

7 May 2021

House of Representatives  
Standing Committee on the Environment and Energy  
PO Box 6021  
Parliament House  
Canberra ACT 2600

Submitted via the online system

**GEA RESPONSE TO THE 'INQUIRY INTO THE CURRENT CIRCUMSTANCES, AND THE FUTURE NEED AND POTENTIAL FOR DISPATCHABLE ENERGY GENERATION AND STORAGE CAPABILITY IN AUSTRALIA'.**

Dear Committee Secretariat

Gas Energy Australia (GEA) welcomes the opportunity to respond to selected issues raised by the *'Inquiry into the current circumstances, and the future need and potential for dispatchable energy generation and storage capability in Australia'*.

By way of background, GEA is the national peak body which represents the bulk of the downstream gas fuels industry which covers Liquefied Petroleum Gas (LPG), Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG). The industry comprises major companies and small to medium businesses in the gas fuels supply chain: refiners, fuel marketers, equipment manufacturers, LPG vehicle converters, consultants and other providers of services to the industry.

The current and future needs of Australia's energy system are constantly changing. Australia's energy system is seeing accelerated growth in renewable energy as its price declines and government policies continue to support its uptake to meet emission reduction targets.

The Australian Energy Market Operator predicts in its 2020 Integrated System Plan, that between 6 Gigawatt/s (GW) and 19GW of new dispatchable generation, such as pumped hydro, battery storage, virtual power plants and gas plants, will be needed to support the forecast increase in distributed and renewable generation<sup>1</sup>. The transition to renewables is likely to continue and there will therefore be a continuing need for new dispatchable generation.

These developments, in conjunction with the retirement of coal fired generators and the push towards electrification, including of transportation, are increasing the risk that electricity networks will not be able to meet periods of high demand when the wind stops blowing and the sun stops shining<sup>2</sup>. GEA

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<sup>1</sup> Australian Energy Market Operator, 2020, '2020 Integrated System Plan', <https://aemo.com.au/-/media/files/major-publications/isp/2020/final-2020-integrated-system-plan.pdf?la=en&hash=6BCC72F9535B8E5715216F8ECDB4451C>

<sup>2</sup> Australian Energy Market Operator, 2020, '2020 Integrated System Plan', <https://aemo.com.au/-/media/files/major-publications/isp/2020/final-2020-integrated-system-plan.pdf?la=en&hash=6BCC72F9535B8E5715216F8ECDB4451C>

considers that increased use of gas fuels for remote and edge of grid power generation, end-use, in home and businesses, and transportation applications would significantly contribute to reducing the future need for dispatchable generation and storage by reducing the load on Australia's electricity grid.

But the ability of gas fuels to do this is being undermined by policies to encourage electrification, and sometimes ban gas connections, being adopted by Australian state, territory and local governments to reach their emissions reduction targets. If homes and businesses are increasingly electrified, the option to utilise more energy efficient gas, decarbonised gas in the future or other fuel technology would be taken away, even though they may often be more energy efficient. As such, this would lead to an increased electricity load and create an increased need for dispatchable generation and storage.

Moreover, when gas fuels displace imported diesel for transport and power generation, Australia's fuel security is enhanced. And as a net exporter of LPG and LNG, Australia is well placed to take advantage of low emission gas and increasingly renewable gas which can utilise existing infrastructure.

**a) current and future needs:**

GEA regards the best approach to improving the reliability of Australia's energy supply and reducing the need for greater dispatchable generation and storage is to diversify supply and increase the use of low emission energy sources produced and readily available in Australia such as gas fuels, for remote power generation and transport applications. In the future, the carbon content of gas fuels will fall as fossil fuel-based gas fuels are blended with and ultimately replaced by renewable gases sourced from biogas, synthetic fuels and green hydrogen.

**c) existing, new and emerging technologies:**

**Gas fuelled remote power generation**

GEA considers that increasing the use of gas fuels such as LPG, LNG and CNG for power generation, particularly in remote and regional areas can significantly contribute to reducing the need for greater transmission infrastructure, dispatchable generation and storage. Due to the large geographical size of Australia and the remote locations of many mines and industrial activities, many businesses have turned to off-grid generation solutions. As such, GEA sees it critical that governments and regulators facilitate the greater use of distributed energy solutions such as microgrids and off grid remote power generation.

There are a number of case studies which demonstrate how the use of remote power generation solutions has resulted in greater energy security, reduced costs and reduced emissions. On Australia's west coast, LNG enables the Carosue Dam, Daisy Milano, Dalgara, Darlot, Deflector and Mt Marion mines in Western Australia, which employ hundreds of workers, to reduce their combined diesel fuel consumption by 55 million litres, saving a total of \$7.6 million on their fuel costs and reducing CO<sub>2</sub> emissions by 27,000 tonnes. On Australia's east coast, LNG is also being used for power generation at the Hera gold, silver and zinc mine located west of Dubbo NSW. The mine's use of LNG resulted in 5000 tonnes less CO<sub>2</sub> emissions per annum which is equivalent to the CO<sub>2</sub>

emissions from 2380 cars.

### **Gas fuelled heavy vehicles**

While electric vehicle (EV) uptake in Australia is currently slower than in some developed economies, the number of EVs is expected to grow as they become cheaper and more charging infrastructure is rolled out<sup>3</sup>. However, largescale adoption of light and heavy duty EVs will require significant additional investment Australia's electricity power generation and distribution systems. GEA sees it critical that governments ensure that in the move to low emission transport solutions, other renewable and low emission technologies are available to transport users such as heavy vehicles.

A heavy-duty dual fuel (HDDF) system for trucks which substitutes LPG for diesel, demonstrates how gas fuels can contribute to reduced costs and emissions for heavy vehicle transport users. Sixteen Volvo HDDF prime movers operated by national freight and logistics company Rivet Energy have been fitted with modified engines which substitute LPG for diesel by up to 23 per cent. These HDDF trucks operate across Victoria, NSW, SA and Queensland and deliver LPG on bulk and multi-drop delivery runs to businesses every day of the year. On average per year, each vehicle saves around 7 per cent in fuel costs and reduces emissions by almost 8 tonnes, which is equivalent to taking four cars off the road.

Also, heavy vehicle manufacturers such as Scania and Iveco, currently have available for purchase in Australia, Euro VI gas powered heavy vehicles which help to reduce CO<sub>2</sub> emissions by up to 23% compared to diesel, along with a 60% reduction in NO<sub>x</sub> and 99% reduction in particulate emissions and 99% reduction in sulfur oxides. These viable alternatives to diesel powered heavy vehicles can meet the most stringent emissions standards and also contribute to reduced carbon emissions and costs.

In the medium to long term, when gas is well advanced along its decarbonisation journey, renewable gases such as biogas, hydrogen and synthetic gases such as renewable di methyl ether (DME), that utilise existing transport and stationary energy infrastructure, offer the prospect of affordable, reliable net zero emissions energy for vehicles, homes and businesses which have the potential to utilise existing infrastructure.

#### **d) comparative efficiency, cost, timeliness of development and delivery, and other features of various technologies;**

In late 2020, in collaboration with other gas industry associations Energy Networks Australia, the Australian Petroleum, Production and Exploration Association, the Australian Pipelines and Gas Association, the Gas Appliance Manufacturers Association of Australia and the Australian Gas Industry Trust, GEA developed the Gas Vision 2050; Delivering a Clean Energy Future report. This report explored Australia's journey to a cleaner energy future by highlighting the pivotal role gas and gas infrastructure can play in Australia's low carbon energy future.

The study focused on ongoing capital and operating costs of three energy scenarios in 2050, assuming a transition to a decarbonised economy was made by then. The annual costs of different decarbonisation scenarios were modelled by Frontier Economics. These scenarios were compared to a base case where the electricity sector reached net zero emissions in 2050 while unabated gas use

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<sup>3</sup> Australian Renewable Energy Agency, February 2021, 'Electric Vehicles' <https://arena.gov.au/renewable-energy/electric-vehicles/>

continued to supply heat and feedstock to industry. The three scenarios achieved net-zero emission from gas use and included blue hydrogen, green hydrogen and electrification.

The blue and green hydrogen scenarios are the lowest cost, at a net increase cost of \$13.3 billion and \$15.3 billion (respectively) compared with the base case. The most costly scenario is electrification, at a net increase of \$27.5 billion compared with the base case. The finding that both the blue and green hydrogen scenarios are lower cost than electrification suggests that there is value in continuing to make use of Australia's gas infrastructure and Australia's gas resources to deliver gaseous fuels to end-use customers. This finding also suggests that policies to achieve net zero emissions should be broad-based and not focus solely on promoting the electrification of all stationary energy end-use.

The Gas Vision 2050: Delivering a Clean Energy Future Report can be found at;  
<http://www.cleanercheaperfuels.com/>

For your consideration

A handwritten signature in black ink, appearing to read "John Griffiths", with a horizontal line drawn through it.

John Griffiths  
Chief Executive Officer  
Gas Energy Australia