19 June 2020

Mr Sean Sullivan
Deputy Secretary - Energy and Resources
Department of Industry, Science, Energy and Resources

Via consultation hub: https://consult.industry.gov.au/

GEA RESPONSE TO THE TECHNOLOGY INVESTMENT ROADMAP DISCUSSION PAPER

Dear Mr Sullivan

Gas Energy Australia (GEA) welcomes the release of the *Technology Investment Roadmap Discussion Paper* and the opportunity to respond to it.

By way of background, GEA is the national peak body which represents the bulk of the downstream alternative gaseous 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 including producers, refiners, distributors, transporters, retailers, vehicle manufacturers, equipment manufacturers and suppliers, installers, educators and consultants.

GEA members and associates are committed to working with all Australian Governments through the Roadmap consultation process to develop a low emission pathway for Australia, including through greater use of clean energy sources.

GEA supports the goals outlined in the Roadmap, for Australia to have reliable, secure and affordable energy to power the domestic economy, with technologies deployed to maximise employment and growth. GEA considers a significant contribution to achieving these goals could be made by including gas powered transport and off-grid power generation, and recognising the full scope of the decarbonisation of gas. GEA welcomes the Government's endorsement within the Roadmap of the significant role gas will play in Australia's transition to a lower carbon economy and supports the Government's efforts to reduce domestic natural gas prices which have been successful.

The challenges, global trends and competitive advantages that should be considered in setting Australia's technology priorities.

As a net exporter of energy and the world's largest exporter of LNG, Australia is well placed to enjoy the benefits from increased use of gas fuels domestically. These include improved reliability, affordability, greater self-reliance and reduced emissions. Australian gas fuels which utilise existing technology and abundant natural supplies are often overlooked in our decarbonisation policies despite being the only feasible alternative to largely imported diesel as a reliable and cost effective source of energy for heavy transport and off-grid power generation.

The emergence of new clean fuels and technologies such as renewable gas and innovative applications of existing gas fuels, including combining them with renewables and fuel cells, demonstrate the importance of maintaining a technology neutral approach when developing long term strategies to reduce emission to maintain consumer choice and encourage the development of cost-effective low emissions alternatives.

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GEA considers there are three main areas where the Government can manage the transition to low emissions which minimise the costs to the Australian economy through the increased use of gas fuels. These areas are transport, off-grid power generation and the decarbonisation of gas.

Transport

With transport accounting for around 17 percent of total emissions in Australia, there is significant scope for this sector to contribute more to the Government's objectives to reduce emissions and improve affordability. Gas powered transport solutions utilise proven low emission technologies currently available and offer a number of advantages for operators. These environmental and cost savings can be realised now and well into the medium term through the increased use of fossil based gas fuels such as LNG, LPG and CNG. In the longer term, as gas undergoes its own decarbonisation journey, renewable gases such as biogas and hydrogen, that utilise existing transport infrastructure, offer the prospect of affordable, reliable net zero emissions energy for vehicles.

- ***Heavy Vehicles***

Substituting gas for diesel would enable heavy vehicles, especially those covering long distances, to decarbonise and reduce harmful emissions, providing significant environmental and health benefits which could be realised today.

Low emission fuels such as LPG and natural gas have the ability to reduce emission cost effectively through the use of innovative technologies for heavy vehicles. One example is the heavy-duty dual fuel (HDDF) system which substitutes LPG for diesel. 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 23%. 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% in fuel costs and reduces emissions by almost 8,000 kilograms, which is equivalent to taking four cars off the road.

GEA considers that improved policy settings would drive increased uptake of alternative transport solutions for heavy vehicles which would contribute to reduced emissions from the transport sector. A significant barrier to the uptake of gas-powered transport is the growing tax burden on LPG, LNG and CNG used in heavy vehicle transport on an energy equivalent basis. Since 2011, the introduction and increases to fuel excise rates on gas fuels has eroded the price advantage of gas compared to diesel. This growing tax burden contradicts the bipartisan Federal Government commitment to apply energy content-based fuel excise to all transport fuels, with a 50 per cent discount for gas fuels in recognition of the broader benefits of Australian gas as a fuel source. These include environmental - lower carbon monoxide, carbon dioxide, particulate matter and NOx emissions - as well as economic and energy security that flow from it being locally produced rather than imported like most oil-based fuels.

- ***Marine***

New sulphur reduction regulations, which are being mandated around the world by the International Maritime Organization, are encouraging the use of LNG as an alternate marine fuel. Compared to diesel, LNG can achieve 100% SOx emissions reductions, 85% NOx emissions reductions for low pressure engines, 40% NOx emissions reductions for high pressure engines (diesel cycle), 95 to100% particulate reductions and around 25% CO2 reductions, while also being a commercially viable option.

The Woodside supply vessel Siem Thiima and the SeaRoad vessel Mersey II are already using LNG in Australia, while TT Line has two LNG-fuelled newbuild ferries on order. Given Australia's vast natural gas resources and numerous domestic production facilities, greater utilisation of LNG as a marine fuel would also

provide Australia with increased liquid fuel security, by decreasing our reliance on oil imports. Increased use of LNG would also create new investment and employment opportunities for Australia's LNG resources as a clean fuel for international shipping. As the number of LNG-fuelled ships in operation around the world increases, as more people demand cleaner fuel sources, the right policy settings and incentives would encourage increased uptake and investment in lower emission fuels for marine vessels in Australia and encourage shipowners to look to low emission fuels as a means to reduce emissions.

GEA considers incentives to reduce emissions such as those provided by the Emissions Reduction Fund and its successor the Climate Solutions Fund, to be vital if Australia's industrial and transport sectors are to play a greater role in helping to meet our international commitments to reduce greenhouse gas emissions. GEA sees scope to drive the take up of low emission fuels for transport in Australia by improving the current methodologies to better credit emission reductions from fuel switching and drive investment in low emission technologies. GEA is encouraged by the recent Federal Government response to the expert panel report examining additional sources of low-cost abatement, which recommended giving industry greater opportunity to support the development of new methods which would encourage innovation and new method development. GEA calls on the Federal Government to ensure that these recommendations are implemented in a timely manner.

Off-grid power generation

GEA considers that there are strong economic, fuel security, environmental and health benefits to be gained from removing barriers to the use of gas fuels as an alternative fuel to diesel for off-grid power generation. As mentioned in the Roadmap, combining gas generation with renewables allows for affordable, low emissions generation which will continue to be an important source of technology-driven emissions reduction. This is not limited to large scale power generation and there are significant benefits through the increased use of gas fuels for off-grid power generation and microgrids.

Currently there are around 400,000 Australian homes and businesses reliant on electricity from off-grid generators. Much of the electricity for these entities comes from generators running on imported diesel as a back-up to intermittent renewable sources. Off-grid generators and industrial users can all use LPG and natural gas fuels with current technology, and they are able to provide reliable power generation which backs up that provided by renewable energy sources. Case studies show that gas and solar hybrid generators for off-grid generation, provide a lower emitting and more cost-effective solution than more common solar diesel hybrids.

For example, Wesfarmers Evol LNG supplies LNG to power the Carosue Dam, Daisy Milano, Dalgaranga, Darlot, Deflector and Mt Marion mines in Western Australia, which employ hundreds of workers. Each year, this reduces their combined diesel fuel consumption by 55 million litres, saving a total of $7.6 million on their fuel costs and reducing CO2 emissions by 27,000 tonnes.

Decarbonisation of gas

When developing Australia's long-term emissions reduction strategy, it is important to consider the role of zero emission renewable gases such as biogas (biomethane and biopropane) and hydrogen. The results of a number of studies demonstrate that the electrification of energy supply, which would require massive investment in new electricity infrastructure, is a much more expensive option than decarbonising gas supply and maintaining existing gas infrastructure.

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The production of biomethane, which is the same as natural gas, is a well-established process using currently available commercial technologies. Production of biopropane, which is the same as propane in LPG, is becoming established internationally. Biogas can be injected and stored in the distribution or transmission networks, or within cylinders, and used as a transportable gaseous fuel in areas where the gas network does not extend, effectively providing renewable energy on demand. Biomethane converted to CNG or LNG or biopropane can also be used as transport fuel.

GEA has continued to advocate for the recognition of the role that biogas can play in Australia's long-term decarbonisation strategy. Along with 22 industry bodies and companies, GEA recently supported a joint letter calling for the development of an Australian biomethane market. GEA also recently submitted a response to the development of the Australian Renewable Energy Agency's Bioenergy Roadmap which highlighted how biogas can make a strong contribution to improving Australia's liquid fuel security, reduce emissions and promote regional economic development.

Internationally there have been examples of bioLPG being used by residential and commercial consumers substituting LPG while continuing to utilise existing infrastructure. This is particularly vital for the roughly 400,000 homes and businesses mentioned above which rely on distributed power generation and are increasingly difficult to decarbonise. Encouraging Australian expertise and the development of gas fuels technology also creates and protects Australian based manufacturing jobs and helps keep these niche skills in Australia.

GEA is encouraged by the increased focus on renewable gases such as hydrogen in Australia but considers there to be further abatement opportunities for sectors which are more difficult to decarbonise through the increased use of biogas. Gas Vision 2050, which was released in 2017, reflects the ambitions of key organisations which represent the gas industry and shows biogas based gas fuels will play a pivotal role in Australia's low carbon future out to 2050.

Conclusion

GEA considers a significant contribution to achieving the Roadmap's goals could be made now by including technologies such as gas-powered transport and off-grid power generation. In the longer term, the full scope of the decarbonisation of gas could be recognised by including the use of renewable gases such as biogas in these and other current uses of LPG, LNG and CNG.

For your consideration

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