

19 December 2016

Secretariat  
Queensland Gas Supply and Demand Discussion Paper  
Department of Natural Resources and Mines  
PO Box 15216  
City East QLD 4002  
Via email: [gasactionplan@dnrm.qld.gov.au](mailto:gasactionplan@dnrm.qld.gov.au)

## Queensland gas supply and demand action plan

Dear Sir/Madam

Energy Networks Australia welcomes the opportunity to provide comments on the Queensland gas supply and demand action plan Discussion paper released in November 2016.

Energy Networks Australia is the national industry association representing the businesses operating Australia's electricity transmission and distribution and gas distribution networks. Member businesses provide energy to almost every household and business in Australia.

Energy Networks Australia generally supports the proposed reform options and supports the objectives of these reforms as being:

- Improving the gas sector's social license to operate, and
- Decreasing barriers to gas supply.

The intention of this submission is to suggest additional reform ideas.

### 1. Providing information to the community about the whole gas sector and its benefits to Australia, not just the gas supply sector.

Reform idea 6 focusses on information being provided to the community regarding gas exploration and production. Energy Networks Australia proposes that the community and stakeholders should be provided with broader information regarding the Australian gas industry. This could include the other benefits of gas across the value chain and including domestic use of gas in industry, business and homes.

For example, Energy Networks Australia recently commissioned Deloitte to analyse information on the Australian gas industry, across the supply chain. Some of the national benefits of the gas industry include:

- Natural gas provides 44% of household energy but only 13% of emissions.
- 4.7 million homes are connected to the gas network.
- Gas is the dominant source of energy in a number of industries that collectively provide 356,000 jobs and contribute \$69 billion to GDP

Providing additional information to the community about the national role of the gas sector would demonstrate the national benefits that local gas industries provide.

## 2. Supporting mechanisms to encourage additional supply of gas, as this could lower domestic gas prices.

The discussion paper identifies a range of reforms that could increase supply and lower costs, including strategic tenure release, basin and sub basin exploration approach, removal of obstacles to achieve economies of scale, etc.

Government regulation may have adverse impacts on the overall production price of gas. For example, EnergyQuest<sup>1</sup> observed that :

- "If Santos is unable to develop its NSW reserves its finding and development costs will increase to A\$4.21 GJ to 2011 (from A\$1.76/GJ) and A\$5.88/GJ to 2013." and
- "Supply restrictions mean that potentially low-cost gas cannot be accessed. Gunnedah and Gloucester gas may be some of the lowest-cost gas on the east coast."

The policy settings in New South Wales and Victoria prevent industry from exploring and developing new gas resources in those states. Effective government regulation will encourage industry to continue to invest in exploration and developments of new gas fields that will place downward pressure on gas prices.

Blanket bans on onshore gas exploration exacerbate potential gas supply constraints and have the potential to impact the delivered price of gas in all markets, including Queensland.

AEMO released its National Gas Forecasting Report<sup>2</sup> in December 2016 that highlight that the future of gas is at a crossroads. It forecasts that gas consumption for gas power generation will rise and that this will stretch available domestic supplies, with the greatest supply challenge between 2018 and 2024. AEMO forecast east coast gas consumption at 2076 PJ pa in the neutral scenario but the difference between the weak and strong scenarios is 1600 PJ. Out of this, approximately 190 PJ (or 9%) is consumed by Australian households and commercial businesses, where gas is used for everyday comforts such as heating, hot water and cooking. Over 75% of gas supply is exported through the LNG facilities in Gladstone and any small variation in this output will put additional constraints on gas supply on the east coast.

AEMO also forecasts an increase in wholesale gas prices due to:

- Lower cost reserves are depleting and these are replaced by new supply from higher-cost fields, and
- Tighter supply-demand balance may limit competitive tension, causing some price increases.

Further gas supplies will be required for Australia to reach its 2030 abatement target of 26 to 28% emission reductions over the 2005 levels. Part of this journey is the closure of Hazelwood power station in Victoria in 2017 and AEMO indicates that it expects that half of this generation will be provided by gas resulting in a demand spike in 2018. Modelling completed by Jacobs<sup>3</sup> found that additional gas will be required between 2020 and 2030 for power generation as coal fired power stations reduce output to meet the emissions target. Jacobs found that between 602 and 738 PJ of gas would be required for power generation in 2030. This variation in gas reflects different policy options but they are all significantly higher than the 168 PJ forecast for power generation in 2030 by AEMO. Additional supplies of gas will be required to reach the national 2030 abatement target.

Energy Networks Australia supports reforms to encourage the additional supply of gas on the east coast and notes that this may place downward pressure on wholesale and residential gas prices.

<sup>1</sup> EnergyQuest (2014) *Oil and gas industry cost trends – an independent report prepared by EnergyQuest for the Australian Petroleum Production & Exploration Association*, accessed from: [http://www.aie.org.au/AIE/Documents/APPEA-Cost-Report\\_Final.pdf](http://www.aie.org.au/AIE/Documents/APPEA-Cost-Report_Final.pdf)

<sup>2</sup> AEMO (2016), *National Gas Forecasting Report – December 2017*, accessed from [www.aemo.com](http://www.aemo.com)

<sup>3</sup> Jacobs (2016), *Australia's climate policy options – modelling of alternate policy scenarios*, available from [www.energynetworks.com.au](http://www.energynetworks.com.au)



### 3. Supporting gas industry Research and Development to develop new gas exploration and production technologies, gas utilization technologies and developing technologies for using gas in a carbon restrained economy.

Reform idea 26 refers to innovation and technological development for the long term productivity of the Queensland gas sector.

The long term productivity of the gas sector should consider the role of gas in a decarbonised world. Australia has ratified the agreement reached at Paris in 2015 and this agreement includes two high level objectives. The first is to reach peak emissions as soon as possible and the second is to be carbon neutral in the second half of the century, generally interpreted as zero net emissions by 2050.

Gas can be used to lower emissions from power generation by replacing coal. In the longer term, emissions from the use of gas will need to reduce further. Additional research and development into technologies that reduce emissions from the use of gas should be considered in the reform ideas. In particular, there are three technological developments underway that allow ongoing use of gaseous fuels with near zero emissions.

Firstly, replacing natural gas with biogas – derived from biomass such as wood waste or agricultural waste – decreases greenhouse gas emissions without requiring modifications to gas burners and appliances. Biomass is widely distributed across the country and the utilisation of this biomass may produce a distributed source of biogas. A major study<sup>4</sup> has been commissioned by ARENA to provide reliable information on biomass feedstocks across Australia. This has been identified as a significant roadblock to the development of bioenergy projects and the outcome of this research will identify the size and distribution of the bioenergy resource.

Secondly, natural gas can be converted to hydrogen which can then be injected into distribution networks. Producing hydrogen creates a carbon free gaseous fuel that can be used in gas appliances or fuel cells for providing energy services to households and commercial businesses. Up to 10% hydrogen is already injected in gas distribution networks in Germany. Northern Gas Networks in the UK is leading the H21 Leeds City Gate project that aims to convert the city of Leeds to a hydrogen network. A major report<sup>5</sup> was produced in July 2016 that provided a pathway for converting the city to a hydrogen network. The report suggest that significant parts of the gas distribution networks can be decarbonised at a minimal additional cost to consumers.

Thirdly, carbon capture and storage (CCS) can be applied to power generation and industrial processes (such as hydrogen production) where gas is used. CCS removes greenhouse gases after the combustion or reaction of natural gas and securely stores that CO<sub>2</sub> in underground reservoirs. The application of CCS to industrial projects is well advanced. For example, the Quest project<sup>6</sup> in Canada is an example of commercial application of CCS to hydrogen production. This project is capturing 1 million tonnes of CO<sub>2</sub> while producing hydrogen for use in its oil sands operations. Furthermore, CCS has also been applied to coal fired power stations (eg Boundary Dam<sup>7</sup> project) but to date has not yet been tested at gas fired power stations.

Energy Networks Australia supports ongoing research, development and demonstration of new technologies to support the long-term role of gas in the energy mix. RD&D programs should themselves be considered on an objective and technology neutral basis which assesses RD&D programs on their merits and does not ignore the potential public benefit of innovation within gas sector.

<sup>4</sup> <https://arena.gov.au/project/the-australian-biomass-for-bioenergy-assessment-project/>

<sup>5</sup> <http://www.northerngasnetworks.co.uk/document/h21-leeds-city-gate/>

<sup>6</sup> [http://www.shell.ca/en\\_ca/about-us/projects-and-sites/quest-carbon-capture-and-storage-project.html](http://www.shell.ca/en_ca/about-us/projects-and-sites/quest-carbon-capture-and-storage-project.html)

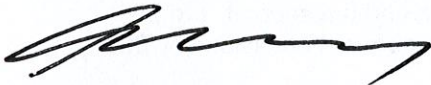
<sup>7</sup> <https://www.globalccsinstitute.com/projects/boundary-dam-carbon-capture-and-storage-project>



On this basis, RD&D should be extended to consider the whole gas supply chain and look at technologies to achieve emissions reductions from the production and ongoing use of gaseous fuels.

We would be happy to provide any further information on the issues addressed in this submission. Please don't hesitate to contact Dr Dennis R Van Puyvelde if you would like further information on (02) 62721548.

Yours sincerely,



**John Bradley**  
**Chief Executive Officer**

