 40 per cent of its natural gas from South Australia and Queensland via the MSP and approximately 57 per cent of its natural gas from Victoria, via a combination of the Eastern Gas Pipeline (EGP) and the Culcairn NSW-VIC Interconnect (Culcairn) as discussed above.

The combined capacity of EGP and Vic-NSW interconnector is approximately 400TJ/day and the estimated maximum winter demand for NSW is 600TJ/d. Without supply from the Cooper Basin covering the maximum demand periods post-2016 there will be a significant shortfall. Figure 8 illustrates the constraints on Victoria meeting the Southern region peak demand¹⁷.

¹⁵ ibid

¹⁶ ibid

¹⁷ Includes SA, TAS, VIC, ACT and NSW gas demand



Figure 8: Peak demand and Victorian supply constraints¹⁸

Nor is the Victorian infrastructure (processing plant and pipeline network) designed to accommodate supplying 100 per cent of the demand from the Southern region. Recognising these supply infrastructure constraints, NSW needs to act to identify and secure new sources of gas to maintain current levels of demand, let alone to underpin growth.

Increasing additional pipeline capacity from Victoria is a theoretically option being discussed and often mooted. However additional upstream development and gas processing capacity would also need to increase within two years by 2016 in order to meet the step-up in supply requirements to NSW as historical contracts expire. Notwithstanding pipeline constraints, sufficient upstream field development needs to underpin adequate gas throughput to deliver the maximum gas supply capacity. Current installed maximum gas processing capacity in Victoria is insufficient to accommodate the additional peak demand requirement for NSW.

In order to meet NSW peak demand of over 600 TJ/d, there would need to be investment of hundreds of millions of dollars in the Victorian upstream development drilling and gas processing infrastructure to provide additional gas supply, in conjunction with the new transmission pipeline capacity, to ensure supply from Victoria is capable of servicing all of NSW's winter peak demand post 2016.

Regardless of Victoria's capacity to supply NSW's needs, it would be unwise for NSW to be wholly reliant on a single supply source as this poses significant security of supply risk in the event of interruption – as was experienced post the 2000 Longford incident. Moreover, it is outside the control of the NSW Government to effectively manage and influence upstream development approval timelines and security supply planning requirements when supply is sourced from interstate. Without indigenous gas of its own, NSW has no ability to control its own energy supply security.

¹⁸ Source: Energy Quest, Core Energy

Additional NSW Gas Supply will positively impact on price

Concerns have been widely expressed by consumers, industry, business and other stakeholders about the cost of natural gas. Even though at a forecast wholesale gas price range of \$6-9/GJ, Australian customers will continue to benefit from one of the cheapest gas prices in the region. For example, manufacturers in Japan and Korea will be paying two to three times what Australian manufacturers are likely to pay in the future (see Figure 9 for regional comparisons).



Figure 9: Asian domestic gas prices for industrial users¹⁹

NSW has the opportunity of mitigating its future gas price increases. Developing NSW's local gas resources would place downward pressure on the wholesale gas prices. Unsurprisingly modelling undertaken by ACIL Allen Consulting found increasing NSW CSG production would reduce gas prices compared to a scenario in which no additional NSW gas was produced.

The principle is that when demand for any good increases quickly, the market can move out of equilibrium as supply struggles to meet the increase in demand. This leads to higher prices, which encourages the development of more supply and moves the market back into equilibrium, placing downward pressure on prices.

The basic economics of supply and demand demonstrate that more supply of a product will result in a lower price, all other things being equal. This is demonstrably true for natural gas as it is for other products. The most recent example is in the US where increased gas supply brought on by the hydraulic fracturing revolution in that country has resulted in gas prices more than halving (US\$13/GJ in 2008 to <US\$4GJ in 2014).

This is demonstrated in Figure 10, which shows shale gas production overtime compared to the Henry Hub spot gas price (the benchmark US price).

¹⁹ Source: Asian country prices for industrial consumers from Wood Mackenzie (November 2014)



Figure 10: US Shale Gas Revolution²⁰

Increasing supply of competitive NSW indigenous gas will result in NSW families and businesses paying less for their gas than if these reserves were not produced.

Anti-fossil fuel activists have attempted to deny this basic economic principle by arguing that now there are LNG export projects which have linked the East Coast to global markets no amount of new gas supply will make a difference to what NSW customer pay. This is fundamentally wrong for many obvious reasons:

- The LNG export facilities have a capped capacity of circa 1400PJs and billions of dollars of additional capital would be required to expand this capacity. These projects do not represent an unlimited sink for new gas supply which is being put forward by the natural gas industries opponents. The US example shows that a market of 25,000PJs can half price by increased supply so clearly a market a tenth the size would also show a sizeable change in pricing with new supply.
- The argument ignores the cost of transportation. If NSW continues to rely on transporting gas thousands of kilometres from interstate supplies versus transporting it less than 500km from north/west NSW, its customers will pay a premium for this extra cost. This additional cost could result in NSW paying approximately 20 per cent more than other States for its gas supply into the future.

Others have argued that increasing supply will have no downward impact on prices for gas in the domestic market in defiance of basic economics. The only way to reduce the price of gas without increasing supply, is to reduce demand, which would damage the NSW and Australia economy and consumers standard to living.

It's widely accepted among leading commentators, major manufacturing customers and others, that the best solution to expressed concerns about the increasing cost-of-living burden on households and increased costs to industry is the timely development of NSW gas resources by removing the various impediments and regulatory barriers that add costs and delays. For example, the Business Chamber of Australia (BCA) and it members stated in *Australia's Energy Advantage:*

²⁰ Source: Brookings Institution and Energy Information Administration (as taken from The Economist)

"Increasing Australia's gas supply is the best way to ensure Australian businesses and households can access a reliable and competitively prices supply of gas."²¹

Gas Reservation Policies no answer

Proposals to "reserve" gas for domestic use in an attempt to lower price either by volume reservation or acreage quarantining have been widely rejected. In any event before NSW considers the impact or otherwise of reserving gas it needs to have some produced gas to reserve.

Implementing a government mandated policy of domestic gas reservation to solve the challenge of prices increases and supply will not solve the problem. Further, such a policy will distort the market resulting in less gas being developed and perversely lead to higher gas prices. Experience is that reservation will not make gas cheaper or quicker to develop. Investment in new supply is the only real policy option that can deliver gas into the domestic market at an acceptable price.

Industry is not alone in opposing gas reservation as a threat to the development of additional gas supplies.

The Bureau of Resources and Energy Economics stated recently:

While there would be winners from a reservation policy, the gain to winners (gas users) are unlikely to offset the direct economic losses to producers, and the broader economic losses that would arise over the longer term.²²

The Australian Government is opposed, as articulated in the Energy Green Paper 2014:

The Australian Government notes calls for domestic gas reservation policy and national interest tests. Such actions will not address current challenges in the market, and may result in negative long-term outcomes by deferring future investment.

Other such comments have come from the Chairman of the Australian Competition and Consumer Commission (ACCC), Rod Sims, who noted in a speech on 13 October 2014:

...it is important that we not seek a 'quick fix' that distorts the competitive operation of gas markets. Forms of gas reservation, for example, distort market signals, and the development of new gas supply.

The COAG Energy Council's communique dated 11 December 2014 noted:

The Council rejects the need for national interventions such as national gas reservation as solutions to pressures in the eastern gas market, and considers there are opportunities to improve the function of the gas market and remove impediments to supply.

The BCA in its Australia's Energy Advantages Report from November 2014 noted:

We need to ensure our energy market and regulatory settings are operating efficiently to minimise unnecessary price increases.

Further, the BCA Report also noted:

"...governments and industry need to work together to ensure policy settings find the optimal balance:

• to meet both domestic demand and seek to take advantage of global opportunities

²¹ BCA Australia's Energy Advantage November 2014 p.11

²² BREE Gas Market Report November 2014 p.116

- between developing our resources and providing the appropriate environmental and community protections
- between maintaining secure and reliable energy supply while managing transformation in the energy sector
- between managing our GHG emissions and the cost of energy.

Getting the right mix of policies based on sound policy principles is important. It provides business with a stable investment environment and allows our energy markets to efficiently respond to emerging pressures and deliver cost-competitive energy to consumers.

As well, the Western Australian Economic Regulation Authority (WAERA), in their report *Inquiry into Microeconomic Reform in Western Australia* recommended that domestic gas reservation be rescinded as soon as practicable as it has the following negative consequences:

- Reduces the incentive for investors to invest in the gas industry in the longer term, reducing future levels of gas available for domestic or international use;
- Perpetuates the existence of industries that may not have a comparative advantage in WA at the expense of investment in other industries;
- Inhibits dynamic efficiency and technological innovation. For example, the policy artificially depresses domestic prices, which discourages domestic gas users from investing in technologies to lower or substitute their gas consumption; and
- Increases the reliance on subsidised gas prices, leading to over consumption of the resource

These comments are significant as WA has had an 'in principle" gas reservation policy in place since 1979.²³

There have been recent calls for a "National" reservation policy, that is, other gas producing States such as SA, Queensland and Victoria should be forced to reserve their gas for the benefit of NSW which is choosing not to develop its own indigenous supplies. This option appears to be fundamentally flawed for a range of reasons including Constitutional, practical and commercial.

In terms of the medium term supply shortfall in NSW, the best solution is for governments to facilitate the development of new supply in a timely manner. Governments must implement a stable, outcomes-based regulatory regime to attract the investment necessary to deliver new supply into the market. This will benefit local economies and consumers.

Regulation needs to balance development and environmental protection

Regulation and oversight of natural gas projects are both necessary and strongly supported by the industry. A transparent and competitive Australian gas market, with the safe development of natural gas including in NSW that co-exists with other nationally and locally significant industries such as agriculture is the aim.

NSW's current regulatory environment is both uncertain and overly complex which results in additional cost with no additional environmental protection. As an example, exploration approvals that cost \$10,000 in SA and Queensland and take weeks to approve, cost upwards of \$500,000 and take nearly a year to approve in NSW. The costs associated with these approvals would ultimately be borne by the end consumers in NSW.

The well functioning regulatory regimes in SA and Queensland strike the appropriate balance between gas development, production and environmental protection and are therefore receiving the benefits of increased jobs, investment as well as increased tax and royalty revenues.

²³ BREE Gas Market Report November 2014, p.114

The impact of regulatory uncertainty on perceptions of the investment attractiveness must not be under estimated. Natural gas projects are by their nature risky, capital intensive and with long lead times. The decision by some natural gas companies who had acreage in NSW to seek projects in other jurisdictions in Australia and/or overseas has been driven in part by regulatory uncertainty and the associated increase in risk.

Science must drive the industry – especially as it relates to the safety and sustainability – and indeed the industry needs to bring communities along on the journey. However, the industry needs a consistent and settled regulatory framework to provide the certainty to invest. Coordinated and streamlined regulation for the natural gas industry that strikes the appropriate balance between development, environmental protection and safety are the ideal that should be implemented in NSW.

Natural gas exploration and production is the most heavily regulated resource industry in NSW. Examples of unnecessary regulatory burden which are imposed on no other industry include, but are not limited to:

- The introduction of CSG exclusion zones no other industry is subject to such exclusions
- The NSW Environmental Protection Authority (EPA) becoming the lead regulator for the CSG industry:
 - The province of the EPA has always been policing environmental risk and ensuring environmental protection
 - The EPA has little experience in oil and gas project development
- The requirement that some low-risk exploration activities be assessed under the Part 4 State Significant Development (SSD), is in itself disproportionate to the level of risk and has cost the industry millions of dollars in additional cost and delay.

In the 2014 *Eastern Australian Domestic Gas Market Study*, BREE and the federal Department of Industry recommended that unnecessary impediments to supply be removed to overcome any potential shortfalls in the coming years:

Facilitating and encouraging a supply response is also vital to dealing with any potential physical shortage and addressing supply uncertainty. Governments should focus on removing unnecessary impediments to developing new gas resources particularly during a period of tightness in gas supply and providing a certain and predictable regulatory and investment environment.²⁴

This is also reflected in the COAG Energy Council's *Australian Gas Market Vision*, which recognises the significant transformation occurring in the eastern gas market and the need for governments to guide gas market development and provide certainty for all stakeholders.

The Economic Benefits are significant

Development of NSW natural gas would provide significant benefits to both regional communities and the NSW economy as a whole. The Narrabri Gas Project alone would create over 1,000 jobs, inject \$160 million into a Regional Community Benefit Fund and deliver \$1.6 billion in royalties to NSW.

In a May 2013 report, Manufacturing Australia, stated:

Saving the at-risk portion of our manufacturing sectors through reasonable access to gas will rescue about 194,000 jobs (83,000 direct, or 9% of Australian manufacturing employment, and another 111,000 indirect).

Early last year Tom Measham (Senior Research Scientist at CSIRO) and David A Fleming (a Research Economist at CSIRO), said:

²⁴ ibid

Our research also found that jobs have increased in regions where CSG development has occurred.

During the ten years between 2001 and 2011, jobs in the resources sector across rural Queensland increased; notably this increase was about 31% more in CSG regions than in other rural Queensland regions. This figure is even higher when looking only at the Surat region, where it has grown by 45%.

For every new job in the resources sector there has been around two new jobs created in the related sectors of construction and professional services.²⁵

If one considers the *'tale of two towns'* scenario, comparing Roma in Queensland (where the CSG industry is significantly more advanced in terms of project timelines) to Narrabri in NSW (where the Santos project is in its infancy), it is undoubtedly evident that the CSG industry has delivered material, positive outcomes to the community in and around Roma. For example:

- In the period 2001 to 2012, Roma's population grew by 9 per cent as young people returned, compared to a 6 per cent decline in Narrabri;
- The average age of the population in Roma is 32 years whereas in Narrabri it is 39 years;
- In the period FY06/07 to FY10/11, the Roma economy grew by 120 per cent whilst Narrabri grew by just over 20 per cent;
- Average weekly household incomes are 36 per cent higher in Roma compared to Narrabri; and
- Unemployment in Roma is approximately 2 per cent or less than half the over 5 per cent in Narrabri (and well below the Queensland state figure).

These facts demonstrate real outcomes for the regional centre Roma in Queensland, in large part due to the oil and gas industry and its associated impact over the last twenty years. There is no reason Narrabri in NSW, a similar sized regional town, cannot experience similar patterns of economic growth and economic opportunity if the industry advances there.

In comparison, ACIL Allen Consulting found that current policy settings in NSW appear to be limiting the potential development of indigenous coal seam gas resources, that:

- Constraints on the development of indigenous coal seam gas resources are expected to lead to significant losses of real economic output, real income and jobs in both NSW and Australia overall;
- Two major consequences of such constraints are a greater reliance on gas imports from other States and higher gas prices in NSW (and in other States);
- The loss of real economic output in NSW is linked to the relocation of gas production to other Australian states and higher gas prices in NSW affecting other economic activities which use gas as an input;
- Losses of real income in NSW are expected to exceed losses of real economic output because of the deterioration of the NSW terms of trade as it increases exports of other goods in order to increase gas imports; and
- Other industries that are most likely to be affected in NSW are price sensitive large industrial/commercial customers where gas is a significant input to their businesses.

On the other hand, the same modelling by ACIL Allen Consulting on increasing NSW CSG production, found it would benefit the economy as a whole.

²⁵ Tom Measham and David A Fleming *"How coal seam gas is changing the face of rural Queensland"*, (The Conversation 1/2014)

Finally, it is also clear that natural gas delivers for the environment, as a less carbon intensive energy source than coal. The recent significant reductions in US carbon dioxide emissions directly reflect the increasing role of domestic shale gas in the US energy mix (see Figure 11).



Figure 11: Shale gas reducing emissions²⁶

²⁶ Source: Energy in Depth

CONCLUSION

The oil and gas industry is important to all Australians, and it has been supporting and underpinning economic development for decades. Santos, a proud Australian exploration and production company, founded some sixty years ago, remains as committed to the Australian domestic market today as it was in 1954.

Santos both supports and promotes a science-based approach to the industry. Our business is built on science and continues to grow with innovation and technological advancements.

The Australian economy is not without its challenges. Mindful that jobs, community wellbeing and a positive future for coming generations is built on responsible economic development now, it is incumbent on governments, industry and the community to work together to develop the energy required to underpin growth. As Asia illustrates, energy is the key driver of economic prosperity and it is transforming lives. In the US, gas has powered the strong manufacturing rebound since the global financial crisis. Gas is key in these transformations and, despite ill-informed comments to the contrary, there is sufficient resource in Australia to service both our regional export market as well as the domestic market.

However, having produced much of the nation's cheap and easily accessible gas already, the remaining resource is more technically challenging and more difficult to unlock. These elements will continue to impact Australian households and Australian industry – especially in the manufacturing sector – for some time. Seeking to impose a gas reservation policy would have unintended consequence that will further damage Australian consumers as well as our economic growth.

Implementing reservation policies, at the expense of market forces, will not make gas any cheaper, any quicker to develop or any more accessible to consumers. In fact, reservation is most likely to discourage investment in new supply opportunities meaning the energy required to underpin Australia's further economic development will remain in the ground – reserved ad-infinitum, and what gas is available will be more expensive.

With NSW as the only Australian mainland state without a truly significant supply of indigenous gas – importing approximately 97 per cent of its gas requirements from interstate – it is increasingly vulnerable to significant reliability of supply issues to support current demand and is increasingly exposed to adverse price fluctuations that will contribute to cost-of-living pressures for residential consumers as well as negatively affecting the balance sheet of businesses, which will in turn affect job security.

Mindful of these factors outlined above, it is clearly evident that increasing supply options and bringing-on new supply is the only logical and realistic option. In order to do this, there are a number of impediments that need to be overcome, including regulatory uncertainty and investment certainty. Equally important is a science-based approach to ensure environmental protection as well as a genuine community engagement process.

The Narrabri Gas Project could be a significant contributor to NSW's emerging predicament, should the project proceed. The project can supply up to 50 per cent of NSW's daily gas requirements via a dedicated pipeline heading south. In addition, the project will have a positive impact for the local community in and around Narrabri in terms of economic opportunity and community initiatives.