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Mr Anton Voss
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GPO Box 147
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Via email to renewableenergy@stategrowth.tas.gov.au

GEA RESPONSE TO THE TASMANIAN FUTURE GAS STRATEGY - DISCUSSION PAPER

Dear Mr Voss

Gas Energy Australia (GEA) welcomes the opportunity to respond to the Tasmanian Future Gas Strategy - Discussion Paper.

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), Compressed Natural Gas (CNG) and Hydrogen (H₂). The industry comprises major companies and small to medium businesses in the gaseous fuels supply chain; refiners, fuel marketers, equipment manufacturers, gas transporters, consultants and other providers of services to the industry.

GEA members and associates support the Tasmanian Government's key priorities outlined in the Discussion Paper of maintaining jobs, encouraging growth and investment, and protecting the interests of Tasmanian consumers while ensuring energy remains affordable and reliable. We are committed to working with the Tasmanian Government through the Gas Strategy consultation process to develop a low to zero emission pathway for Tasmania, including through greater use of clean energy sources.

GEA considers there to be three areas where the Tasmanian Government can support the decarbonisation transition of the gas sector.

- Recognition of the value of gas fuels and the benefits they deliver in terms of maintaining affordability, reliability and energy security as well as reducing emissions.
- Adoption of a technology neutral approach that recognises there are multiple pathways to decarbonising the economy (eg, not just electrification) and the gas industry (eg, not just hydrogen).
- Government funding to support decarbonisation being made available to all decarbonisation pathways.

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GEA's responses to the selected consultation questions are detailed below.

Drivers influencing our gas industry

1. What factors do you think the need to be considered in developing a strategy for the future of gas in Tasmania?

In developing a strategy for the future of gas in Tasmania, GEA urges the Tasmanian Government to consider energy affordability, safety, security and reliability for all users into the future as well as greenhouse gas (GHG) emissions reductions. In addition, the Tasmanian Gas Strategy needs to take into account the pathway the gas industry is currently on to decarbonise, which includes the greater use of renewable and net zero emission gases.

The utilisation of bottled gas fuels infrastructure can contribute to the above outcomes in the short term through fuel switching for power generation (from diesel to gas fuels) and transport applications. In the medium-term, blending with renewable gas fuels and in the long-term use of fully decarbonised, including renewable gas fuels.

Other benefits to retaining the use of gas and gas infrastructure include maintaining energy security and affordability for remote and regional areas, not having to massively expand the electricity network and decarbonisation of hard to decarbonise applications such as heavy transport.

GEA is currently developing a vision for the downstream sector to demonstrate the viability of industry out to 2050 and beyond (in a net zero economy). The vision will reflect the ambitions of Australia's downstream gas fuels industry to make a positive contribution to Australia's low carbon future out to 2050 and beyond.

2. What changes are you, or members of your industry, observing related to global and domestic market settings for fossil fuels that could potentially impact on the outlook for gas in Tasmania?

Push towards net zero emissions

In recent years, every Australian State and Territory has committed to a net zero emission target by mid century or earlier along with the majority of states and territories also setting interim emissions targets. The Federal Government has also recently released Australia's Long Term Emissions Reduction Plan, to deliver net zero emissions by 2050.

Internationally, a number of downstream gas industry associations have released detailed plans for their industry to reach net zero emissions by 2050 or earlier, including, the LPG Association of New Zealand, Liquid Gas UK and Liquid Gas Europe.

Increase in distributed energy resources

A key element in accelerating the energy transition is decentralisation. The increased use of various forms of distributed energy resources by households and businesses help to increase reliability and reduce emissions. In contrast to centralised electricity generating facilities such as coal and gas fired power stations, hydroelectric dams and large-scale wind farms, all of which typically require electricity to be transmitted over long distances, distributed energy is decentralised, modular and located close to the energy need it meets.

Examples of distributed energy resources include off-grid diesel and gas electricity generators and gas, both natural gas and LPG used in homes or businesses to heat water, cook or provide warmth, portable gas heaters, agricultural machinery, gas turbines, roof top solar water heaters and photo-voltaic panels.

Who uses gas and for what?

3. If you use gas in the home, what do you use it for? Are you connected to the natural gas network or do you have LPG delivered?

As noted in the Discussion Paper, 'there is comparatively high residential use of LPG in Tasmania with nine times as much LPG being consumed by households than natural gas'. Gas is used in Tasmania for a variety of residential applications. These include, space heating, water heating, cooking, as a fuel for barbecues and vehicles. With its availability and diverse applications, in the transport and stationary energy sectors, the industry is equipped to contribute to a safe and sustainable energy solution, wherever the need arises. Contributing \$3.5 billion to the national economy, Australian LPG, LNG and CNG support over 3000 direct jobs. The bottled gas industry has also invested more than \$4.3 billion in facilities, trucks and cylinders.

4. If you are a business that uses gas, what industry are you in? What do you use gas for?

GEA is an industry association, but its members supply gas fuels for a variety of commercial applications including, commercial cooking, forklifts, space and industrial heating,

agriculture, horticulture and manufacturing processes. Gas fuels are also being used as back-up fuel for electricity generators, including hybrid renewable energy systems in remote locations. As the supply of renewable energy (wind and solar) is inherently intermittent ie the sun does not always shine and the wind does not always blow, it is critical that these systems are backed up with reliable energy sources.

In addition to bottled gases, commercial customers who consume large quantities of LPG use bulk storage tanks which come in various sizes for different applications, ranging from 0.5 tonnes all the way up to 50 tonnes used for a range of power generation, autogas retailing, commercial, industrial and agricultural applications.

5. Are your gas appliances coming up for replacement? Are you considering switching to electricity or another alternative?

GEA is an industry association and has no comment.

Outlook for gas

6. What do you see as the key opportunities and concerns as a gas user in Tasmania?

GEA is an industry association and has no comment.

7. What is your view on the outlook for the pricing of gas in Tasmania?

GEA does not forecast gas prices and does not have a view on the outlook for gas prices.

8. Given the forecast supply shortfalls and reliance on importing gas, do you think there is any risk of supply of gas from mainland Australia?

GEA considers that the portability and flexibility of LPG and LNG reduces the risk of supply shortfalls for Tasmania. LPG and LNG can be supplied from mainland Australia or overseas and can be easily stored and transported in purpose-built pressurised containers. Natural gas can be backed up by LNG via import terminals which could supply gas to the Tasmanian market, minimising supply risks for Tasmania.

9. If natural gas was unavailable in Tasmania, what would you do? Would you be considering moving to LPG, or to another alternative?

GEA is an industry association and considers that if natural gas was unavailable in Tasmania, LPG could readily and easily be substituted for a variety of applications. As LPG is widely used in Tasmania, even more so than natural gas (around 9 times as much LPG is used as natural gas), there is a readily available network of suppliers and infrastructure to support homes and businesses transition to LPG.

Decarbonisation pathway

10. Should Tasmania be transitioning to a decarbonised gas network?

The Australian gas industry is already on a pathway towards net zero emissions by 2050. This is demonstrated in the Gas Vision 2050 Delivering a Clean Energy Future report. During 2020, Australian gas associations, GEA, the Australian Pipelines and Gas Association, the Australian Petroleum Production and Exploration Association, Energy Networks Australia, the Gas Appliance Manufacturers of Australia and the Australian Gas Industry Trust, developed the Gas Vision 2050: Delivering a Clean Energy Future Report (Gas Vision 2050). Gas Vision 2050 outlines 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 report outlines a roadmap to decarbonising the gas sector to help meet Australia's GHG emissions reduction commitments over the coming decades and documents innovative research and strong progress being made in advancing transformational technologies. The major conclusion of the report is that net zero emissions can be reached through the use of renewable and synthetic gases and retaining gas infrastructure, at half the cost of electrification. The report also details the transformational technologies and projects that will decarbonise the gas sector and help Australia meet its GHG emissions reduction commitments.

Gas Vision 2050 can be accessed at <http://www.cleanercheaperfuels.com/>

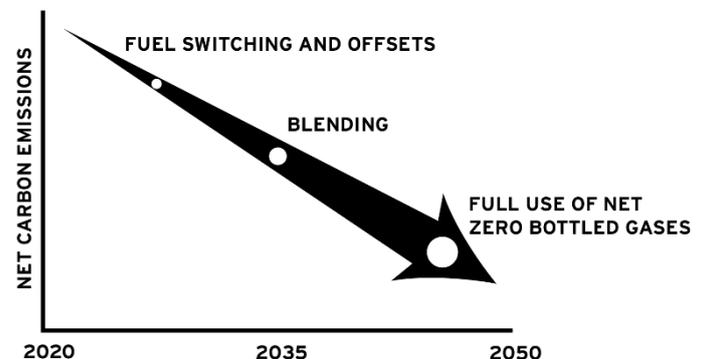
11. If Tasmania is to transition to a decarbonised gas network what should the transition pathway look like?

Natural gas is undergoing its own decarbonisation journey. New fuels such as hydrogen and biomethane have the potential to be supplied through existing natural gas pipelines. However, due to the topography of Tasmania, the natural gas network is not very well developed which means a greater reliance on portable gas fuels such as LPG, LNG and CNG.

The portable gas industry is currently developing a Vision for the industry to decarbonise and make a positive contribution to Australia's low carbon future out to 2050 and beyond.

Bottled and tank gas’s decarbonisation pathway

As gas undergoes its own decarbonisation journey, low emission fuels such as LPG and natural gas have the ability to maintain reliability of supply and reduce emissions cost effectively while renewable gases such as biogas, rDME, renewable hydrogen and renewable ammonia become more readily available in the future.



In the medium-term, gas providers will begin offering renewable blended gas products. Gas blending helps to reduce the emissions associated with gas use by blending biomethane, renewable DME and hydrogen into gas tanks and pipeline systems as part of a long-term effort to reduce the GHG emission intensity of producing and consuming gas.

There are a number of projects that are or have the potential to provide blended gas products.

- The Hyp SA project, run by Australian Gas Infrastructure Group, is blending about 5% green hydrogen into its gas distribution network going to more than 700 homes in a suburb of Adelaide in South Australia, the state using the highest proportion of renewable energy for power.
- Also, Jemena is currently working to develop Australia’s first biomethane-to-gas project which will see thousands of Sydney homes and businesses using renewable green gas for cooking, heating and hot water. Jemena in conjunction with Sydney Water will generate biomethane at the Malabar Wastewater Treatment Plant, in South Sydney. This gas will be injected into Jemena’s New South Wales gas distribution network and represents a significant opportunity for industry development in Australia, particularly in regional areas where agricultural feedstocks are plentiful.
- ATCO has entered into an agreement with the Great Southern Development Commission to undertake a feasibility study into opportunities for renewable natural gas (RNG) in Albany. This 100% Renewable Gas Project will assess the viability of injecting RNG into the Albany LPG network, providing a low emission energy source for the people of Albany. The RNG will then be transported by road to

Albany and injected into ATCO's Albany reticulated LPG network.

- BOC has signed a memorandum of understanding agreement with Optimal Group to explore the development of Australia's first bioLNG facility in Westbury Tasmania. The \$55 million, 2.4TJ/day waste to biogas plant would provide biomethane to BOC's micro-LNG plant, which would then be processed into bioLNG and distributed to BOC and Elgas customers in agriculture, food processing and other industries.
- In Tasmania, ABEL Energy is developing the Bell Bay Powerfuels Project to produce green hydrogen and methanol, with support from the Tasmanian Government. Some of the 70,000 tonnes/yr of renewable methanol output will be converted to DME gas for blending into LPG cylinders, with the ultimate aim of supplying 100% renewable LPG bottles to homes and industry. ABEL Energy is proposing to build similar projects around Australia, all based on local inputs of water for hydrogen, air for CO₂, and renewable electricity for energy.
- Western Water has built an organic food waste facility at Melton Recycled Water Plant to generate biogas for renewable energy use on site. LPG is used as a backup fuel at the site to increase the energy content of the biogas so it can be used to generate renewable energy without the need to flare. When the volume of biogas produced is low, the facility can also use the back-up LPG to generate the full capacity of the turbines to participate in the wholesale market when there is a good pricing signal.

Delivering a net zero emissions future

The bottled and tank gas future

In the long-term, renewable gases such as biogas, renewable DME and hydrogen will become more readily available. With the same chemical composition as fossil based portable gases, net zero and renewable gases such as biomethane or biopropane are able to utilise Australia's vast network of portable gas infrastructure. The continuing use of this infrastructure can contribute to reduced costs for consumers when transitioning to renewable and net zero gases enable the continuing use of existing gas infrastructure and worker training, safety standards etc.

- Biomethane

The production of biomethane, which is the same as natural gas, is a well-established process using currently available commercial technologies. The increased use of net zero emission gas fuels such as biogas and hydrogen would ensure that major infrastructure investments such as Tasmania's network of actual pipelines and virtual pipelines can keep supplying energy to households and businesses.

Biomethane can also be compressed and liquified to produce bioCNG and bioLNG which have the same chemical properties as conventional CNG and LNG. Applications which utilise CNG and LNG can also seek to transition to the use of biologically sourced gas and significantly reduce their emissions.

- BioLPG

Fossil fuel LPG is an extremely versatile fuel which has a variety of applications in the heating, transport and industrial sectors. LPG consists of mostly propane and/or butane, which are typically produced as a by-product of crude oil refining or natural gas processing. Because biopropane (or bioLPG) is chemically identical to fossil propane, it can be used as a drop-in fuel in the same applications. The use of bioLPG is steadily growing internationally. Companies such as SHV Energy, based in the Netherlands offer customers the ability to switch from traditional energy sources to LPG, LNG or bioLPG. As the supply of bioLPG increases to meet demand and move towards renewable energy, bioLPG users are able to reduce their carbon footprint while continuing to utilise current gas infrastructure.

- Renewable hydrogen

Like natural gas, hydrogen is a gas that burns in air to provide heat. This heat can be used in many applications like gas such as space heating. Hydrogen can also be reacted in a fuel-cell to produce both low-grade heat and electricity where the electricity can be used to power the grid or in vehicles. Hydrogen is also a feedstock that can be used by industry. The combustion of hydrogen produces no greenhouse gas emissions. Hydrogen will be one of a number of essential gas energy sources for a net zero future and as such, it is important that the Tasmanian Gas Strategy considers all pathways to a lower carbon emissions economy.

- Renewable DME

Renewable DME (rDME) is DME gas made either from renewable liquid methanol, or directly from green hydrogen and biogenic CO₂. Traditionally used as a safe and benign propellant for cosmetics and pharmaceuticals, DME can also easily be made renewably, and unlike hydrogen or methane, is an energy-dense liquid at low pressure like conventional LPG. For these reasons, LPG companies around the world are turning to DME as a flammable

cylinder gas which can initially be blended with propane, but ultimately also sold as a 100% renewable propane alternative for customers wanting green bottled gas.

- Renewable Ammonia

Ammonia is a versatile and easily transportable fuel which can be created to be 100 per cent carbon free and renewable. There are several projects under development around Australia looking into these processes. Renewable ammonia is also able to be utilised in the existing LPG infrastructure including bottles and the distribution network. Ammonia powered engines and fuel cells are being commercialised now. Ammonia could also be used to power vehicles, while utilising the existing Autogas network which would minimise infrastructure costs significantly.

12. Would a switch to a renewable fuel need to be cost-equivalent or would you be willing to pay more for a carbon free fuel?

GEA is an industry association and has no comment.

13. What risks do you see with decarbonising the Tasmanian gas network (technical, economic, social)?

GEA considers that there is more risk associated with not decarbonising the gas network. This includes the higher costs of electrification vs gas decarbonisation which will reduce jobs and economic growth. As part of the Gas Vision 2050: Delivering a Clean Energy Future report noted above, Frontier economics was commissioned to investigate and evaluate options of the roles of gas and gas infrastructure to achieve a net-zero economy by 2050. The annual costs of different decarbonisation scenarios were modelled. These scenarios were compared to a base case where the electricity sector reached net zero emissions in 2050. The major conclusion from this scenario analysis was that net-zero emissions can be reached with by decarbonising gas at half the cost of electrification¹.

14. If you are a commercial gas user in Tasmania that would not be able to switch to renewable alternatives, what are the key barriers?

Gas is generally used as an industrial feedstock to generate heat. These industrial uses of gas can be significantly harder to decarbonise due to the high heating requirements which are unable to be met by electrifying these applications. For example, particular industrial

¹ Gas Vision 2050: Delivering a Clean Energy Future, page 9, <http://www.cleanercheaperfuels.com/>

processes requiring a heavy thermal heating load greater than 1,300°C including processing chemical feedstock.

In addition, when different sectors' total energy consumption of gas and electricity is compared, it shows that some sectors are heavily weighted towards gas use rather than power (that is, they use more heat than power). The above factors make it difficult for these sectors to simply "fuel switch" to decarbonise. It's critical that the Tasmanian Gas Strategy takes into account the different energy needs of sectors and facilitates a just transition through incentives to utilise renewable and net zero gas fuels.

15. What is the role for the Tasmanian Government in a decarbonisation transition for the gas sector? What should the Government's priority measures be?

- Recognition of the value of gas fuels and the benefits they deliver in terms of maintaining affordability, reliability and energy security as well as reducing emissions.
- Adoption of a technology neutral approach that recognises there are multiple pathways to decarbonising the economy (eg, not just electrification) and the gas industry (eg, not just hydrogen).
- Government funding to support decarbonisation should be available for all decarbonisation pathways.

GEA welcomes the opportunity to discuss these issues in greater detail. If you have any questions regarding this submission, please do not hesitate to contact GEA's Policy Adviser Melissa Dimovski at mdimovski@gasenergyaustralia.asn.au.

For your consideration.

Yours sincerely

A handwritten signature in black ink, appearing to read "Brett Heffernan".

Brett Heffernan
Chief Executive Officer
Gas Energy Australia