

DOWNSTREAM GAS SUPPLY AND AVAILABILITY IN NSW

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21 June 2013

Andrew Gee MP
Chair
NSW Legislative Assembly
State and Regional Development Committee
Parliament House
Macquarie St
Sydney NSW 2000

By email: stateregional@parliament.nsw.gov.au

Dear Mr Gee,

Inquiry into downstream gas supply and availability in New South Wales

Santos Limited welcomes the opportunity to provide a submission to the State and Regional Development Committee Inquiry into downstream gas supply and availability in New South Wales.

Please find our submission attached.

Should you have any questions or comments, please do not hesitate to contact Matthew Doman, Manager Public Affairs Eastern Australia, on [REDACTED]

Yours sincerely,

[REDACTED]

James Boulderstone
Vice President Eastern Australia

NSW Legislative Assembly State and Regional Development Committee

Inquiry into downstream gas supply and availability in NSW

Santos submission | 21 June 2013



Foreword

Gas supply vital to NSW's economic and energy security

Santos welcomes the opportunity to make a submission to the Committee's inquiry into downstream gas supply and availability in NSW.

Natural gas is already a critical energy source for NSW, and its importance will grow in the years ahead, just as demand for gas on Australia's eastern seaboard dramatically increases.

NSW faces prospective gas shortages as long-term contracts underpinning the state's gas supply expire over the next two to three years, the very time in which the commencement of LNG exports from Queensland will see annual gas demand in eastern Australia triple.

Natural gas is forecast to provide between 25-35% of Australia's energy requirements for at least the next 20 years, and unless NSW can quickly secure future supplies, its homes and businesses will be subject to significant additional energy price increases.

Retail, commercial and many small industrial customers would be hit hard by higher gas prices, typically having little practical option to switch to other energy sources. Large industrial customers and some smaller industrial users are likely to cut their use of gas when faced with higher gas prices, which could result in ceasing an economic activity and ending associated employment.

Santos analysis estimates over 15,000 industrial jobs in NSW are dependent on gas supply as a critical business input, with up to a further 2.5 million people estimated to be employed by small industrial companies that use natural gas. Many businesses, in particular the large industrial customers, could be faced with decisions in relation to business closures due to high gas prices caused by lack of gas supply post 2016/17.

But NSW is facing a problem it need not have.

Looming natural gas shortages in NSW could be avoided by the timely and balanced development of the state's already discovered reserves of natural gas.

NSW currently produces less than 5% of the gas it uses each year. It imports over 95% of its gas supplies from Victoria, South Australia and Queensland. Strong demand for that gas in other states, particularly Queensland, will see availability of gas to NSW diminish. NSW urgently needs to plan for its future sources of supply of this essential commodity.

This submission addresses how changes in the gas market have diminished the availability of traditional sources of gas supply to NSW, in particular from the Cooper Basin. Replacing Cooper Basin gas supply with additional supply from Victoria is both unlikely in the timeframe required and unwise for NSW to consider from an energy security standpoint.

This supply challenge can be addressed, or at least substantially mitigated, if NSW immediately moves to develop its own natural gas resources, within an appropriate regulatory framework and with acceptance and support of all levels of government and the broader community.

A settled regulatory framework for natural gas production in NSW and a balanced community discussion on the impacts and benefits of the industry is an essential pre-condition for the investment of hundreds of millions of dollars, which companies like Santos plan to invest in NSW over the next few years.

Recent comments from the Australian Industry Group highlighting the importance of developing new natural gas resources for Australian industrial users and the broader community are instructive. AIG said: *“gas supply is far more important, and fragile, than many people realise. Unless we take a calm and balanced approach we will face serious unintended consequences.”*

This submission outlines those consequences and proposes a sensible way forward.

Discovered gas reserves in and around the Pilliga Forest near Narrabri in north west NSW – where Santos’ initial NSW investment would be focussed – could in the first phase of development alone supply in excess of 25% of the natural gas used by NSW homes, small businesses, major industries and electricity generators by as early as 2017.

Santos’ proposed Narrabri Gas Project could develop over 1400 petajoules (PJ) of natural gas reserves in the region – the largest uncontracted onshore gas reserves in Australia – and initially deliver over 100 terajoules per day (TJ/d) to the NSW market via a new pipeline connection to the existing Moomba-Sydney Pipeline. Future expansion could double this amount.

The development of the Narrabri Gas Project, in and around the Pilliga Forest, would see the creation of over 1,200 jobs in construction and during its 20 to 25-year operational phase as well as contributing to the regional economies of NSW via direct supply chain contracts, indirect job creation and payments to a regional community benefits fund. Royalties paid to the State would exceed \$800 million.

Santos’ Narrabri project – along with other potential coal seam gas developments in the NSW – represents a major opportunity to take a positive step towards securing NSW energy supply security.

The safe, sustainable development of these upstream natural gas resources represents the most effective way NSW can address constraints to downstream gas supply and availability.

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1 Executive Summary

This submission focuses on the risks posed to the NSW economy in relying almost entirely on interstate gas supplies and barriers to expansion of downstream gas supply represented by obstacles to development in the upstream sector of the NSW gas industry. The upstream gas industry involves the exploration, production and processing phases of supply of natural gas to the downstream sectors of the industry, which includes transmission pipeline systems, distribution networks, energy retailers and gas customers.

1.1 About Santos and Santos in NSW

Santos has a 50 year track record of safe, sustainable oil and gas exploration and production and has the largest natural gas exploration acreage position in NSW.

Santos has been involved in coal seam gas (CSG) exploration in the north-west of NSW since 2008. Santos' CSG acreage is the largest in NSW, covering more than 55,000 square kilometres, including areas around Narrabri, Gunnedah, Boggabri, Coonabarabran, Quirindi and Scone.

If progressed, the first phase of Santos' proposed Narrabri Gas Project development in NSW could:

- meet over 25% of the State's gas needs;
- see the creation of over 1,200 direct jobs in regional NSW;
- result in royalties paid to the State exceeding \$800 million.

1.2 The inadequacy of transmission pipeline systems, supply challenges and supply competition effectiveness for future NSW downstream gas needs

In 2012, over 95% of NSW gas supply was imported via three major transmission pipelines, around 40% from the Cooper Basin and/or Queensland via the Moomba-Sydney Pipeline, and around 57% from the Victoria, via the Eastern Gas Pipeline or the Culcairn Interconnect. Only approximately 3% of NSW gas supply was produced from its indigenous natural gas supplies (AGL's Camden Gas Project).

With the expected reduction in supply from the Cooper Basin and Queensland from 2015, historic data demonstrates that approximately 73% of NSW supply days would be exposed to shortfall. Existing supply capacity from Victoria cannot alone meet peak NSW demand and is insufficient to meet NSW demand four out of every five days.

Supply capacity from Victoria into NSW would need to more than double after 2016 in order to meet existing NSW demand, let alone demand growth. However, this outcome is highly unlikely in this timeframe and in any event it would be unwise for NSW to rely entirely on Victorian supply due to significant security of supply and monopoly price risks, as against the development of indigenous NSW natural gas resources.

NSW can guarantee secure and affordable future supply by progressing the development of its indigenous natural gas resources. Failure to develop alternate sources of supply will expose NSW to a dramatic reduction in supply competition and increased prices. Without the development of alternate sources of supply, NSW is at risk of being unable to meet its existing demand from 2015 onwards.

1.3 Barriers to the expansion of downstream gas supply and distribution networks

Santos supports a robust regulatory framework that enables the sustainable and safe exploration and development of Australia's valuable and abundant reserves of gas for the benefit of all Australians. Private sector investor confidence in NSW however is declining due to the current uncertain regulatory environment that exists in the state.

Uncertain investment climates and the proliferation of new, often parallel and duplicated regulations, some introduced without consultation, delay critical infrastructure projects to the economic detriment of NSW.

The key issue to actually developing NSW's natural gas resources and making that gas available to address upcoming supply issues, is the time and risk associated with obtaining the necessary approvals to access the resource.

Santos remains committed to strengthening our engagement with the community as we develop our business in NSW. Santos acknowledges the resources industry generally, and coal seam gas proponents specifically, must do more to allay the concerns held by many in regional communities around the economic, environmental and social impacts of our activity. That does require a genuine commitment to constructive dialogue both from the industry to the community – and from the community towards the industry.

1.4 Possible measures to enable the extension of distribution networks into regional centres

Expansion of gas networks to regional centres relies on market confidence in the security of upstream supply. NSW indigenous natural gas resources are largely located close to the state's regional centres. The development of transmission pipeline systems to support the development of upstream NSW indigenous natural gas resources will act as enablers for the development of regional distribution networks.

1.5 Recommendations

Santos recommends that NSW move to **ensure a regulatory and bureaucratic process is put in place to enable the immediate development of its own indigenous natural gas supply** to:

- ensure adequate wholesale gas supply is available to NSW, resulting in reduced dependency on interstate supply and delivering security of supply for downstream NSW customers;
- ensure future wholesale gas supply choices beyond Victorian supply, thus reinstating competition for energy retailers and encouraging increased competition for NSW gas customers; and
- facilitate the development of distribution networks in regional centres.

In relation to providing regulatory certainty and restoring investor confidence it is recommend that NSW:

- reform the regulatory process to accelerate critical resource development;
- conclude regulatory amendment processes as they relate to the upstream supply of gas in order that key stakeholders regain confidence to invest in the industry and all supporting infrastructure; and
- That the Government continue to assist in the creation of a fact and science based single point of reference for issues affecting gas supply into NSW.

2 About Santos Limited

Key Points:

- Santos is an Australian energy pioneer.
- Santos has a 50 year track record of safe, sustainable oil and gas exploration and production.
- Santos has the largest natural gas exploration acreage position in NSW.
- The first phase of Santos' proposed Narrabri Gas Project development in NSW could meet over 25% of the state's gas needs.

2.1 Company profile

A proudly Australian company, Santos is a leader of the Australian natural gas industry, with more than 50 years of responsible gas exploration and production across the nation, including almost 20 years of coal seam gas (CSG) operations in Queensland. Santos 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 working productively with rural communities.

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

Santos is one of Australia's largest domestic gas producers, supplying natural gas to all mainland Australian states and territories, ethane to Sydney, and oil and other liquids to domestic and international customers.

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. More than \$8 billion has been invested to date in the Basin.

Santos' market capitalisation of approximately \$12 billion makes it one of Australia's top 20 listed companies.

2.2 Santos in NSW

Santos has been involved in CSG exploration in the north-west of NSW since 2008, and with the acquisition of Eastern Star Gas in November 2011, Santos became the largest holder of natural gas reserves in Australia's most populous state.

Santos' CSG acreage is the largest in NSW, covering more than 55,000 square kilometres. The company's exploration leases take in the areas around Narrabri, Gunnedah, Boggabri, Coonabarabran, Quirindi and Scone.

Santos is committed to developing the region's CSG resources in a safe and environmentally sustainable manner and in co-existence with agriculture. The first phase of our development plan targets already proven gas reserves, in and around the Pilliga Forest and near Narrabri in north-west NSW. This development alone could supply over 25% of the natural gas used by NSW homes, small businesses, major industries and electricity generators by as early as 2017.

Our proposed activities in north-west NSW could not only provide local jobs and economic growth but could also secure a clean source of energy for decades to come.



Figure 1: Santos NSW CSG acreage and permits

Santos understands there are questions in the community about the CSG industry in NSW. Santos believes the best way to address this concern is to act transparently, to provide easy access to information on our activities and to encourage enquiries from members of the public.

Santos has its Energy NSW Operations Centre in Narrabri, as well as a shopfront and office in the town's main business precinct on Maitland Street. Santos' Gunnedah office is located on Conadilly Street and doubles as an information and display centre for those wanting to know more about the industry.

3 The adequacy of transmission pipeline systems and distribution networks for future downstream gas needs and supply challenges

Key Points:

- Over 95% of NSW gas is currently imported via three major transmission pipelines.
- Continued material supply from Cooper Basin and/or Queensland via the Moomba-Sydney Pipeline is less certain post-2016.
- With reduction in supply from the Cooper Basin and Queensland, NSW is increasingly exposed to a single supply source from Victoria.
- Existing pipeline and supply capacity from Victoria cannot alone meet peak NSW demand and is insufficient to meet NSW demand on four out of every five days.
- In order to meet demand post 2016, pipeline and supply capacity from Victoria into NSW would need to increase by approximately .400TJ/d, more than doubling the existing capacity. This outcome is highly unlikely.
- NSW can guarantee secure and affordable future supply by progressing the development of its indigenous natural gas resources.

3.1 Santos' response is limited to transmission pipeline systems

As a significant gas producer and wholesale gas supplier into NSW, Queensland, Victoria and South Australia, Santos is well placed to comment on the future adequacy of transmission pipeline systems between and within each of these states. Similarly, Santos' customer base in NSW commonly seeks wholesale gas supply upstream of the distribution network and mostly consists of:

- energy retailers (including gas-fired power generation)¹; and
- large industrial customers².

¹ For example: AGL, Origin Energy, Energy Australia etc.

² Typically a demand of >1 PJ per annum

These wholesale gas customers either transport the gas themselves through the distribution network, or on-sell the gas to other customers (i.e. energy retailers supply gas to commercial and residential customers).

Santos does not however typically participate in supply directly to retail customers on the NSW distribution networks and, other than for comments outlined in section 7, does not therefore intend to provide detailed comments in relation to the future adequacy of the distribution networks.

3.2 Current adequacy of transmission pipeline systems in NSW

Figure 2 summarises 2012 consumption data³ for NSW, where NSW is currently supplied approximately 97% of its natural gas from interstate and around 3% from NSW CSG (AGL's Camden Gas Project, historically averaging supply of ~15 TJ/d). NSW imports approximately 40% of its natural gas from South Australia and Queensland via the Moomba-Sydney Pipeline (MSP) and approximately 57% of its natural gas from Victoria, via a combination of the Eastern Gas Pipeline (EGP) and the Culcairn NSW-VIC Interconnect (Culcairn).

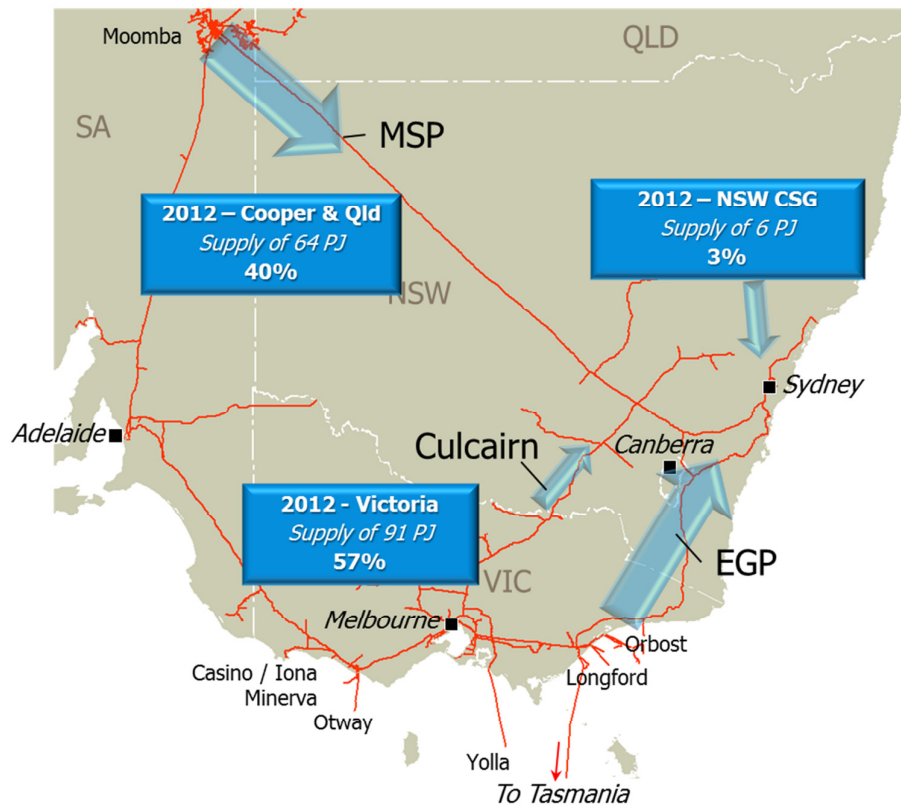


Figure 2: NSW gas supply 2012

³ Source: Energy Quest

The current maximum winter daily capacity into NSW for each of the transmission pipeline systems is as follows:

Pipeline	Winter Pipeline Capacity (TJ/d)
MSP	439 ⁴
EGP	288 ⁴
Culcairn	44 ⁵
Total capacity	771

Based on actual flow data⁶, the following figure plots the total supply into NSW (including ACT) each day for the period December 2009 to April 2013 inclusive.

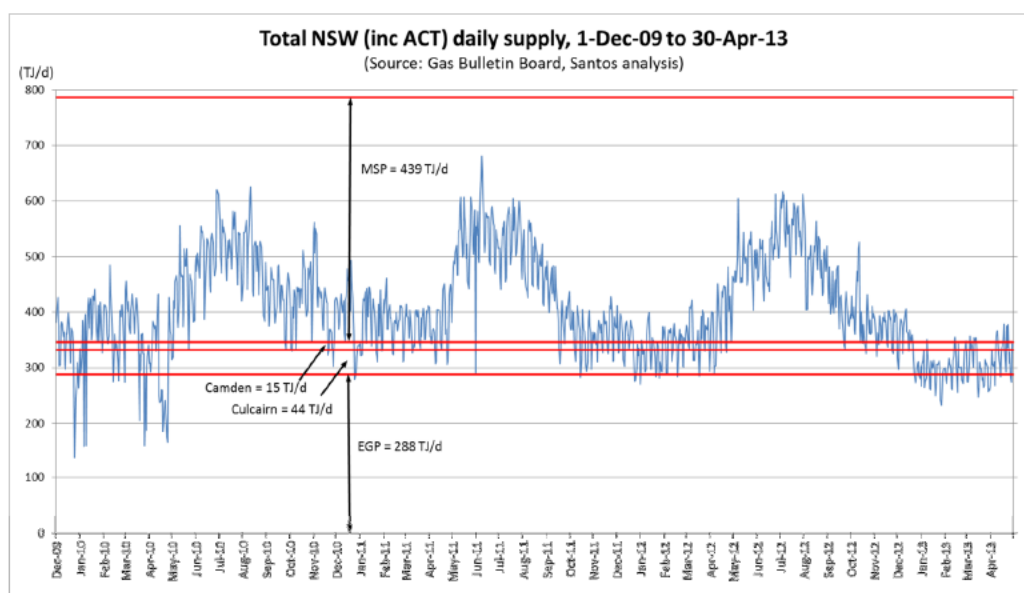


Figure 3: Total NSW (inc ACT) daily supply, 1-Dec-09 to 30-Apr-13

From the above chart a number of key observations can be drawn:

- gas supply from SA and Queensland is vital to meet NSW peak demand periods;
- peak supply for NSW occurs for substantial periods over the winter months; and
- the EGP (primarily supply from Longford in Victoria) accounts for about 50% of supply capacity into NSW;

⁴ Source: 2012 AEMO GSOO

⁵ Source: Victorian gas declared transmission system capacity, AEMO, July 2012

⁶ Source: National Gas Market Bulletin Board

It is patently clear that, assuming the Victorian system is supplying at capacity, the NSW market is currently heavily reliant on gas flows via the MSP.

3.3 Future adequacy of transmission pipeline systems for supply from the Cooper Basin and/or Queensland

Prior to 2009, NSW sourced gas from the Cooper Basin in South Australia and the Gippsland Basin in Victoria. The commissioning of the QSN Link, connecting the South-West Queensland Pipeline (SWQP) to Moomba in 2009, enabled gas to flow also from Queensland to NSW and effectively caused the East Coast gas market to become fully interconnected. In recent years, CSG from eastern Queensland has supplied NSW and the other southern states⁷ via the SWQP, connecting into the Moomba Adelaide Pipeline System (MAP) and MSP at Moomba (Figure 4).

⁷ The Southern States includes SA, NSW, ACT, VIC and TAS.

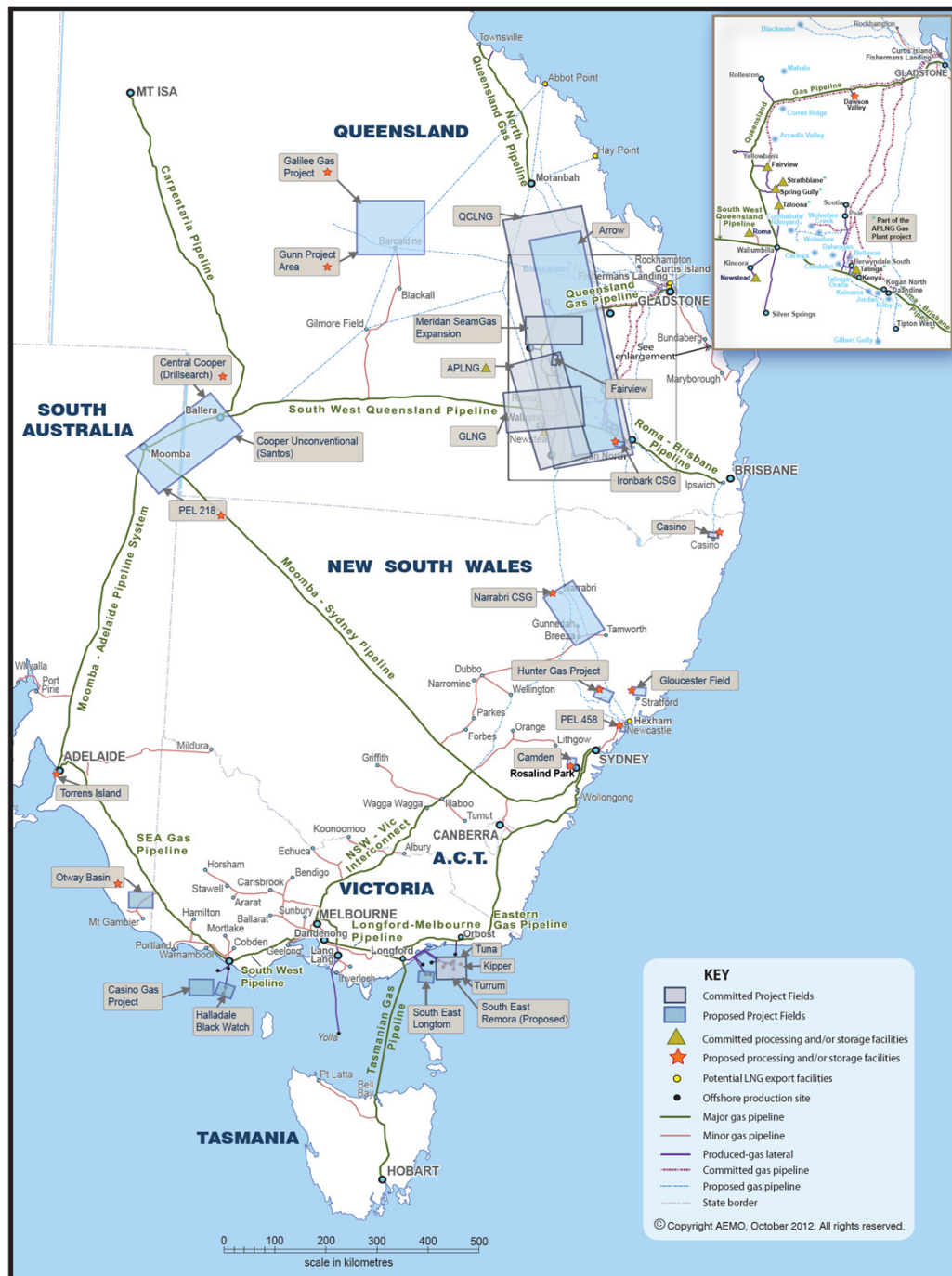


Figure 4: Eastern Australian committed and proposed gas supply facilities and transmission pipeline systems (2012 AEMO GSOO)

From the commencement of the first Queensland LNG project in 2014, Queensland supply is unlikely to continue to flow to the southern states, as it is expected that any remaining gas supply available in the state will be absorbed by Queensland (LNG) demand. Similarly, from mid-2014 when compression stations currently under construction are completed and the SWQP is physically able to flow from Moomba into Queensland (reversing the existing flow direction), demand in the southern states will be competing directly with Queensland demand for gas supply from the Cooper Basin.

In a very short period of time, Queensland will swing from being a net exporter of gas to NSW (and other states) to a net importer of gas.

With existing gas reserves from the Cooper Basin fully committed to the end of 2016 and already over 95% contracted thereafter, remaining currently discovered and proved uncontracted gas in the Cooper Basin falls dramatically short of the current NSW supply levels. NSW needs to act now to identify and secure new sources of gas to maintain current levels of demand, let alone to underpin growth. Moreover, South Australia and Queensland are likely to look to meet their own gas supply needs from Cooper Basin and Queensland CSG supply respectively ahead of demands from NSW.

Thus despite adequate technical MSP shipping capacity available for supply from the Cooper Basin and/or Queensland into NSW, there is less certainty adequate gas supply will be available from these historical supply sources from 2015 and in particular post-2016 when historical contracts expire. Therefore with limited current proven options for replacing current Cooper Basin and/or Queensland gas supply, NSW must act now to secure alternative gas supply sources together with supporting transmission pipeline systems.

3.4 Future adequacy of transmission pipeline systems for supply from Victoria

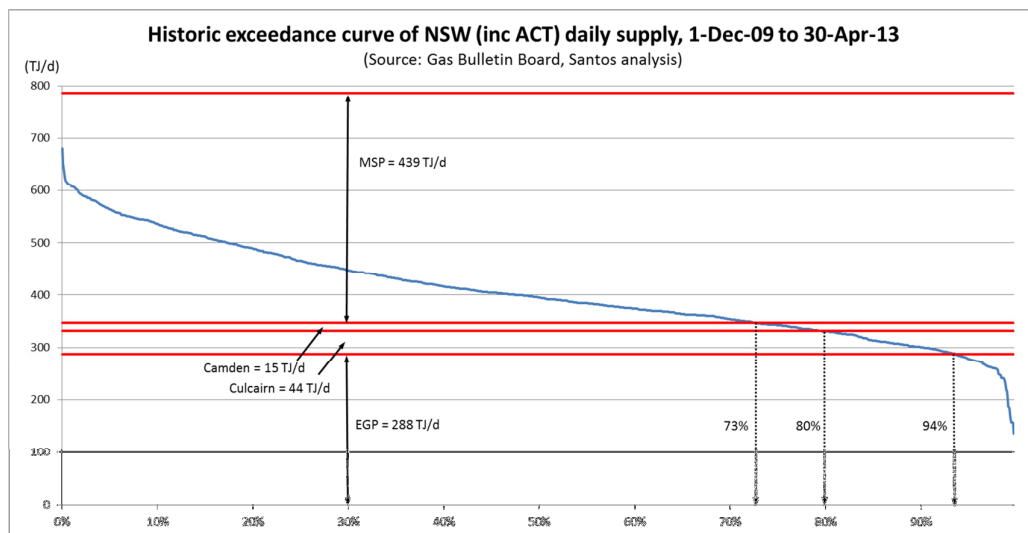


Figure 5: Historic exceedance curve of NSW (inc ACT) daily supply, 1-Dec-09 to 30-Apr-13

Figure 5 uses the same data as in Figure 3, but orders the daily supply from highest to lowest to understand, based on recent historic data, how often a high demand day may occur and of what magnitude. Figure 5 illustrates that NSW demand has exceeded the maximum flow capacities from Victoria (i.e. EGP + Culcairn) over 80% of the time, or four out of every five days for the past 3½ years. The key insight from this chart is that, in the absence of expanding supply from NSW CSG and in order to offset the expected absence of supply from the Cooper Basin and/or Queensland CSG via the MSP, the future transmission pipeline system capacity for Victorian supply would need to increase by more than double, by 2016, in order to supply all of NSW demand.

In addition to expanding the capacity of the transmission pipeline system from Victoria, upstream development and gas processing capacity would also need to increase by 2016 in order to meet the step-up in supply requirements to NSW. Notwithstanding that sufficient upstream field development needs to underpin adequate gas throughput to deliver the maximum gas supply capacity, the current installed maximum gas processing capacity of all Victorian gas processing facilities is as follows:

Processing Facility (Upstream Field)	Processing Capacity ⁸ (TJ/d)
Longford (Gippsland Basin Joint Venture)	1,145
Orbost (Longtom)	100
Iona ^{9,10} (Casino and gas storage)	570
Otway (Geographe/Thylacine) ¹¹	205
Minerva ¹²	73
Lang Lang (Yolla)	70

However due to constraints in the Victorian transmission system limiting supply from Iona to Melbourne via the South-West Pipeline to 353 TJ/d¹³, a maximum of 1,668 TJ/d is available to supply the combined gas demand of Victoria (east of Iona) and NSW, with the balance available to supply South Australia (and Victoria west of Iona). Over the past five years, Victorian transmission system peak demand has ranged between 1,270 TJ/d and 1,415 TJ/d¹⁴. After allowing for ~60 TJ/d of peak supply to Tasmania, around 200 TJ/d to 350 TJ/d of supply capacity is available to service NSW (including ACT).

In order to meet NSW peak demand of over 600 TJ/d, there would need to be investment of multiple billions of dollars in Victoria of upstream development drilling and gas processing infrastructure to provide at least a further ~400 TJ/d of gas supply, in conjunction with ~400 TJ/d of new transmission pipeline capacity, to ensure supply from Victoria is capable of servicing all of NSW's winter peak demand post 2016. However this is a highly unlikely and an unrealistic proposition given:

⁸ Source: 2012 AEMO GSOO

⁹ Note that the GSOO references total Iona processing capacity as 570 TJ/d, which includes processing from Casino field and gas storage withdrawal

¹⁰ Supply from Iona to Melbourne (including Otway and Minerva) via the South-West Pipeline is limited to 353 TJ/d (Victorian gas declared transmission system capacity, AEMO, July 2012)

¹¹ Supply from Otway to Melbourne (including Iona and Minerva) via the South-West Pipeline is limited to 353 TJ/d (Victorian gas declared transmission system capacity, AEMO, July 2012)

¹² Supply from Minerva to Melbourne (including Iona and Otway) via the South-West Pipeline is limited to 353 TJ/d (Victorian gas declared transmission system capacity, AEMO, July 2012)

¹³ Victorian gas declared transmission system capacity, AEMO, July 2012

¹⁴ Victorian gas system adequacy, AEMO, November 2012

- such a level of financial commitment, gas processing and pipeline infrastructure construction and Victorian offshore upstream development commonly has lead times of over 5 years;
- given no such investments have been announced to the market, the earliest that any form of expansion could now be completed is circa 2018 (assuming commitment was made today); and
- most of the remaining gas fields in Victoria are in decline and therefore total available Victorian production is more likely to decrease over time toward 2016 and beyond, requiring >400 TJ/d of upstream development.

Regardless of its 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 explosion. This is in addition to commercial behaviour risks that may result from single supply sourcing noting NSW's largely uncontracted position post 2017.

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.

3.5 Future adequacy of transmission pipeline systems for supply from NSW CSG

NSW has over 2000 PJ of discovered, development ready gas reserves, primarily located in regions that are some distance from existing transmission pipeline systems, including over 1400 PJ in Santos' proposed Narrabri Gas Project, located in north-western NSW. Santos is proposing that the Narrabri project utilise existing infrastructure where possible to minimise the time required to deliver gas to market and connect the project into the existing Moomba-Sydney Pipeline. To this effect, construction of new transmission pipeline systems will still be required in order to transport gas from in and around the Pilliga Forest area to the MSP. It is envisaged that the first phase of the NGP could deliver over 100 TJ/d, or in excess of 25% of NSW annual gas demand, to the NSW market, as early as 2017 should construction start today.

Critically, development timeline approvals and supply planning requirements of gas supply from NSW CSG are within the control of the NSW Government, thereby dramatically reducing supply security risks relative to supply sourced from Victoria or other states. Furthermore, the development of CSG in regional NSW and the construction of new transmission pipeline systems will:

- bring jobs and associated investment to NSW regional centres;
- generate State royalties; and
- facilitate and underpin the development of regional distribution networks.

Specifically, Santos' Narrabri Gas Project could see the creation of over 1,200 jobs in construction and during its 20 to 25 year operational phase, as well as contributing to the regional economies of NSW via direct supply chain contracts, indirect job creation and payments to a regional community benefits fund. Royalties paid to the State would exceed \$800 million.

Santos is committed to proactive engagement with the regulators of the NSW CSG industry and encourages oversight of the regulatory process to ensure seamless co-ordination between departments.

3.6 Recommendations

- NSW move immediately to mitigate the risk of supply shortfalls by accelerating alternate NSW indigenous supplies.
- The NSW establish and utilise an office of significant projects to harmonise the regulatory process to accelerate critical developments.

4 Barriers to the expansion of downstream gas supply and distribution networks

Key Points:

- Private sector investor confidence in NSW is declining due to an uncertain regulatory environment.
- Uncertain investment climate delays critical infrastructure projects to the economic detriment of NSW.
- The debate over the benefits versus risks of infrastructure development in NSW has become distorted and requires rebalancing.

4.1 Regulatory framework

Santos supports a robust regulatory framework that supports the sustainable and safe exploration and development of Australia's valuable and abundant reserves of gas for the benefit of all Australians. It is important that the regulatory framework provides community confidence but, that in doing so, additional processes and compliance costs do not unnecessarily delay the development of the industry and the economic, environmental and energy security benefits it can deliver.

The effect of extended regulatory uncertainty on investor confidence in NSW should not be underestimated. The retreat of both Metgasco and Dart Energy from their NSW CSG assets exemplifies how the changing regulatory environment can affect investment viability. In its statement to the Australian Stock Exchange in March 2013, Metgasco stated that the *"NSW Government's new regulations, which are still not finalised, have created an environment of substantial uncertainty for energy companies in the state."*

In the past 18 months the CSG industry has been exposed to a number of new State and Commonwealth regulations including:

- Amendments to the Mining SEPP – some small scale exploration now subject to State Significant Development requirements;
- Installing a Land & Water Commissioner dealing with land access issues;
- Codes of Practice for Hydraulic Fracturing and Well Integrity;
- New water sharing plans and requirement to obtain Water Access Licences;
- Aquifer Interference Policy requirements;
- Agricultural Impact Statements required for all exploration and production activities;

- Comprehensive community consultation guidelines;
- Strategic Regional Land Use Plan – including the Gateway & site verification processes for State Significant Development;
- CSG exclusion zones CSG around residential areas & critical industry clusters;
- New investigation and enforcement powers under the Petroleum (Onshore) Act;
- Requiring an Environment Protection Licence for all CSG exploration and production activities;
- Installing the Environment Protection Authority as the lead regulator for environment and health issues for CSG;
- Chief Scientist review of the CSG industry;
- Referral of all significant CSG and mining applications to the Commonwealth Independent Expert Scientific Committee; and
- Draft water trigger in the Environment Protection and Biodiversity Conservation Act for CSG activity.

Some of these regulatory changes were installed without any consultation with, or advance warning for industry. Furthermore, there are instances where the precise detail of the new regulation had not been formulated at the time of its announcement, as well as no clear understanding of what, if any transition arrangements would apply.

In addition to the uncertainty, the new regulation has resulted in new layers of duplication, particularly between the State and Commonwealth Governments. For example, the draft water trigger under the EPBC Act will result in direct duplication of the NSW Governments assessment of water impacts.

The effect of the continued changing regulatory environment and duplication has been:

- Lack of investment certainty – there is greatly increased risk associated with investment in the CSG industry in NSW because of the uncertainty around the rules;
- Industry losing momentum – over the past two years there has been virtually no ability for the CSG industry to undertake substantial work in NSW to improve our understanding of potential natural gas resources in NSW; and
- Substantial additional resource and time cost – both understanding the new rules and then ensuring compliance has added substantial additional resource and time costs to the CSG industry

While Santos understands the need for Governments to address public concern, there is also a responsibility to ensure a stable and predictable regulatory environment exists that allows industry to invest with confidence. Lack of investment in key resources such as natural gas puts at risk the economic viability of NSW and the current standard of living to which the population has become accustomed.

Santos has undertaken substantial investigations into the feasibility of providing gas to the NSW market from NSW sources. As this submission outlines, there is sufficient gas present in NSW for current levels of supply to be maintained from already proven resources within the state.

The key issue to actually making this gas available to address upcoming supply challenges is the time and risk associated with obtaining the necessary approvals to access the resource. All other states are streamlining their approval processes to encourage investment. However, the NSW approvals framework is uniquely complex and lengthy, and is further extended by the prevalence of third party review provisions, including both merit and judicial reviews. Santos is not opposed to judicial appeals. However, Santos does believe the NSW Land and Environment Court should not reconsider the full approval process, but only whether the law has not been applied correctly.

This was as evidenced in the recent case with Rio Tinto regarding the Mount Thorley Warkworth mine in the Hunter Valley, where a Court overturned the Government approval after a three and a half year process prior to that.

The current regulatory process in NSW, with its associated merit and legal third party appeal rights is likely to extend the length of time for project approval from three to five years. This would result in no gas from new projects being available to NSW customers until the end of this decade.

To be clear, Santos is supportive of undertaking the appropriate environmental studies and assessments as required by the State Government, normally a thorough two to three year process. However, the possible addition of a further two years as a result of the appeals process, meaning a possible five year approval timeline effectively makes it impossible to avoid the anticipated supply crisis beginning in 2016/17.

As part of the Committees deliberations, Santos recommends the Government consider the timing it requires gas to be supplied by, and then make recommendations on any policy or legislative change needed to ensure this timeline is able to be met.

4.2 Investor confidence

Investor confidence and commercial support for major resources projects is critical to their success. The heavy capital cost of natural gas development has meant that the industry traditionally relies on joint ventures arrangements to deliver such projects. Joint venture partners are typically other oil and gas exploration and production companies, but institutional investors and gas customers can be other sources of financial partnering to fund significant investment projects.

Investors and partners will only join projects they are confident will be supported by a stable regulatory framework and broader public policy. The same is true for potential purchasers of the gas major projects will deliver. These projects require the commercial certainty that secure long-term off-take agreements provide. Again, customers will not enter into supply contracts with projects they are not confident will proceed. The lack of that confidence in NSW is a major challenge to developing and delivering the state's natural gas resources.

This has obviously been very challenging for smaller prospective producers such as Metgasco and Dart, but also impacts the financial strength of projects advanced by larger players.

It is generally the case internationally that major oil and gas projects are developed with the strong support of the sovereign government, and in federal systems that support is evident at both state and national level. It has been the observation of a number of potential investors in coal seam gas projects in New South Wales that the industry does not enjoy that level of support in this state.

A greater level of certainty that the regulatory framework applying to the industry is stable and that the government publicly and actively supports the development of the state's resources would give investors greater confidence in investing in the coal seam gas sector in NSW.

4.3 Community support

Santos accepts the community has questions about the growing coal seam gas industry. We understand community's desire to be re-assured about the impact of an industry that while well-established in Queensland, is relatively new to New South Wales.

Santos' experience is that when the community is presented with accurate and timely information, public support for our activities is high. While support for the natural gas industry is typically highest where the industry is most established and has a proven record of engagement with the community, even in communities unfamiliar with the industry most people are open-minded about the benefits and impacts of our activity.

Santos acknowledges the resources industry generally, and coal seam gas proponents specifically, must do more to allay the concerns held by many in regional communities around the economic, environmental and social impacts of our activity. That does require a genuine commitment to dialogue from the industry to the community – and also from the community towards the industry.

Maintaining an open and balanced dialogue with community requires responsible behaviour by interest groups seeking to influence public discussion and media outlets committed to factual and impartial coverage. Regrettably, these factors have not been consistently evident in the debate on natural gas development in NSW.

Extreme claims by activists often opposed to all forms of fossil fuel extraction have all too often distorted public and media discussion of coal seam gas. The industry has come under attack from some extreme activists who claim coal seam gas projects could cause great harm to public health, water quality and food security. This is simply false, as has been demonstrated by this industry's

operations for over two decades with no evidence of such impacts. Indeed, the industry's environmental track record can be compared favourably to any other industry.

The industry, government and the broader business, scientific and academic circles must play a stronger role in countering false, exaggerated or distorted claims about the impacts of this vital industry.

Members of the community are entitled, and should be encouraged, to access the extensive information on the technical, scientific, economic and energy impacts of our industry so that informed decisions can be made about proposed developments.

To this end, Santos remains committed to strengthening our engagement with the community as we develop our business in NSW.

Over the last 12 months Santos has participated in thousands of discussions with people in the communities in which we operate, including:

- More than 100 community meetings, site visits, briefings with community groups, attendance at agricultural shows and community events;
- Visits to our shopfronts; and calls to our toll-free numbers; and
- Websites dedicated to our coal seam gas operations

Our over 50-year track record in exploration and production of oil and gas in Australia and in Asia has reinforced that successful partnerships with local communities are a pre-requisite for commercial success.

Importantly, extensive community consultation occurs at various stages throughout the assessment process of our projects. There will be numerous opportunities for members of the public and stakeholders to have their say on the proposed developments. In addition to the community consultation that will be undertaken by the State and Commonwealth Governments, Santos will hold extensive public information sessions both before and during the assessment process. These will provide local residents with the opportunity to get involved and seek changes to reflect community input.

4.4 Recommendations

- NSW act, immediately and as a matter of urgency, to restore investor confidence in the resources industry in NSW by concluding regulatory amendment processes as they relates to the upstream supply of gas in order that the downstream industry regain confidence in downstream infrastructure investment.
- That the government continue to assist in the creation of a fact and science-based single point of reference for issues affecting gas supply into NSW.

5 The effectiveness of competition in the downstream gas market and consumer pricing implications

Key Points:

- A competitive downstream market depends on competitive upstream supply.
- Failure to develop alternate sources of supply will expose NSW to a dramatic reduction in supply competition and increased prices.
- Without the development of alternate sources of supply, NSW is at risk of being unable to meet existing NSW demand from 2015.

5.1 Link between upstream and downstream gas supply competition

The wholesale gas supply market is made up of upstream gas producers and transmission pipeline owners who compete to supply gas to wholesale customers (primarily energy retailers and large industrial customers). The competitiveness of a downstream gas supply market is inextricably linked to a competitive wholesale market.

It has been shown in section 3 of this submission that the NSW downstream market faces less certain supply from the Cooper Basin over the coming years and thus an increased dependence on gas imported from Victoria. This means that NSW faces a reduced pool of potential gas suppliers and delivery networks which effectively reduce supply competition into the NSW downstream market.

The net result is that downstream customers may suffer from the impacts of a smaller wholesale supply pool potentially leading to higher gas prices.

5.2 Eastern Australian, and hence NSW gas supply dynamics are changing

Based on 2012 consumption, NSW has an annual gas demand of ~160 PJ¹⁵. Daily gas usage varies according to factors such as electricity demand calling for gas fired power generation and climatic seasonal factors such as heating and air conditioning but usually fluctuates on a seasonal basis between lows of 300 TJ/d in summer and peaking over 600 TJ/d in winter. Figure 3 illustrates the fluctuations on a daily basis over the past 3½ years, with Figure 6 following showing supply by monthly averages.

¹⁵ Source: Energy Quest

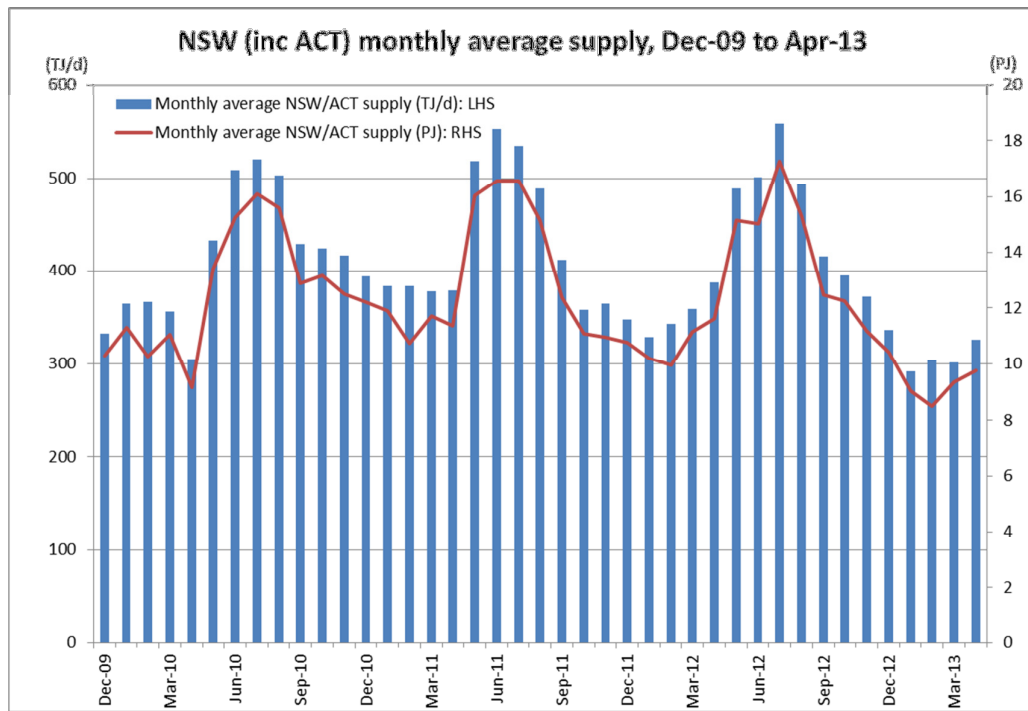


Figure 6: NSW (inc ACT) monthly average supply, Dec-09 to Apr-13

Prior to 2009, NSW sourced gas from the Cooper Basin in South Australia and the Gippsland Basin in Victoria. The commissioning of the QSN Link, connecting the SWQP to Moomba in 2009, enabled gas to flow from Queensland to Sydney and effectively caused the East Coast gas market to become fully interconnected.

However, the combined discovery of vast reserves and resources, in particular CSG in Queensland and the development of an LNG industry that can justify the higher costs of developing these reserves and resources (Figure 7) have together radically transformed the East Coast gas market to the point where CSG reserves now dominate the reserves balance (Figure 8).

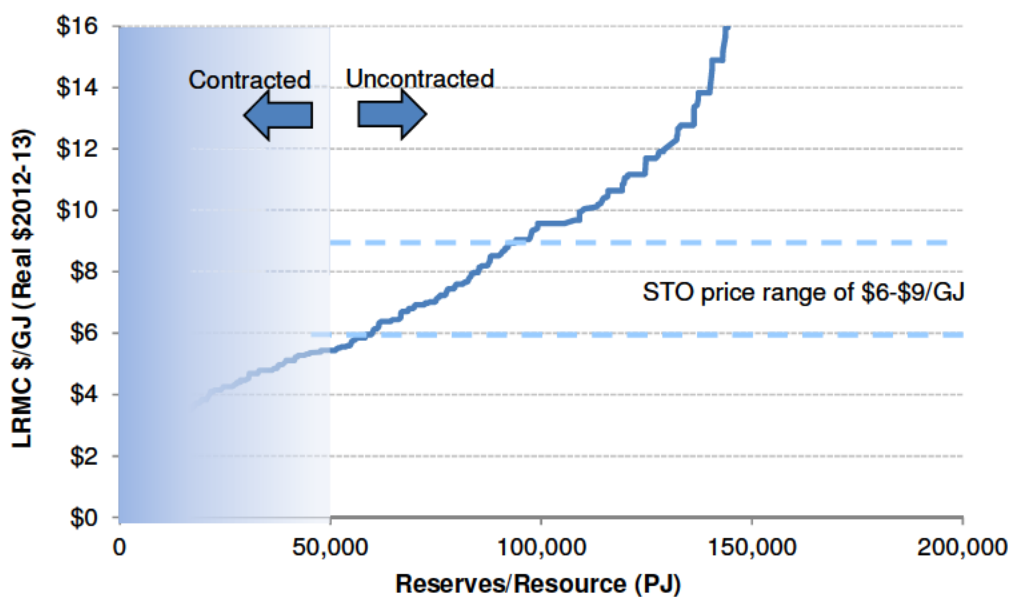


Figure 7: Eastern Australia Gas Supply Costs¹⁶

However, the combined discovery of vast reserves and resources, in particular CSG in Queensland and the development of an LNG industry that can justify the higher costs of developing these reserves and resources (Figure 7) have together radically transformed the East Coast gas market to the point where CSG reserves now dominate the reserves balance (Figure 8).

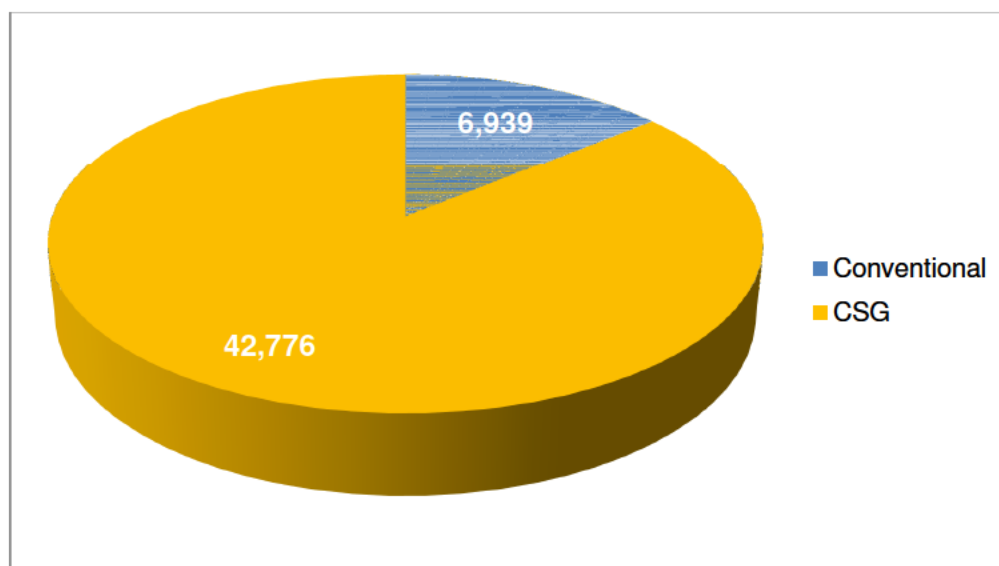


Figure 8: Natural Gas & Ethane 2P Reserves in Eastern Australia¹⁷

¹⁶ Fuel cost projections, natural gas and coal outlooks for AEMO modelling (December 2011)

The ability to book reserves relies on an economic test. A producer must prove that they can be found, developed and sold economically to be permitted to claim them as reserves. The development of the LNG industry and the willingness to pay of LNG customers has enabled the upstream gas industry in Eastern Australia, in particular Cooper Basin and Queensland CSG producers, to identify and develop substantial reserves of gas that would otherwise not have been developed.

Many gas industry commentators forecasted a large amount of early production or “ramp gas” in the lead up to the commissioning of the Queensland LNG projects and further postulated that the market would be “long” with ramp gas, causing many customers to hold off recontracting with the aim of securing cheap ramp gas.

In the absence of new gas supply contracts or commitments from the southern states, producers proceeded to find customers in Queensland to underpin their upstream developments, largely contracting their reserves to LNG projects, but also contracting with large industrial customers. Reserves, gas processing capacity and transmission pipeline capacity have now been dedicated to delivering that gas.

For NSW, this results in no or limited gas supply being available out of Queensland from 2015 and existing proven gas reserves from the Cooper Basin fully committed to end 2016 and already over 95% contracted thereafter. Specifically, up to 390 TJ/d¹⁸ of existing Moomba gas processing capacity is already committed to deliver gas to states other than NSW post-2016^{19,20} and well into the next decade. The potential impact on NSW daily demand is illustrated in Figure 9 following (as updated from Figure 5), where it highlights that up to 73% of NSW supply days are exposed from 2015.

¹⁷ Source: EnergyQuest February 2013 Quarterly Report

¹⁸ Source: 2012 AEMO GSOO

¹⁹ Santos, Origin and Delhi (Beach Energy) are joint venture partners in the Moomba gas processing facility and associated upstream developments and have either contracted or allocated the majority of their equity shares of gas to their respective gas supply portfolios.

²⁰ <http://www.beachenergy.com.au/IRM/Company/ShowPage.aspx/PDFs/2934-16785602/BeachsignsmajorgassalesagreementwithOriginEnergy>

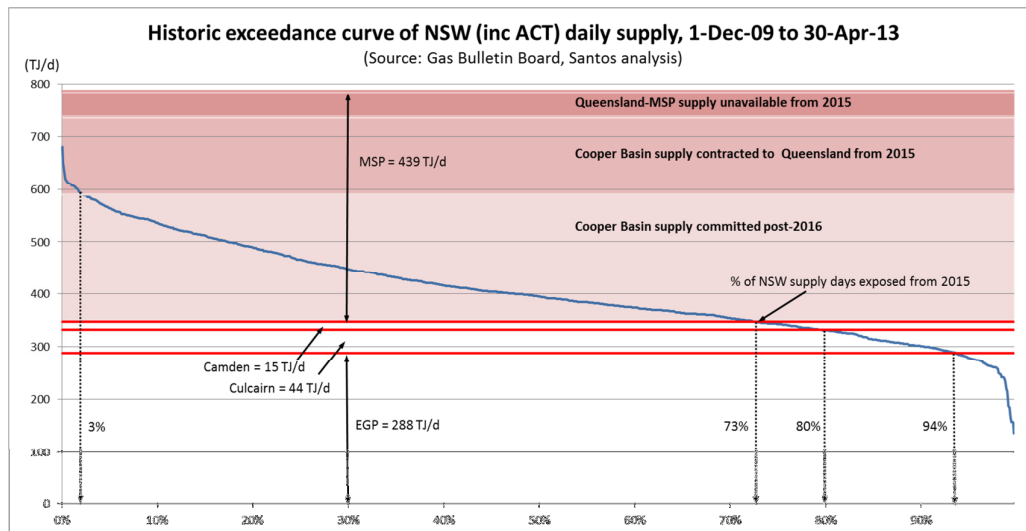


Figure 9: Exposure of NSW supply days from 2015/post-2016

Coupled with the changing Eastern Australian supply-demand dynamics, NSW has a looming uncontracted gas position, the timing of which directly coincides with the commencement of the Queensland LNG projects. Figure 10 illustrates the breakdown and timing of NSW's uncontracted gas position. Put simply, NSW needs to act now to identify and secure new sources of gas to maintain current levels of demand, let alone to underpin growth.

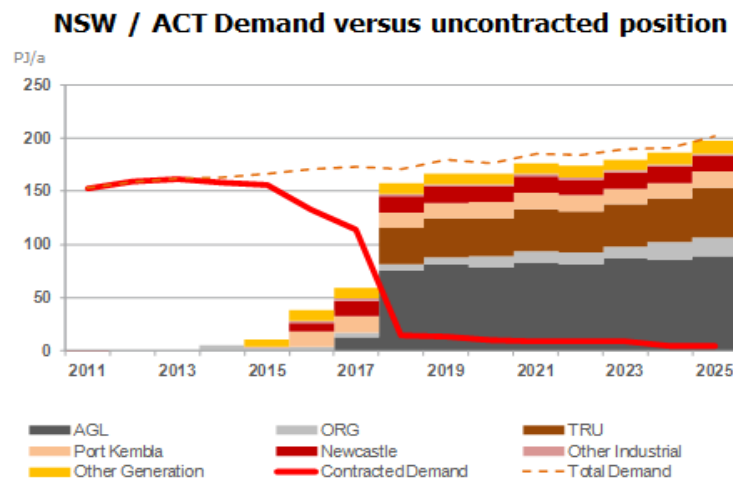


Figure 10: NSW (inc ACT) demand versus uncontracted position (source: Core Energy)

5.3 Reduction in competition for gas supply to NSW

Critically and in response to the Terms of Reference, the resulting likely decrease in supply from the Cooper Basin and Queensland will by its very nature result in a lessening of competition as downstream markets and retailers have fewer wholesale gas supply choices. It is a valid hypothesis to consider NSW's situation without a competitive alternate supply where Victorian suppliers into NSW would have an opportunity to extract higher prices. Moreover NSW is now critically exposed to the deliverability constraints of Victoria as previously discussed in section 3.4.

Consequently what this means for NSW is when significant amounts of Cooper Basin gas processing and supply capacity becomes unavailable to the southern markets from 2015, the Victorian system will not have sufficient remaining existing capacity to 'step-up' and supply NSW on peak days. In the absence of the development of new upstream supply, this will lead to supply shortages and higher prices for consumers from 2015 and severely post-2016.

Retail, commercial and many small industrial customers would be hit hard by higher gas prices, typically having little practical option to switch to other energy sources – with much of this gas demand being price inelastic. Large industrial customers and some smaller industrial users are likely to cut their use of gas when faced with higher gas prices, which could result in ceasing an economic activity and ending associated employment.

Of the over 3.5 million people employed in NSW²¹, Santos analysis estimates over 15,000 are employed by large industrial customers²² that are dependent on gas supply as a critical business input, with a further 2.5 million estimated to be employed by small industrial customers that may have high change over costs to use alternative forms of energy. Many businesses, in particular the large industrial customers, will be faced with decisions in relation to business closures due to high gas prices caused by lack of gas supply post 2016.

Downstream customers in NSW are therefore faced with two unpalatable realities in coming years:

1. The reduction in wholesale gas supply and choices into NSW, with wholesale gas supply largely limited to Victorian suppliers and the dominant supply position of the Gippsland Basin JV, exposing wholesale customers (energy retailers and large industrial customers) to higher prices, thereby resulting in high prices for downstream customers; and
2. The simple inability of the transmission pipeline system from Victoria to supply the NSW market with enough gas for peak days, resulting in rolling "gas outs" or gas demand load shedding in periods of consecutive days of peak gas demand.

An obvious solution to these two issues is for NSW to actively progress the development of its own indigenous natural gas resources.

²¹ ABS labour force status, April 2013
([http://www.ausstats.abs.gov.au/ausstats/meisubs.nsf/0/081FC24D44CE0B57CA257B65001489B9/\\$File/62020_apr%202013.pdf](http://www.ausstats.abs.gov.au/ausstats/meisubs.nsf/0/081FC24D44CE0B57CA257B65001489B9/$File/62020_apr%202013.pdf))

²² Santos estimates of direct and indirect employment for a non-exhaustive list of specific large industrial sites in NSW referencing publically available material

5.4 Recommendations

To resolve both of the issues highlighted in section 5.3, it is recommended that NSW move to **immediately develop its own indigenous natural gas supply** to ensure:

- adequate wholesale gas supply is available to NSW, resulting in reduced dependency on interstate supply and delivering security of supply for downstream NSW customers; and
- future wholesale gas supply choices beyond Victorian supply, thus reinstating competition for energy retailers and encouraging increased competition for NSW gas consumers.

6 The effectiveness of existing protections for consumers and measures to facilitate access to gas connection and supply

Santos does not typically participate in the downstream gas market or supply directly to customers on the NSW distribution networks and is not therefore providing submission comments in relation to the effectiveness of existing protections for consumers and measures to facilitate access to gas connection and supply.

7 Possible measures to encourage gas network operators to extend existing distribution networks, including financial incentives of licence obligations, particularly in regional centres that do not have access to reticulated gas

Key Points:

- Expansion of gas networks to regional centres relies on market confidence in the security of upstream supply.
- NSW indigenous natural gas resources are largely located close to NSW regional centres.
- The development of transmission pipeline systems to support the development of upstream NSW indigenous natural gas resources will act as enablers for the development of regional distribution networks.

7.1 Barriers to expansion of network supply are inextricably linked to the availability and certainty of upstream gas supply

Regional network operations are not core Santos business but we offer the following observations on the basis that barriers to expansion of network supply are inextricably linked to the availability and certainty of upstream gas supply.

Gas network operators by their very nature are incentivised to expand networks into regional centres for the purposes of expanding and capturing incremental business. However, network operators and for that matter energy retailers are only willing to invest in the necessary capital infrastructure provided that they have a high level of certainty of utilisation and therefore economic return against the asset. Utilisation of new-build gas networks extending out to regional centres is thus underpinned by certainty and reliability of upstream supply of gas.

Santos makes the observation that to encourage the expansion of gas reticulation into regional areas, energy retailers (as users of the network) will only underpin such investments provided that they are equally certain of having access to competitive upstream supply.

Depth of supply and competition in the upstream gas market will by virtue of market forces, cause expansion of into regional centres currently devoid of gas supply. Santos contends that a major impediment to the development of gas network services is the uncertainty attached to security of supply in NSW.

7.2 Development of NSW natural gas resources in regional areas is an enabler to expanding distribution networks into those same regional areas

The development of new, and expansion of existing, transmission pipeline systems offers opportunities to connect laterals to regional communities or businesses during the development and

construction process. The greater the penetration of transmission pipeline systems in and around regional centres, the greater the ability for distribution networks to establish themselves in and around those centres.

Coincidentally, much of the discovered CSG reserves are located in and around regional centres throughout NSW. The upstream gas developments and construction of the transmission pipeline systems required to connect these developments to market, will act as enablers for these regional centres themselves to connect into the Eastern Australian transmission pipeline system and develop their own local distribution networks.

An example of where this opportunity might be accessed is in the development and construction of the transmission pipeline that will be required to underpin Santos' NGP and connection to the MSP.

7.3 Recommendations

To facilitate the development of distribution networks in regional centres it is recommended that NSW move to **immediately develop its own indigenous natural gas supply**.