



Cleaner, Cheaper Australian Fuels

2018-19 PRE-BUDGET
SUBMISSION





ABOUT GAS ENERGY AUSTRALIA

Gas Energy Australia (GEA) is the national peak body which represents the bulk of the downstream 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 gaseous fuels supply chain; refiners, fuel marketers, equipment manufacturers, LPG vehicle converters, consultants and other providers of services to the industry.

To find out more, please visit
www.cleanercheaperfuels.com.au.

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Consistent with its 2020 Vision for cleaner, cheaper Australian fuels and contributing to the national obligation to cost effectively reduce emissions and improve air quality as well as support energy security, Gas Energy Australia (GEA) is calling on the Federal Government to adopt the following priorities as part of its 2018-19 Budget.

1. Enhance the operation of the National Energy Guarantee (NEG) by incorporating distributed energy resources, including gaseous fuels by:

- *establishing a pilot program in conjunction with the gaseous fuels industry, to convert off grid or fringe communities to reliable, cleaner fuels, including gas and gas hybrids;*
- *committing to reforming the current regulatory barriers that exist to the uptake of distributed energy resources;*
- *ensuring that distributed energy resources providers – including GEA – are directly involved with the future development of the NEG framework; and*
- *delivering an effective consumer education program about the range of lower emitting fuel energy sources available that can help mitigate against supply disruptions, increase energy security and provide lower business and consumer energy costs.*

2. Improve environmental outcomes cost effectively with gaseous fuels by:

- *adopting a truly technology neutral approach to 'green schemes' and innovation initiatives;*
- *calling on State and Territory Governments to ensure their procurement rules and policies include low emission options, including gaseous fuels for their own fleets and public transport options;*
- *maintaining a technology neutral approach to reducing vehicle emissions;*
- *including off-road vehicles that are used in mining, agriculture and construction into emission control regulations;*
- *introducing mandatory emission standards for light and heavy vehicles;*
- *adopting the AAA's proposal for a real-world emissions testing program to better inform consumers;*
- *facilitating recognition and approval of new technologies to meet more ambitious environmental and health targets;*
- *ensuring that all innovation related policies and programs extend funding beyond the information and high technology sectors to support real world gaseous fuels innovation that has practical benefits; and*
- *support a rate of hydrofluorocarbon phase-down that is faster than currently proposed, plus the phase down of refrigerants imported in pre-charged equipment.*

3. Maintain and develop national gaseous fuels transport infrastructure by:

- *honouring its commitment that the tax on gaseous fuels should not be more than 50 per cent of the rate of diesel/petrol on an energy equivalent basis.*

4. Increase freight transport productivity by:

- *including GEA in a review of regulations and requirements for national transport planning initiatives;*
- *integrating dangerous goods transport into a national freight and logistics strategy that incorporates the necessary mechanism to protect designated dangerous goods transport corridors from the impact of urban intensification; and*
- *aligning and removing duplication of freight transport regulation across Australia.*

BACKGROUND

Gaseous fuels like LPG, CNG and LNG are Australia's natural advantage. With significant existing and flexible distribution networks through virtual pipelines that can be very responsive to changing demand without expensive additional pipelines, gaseous fuels and have an important role to play in:

- **providing improved energy security for Australians;**
- **reducing energy costs for business, community and residential sectors;**
- **improving environmental outcomes by reducing emissions; and**
- **supporting both direct and indirect jobs in the industry and manufacturing jobs more broadly.**

In particular, gaseous fuels are:

- *making a significant contribution to increasing our energy security and offering particular opportunities for consumers especially in remote, fringe distribution areas and regional communities;*
- *providing cleaner air and improved health outcomes compared to diesel fuels;*
- *delivering reliable power and goods to regional/remote areas;*
- *providing a flexible and rapid-response energy source for communities affected by natural disasters;*
- *reducing carbon emissions by up to 25 per cent;*
- *sustaining a range of current manufacturing and technology industries, including some innovative Australian businesses working at the cutting edge of cleaner fuels;*
- *delivering better economic and environmental outcomes across Australia;*
- *improving the economic and environmental sustainability of Australia's public transport fleet - including trains, buses, ferries and taxis - by reducing running costs, cutting emissions and slashing harmful particulate pollution to almost zero; and*
- *leveraging examples of maritime fuel and bunkering applications taking place in other Australian states and overseas is the most likely short-term opportunity.*



Gaseous fuels can also be used for a range of domestic, commercial, industrial and transport applications including:

- *lower emitting fuel for off-grid power generation;*
- *being used alone where renewables are not optimal or in hybrid technology along with renewables to ensure cleaner, continuous power;*
- *domestic space heating and water heating, including solar gas hybrids which are among the lowest emitting and most cost-effective source of domestic hot water;*
- *lower emitting and less polluting transport fuels as an alternative to increasingly imported, higher emitting and higher polluting oil based fuels; and*



- *being the only viable and lower polluting alternative for heavy transport applications such as large long haul trucks, freight trains and ships, which are increasingly dependent on imported diesel and dirty bunker oil from some of the most dangerous places on earth. Indeed, there is no renewable energy likely to be suitable for these heavy transport tasks for the foreseeable future.*

**IT'S NOT ABOUT GAS OR RENEWABLES
– ITS ABOUT THE BEST LOW EMITTING
FUEL FOR PURPOSE**

GEA's 2018-19 Pre-Budget Submission isn't about choosing between gas or renewables, it is about making sure that the right energy source and right technology can work together to provide, secure, affordable and low emission energy to all Australians. One of the measures for example would support either standalone off-grid gas fuelled power generation or gas-renewable hybrids instead of higher polluting diesel fuel.

**SUPPORTING AUSTRALIAN FUEL AND AUSTRALIAN
NICHE MANUFACTURING INNOVATION**

The gaseous fuels industry is constantly innovating to deliver cleaner and cheaper products to their customers. For example, an LPG dual fuel heavy truck trial is currently being run by Unigas, Prins Autogassystemen and CMV Truck & Bus. As part of the trial, CMV Truck & Bus installed the Prins Diesel Blend 2.1 technology in two Rivet Energy trucks – a Kenworth T403 powered/Cummins ISX15 500Hp engine and Volvo/FH540Hp D13C Volvo engine. These trials have shown consistent results of 18 to 20 per cent energy equivalent savings, a 60 per cent reduction in particulate matter and 2 per cent CO2 reduction.

Another example is the Queensland company Intelligas which recently developed technology to retrofit a range of mine vehicles including trucks, dozers and shovels with a 'plug in plug out' tank and High Density Compressed Natural Gas (HDCNG) fuel system. Fitting these vehicles with a HDCNG engine not only dramatically reduces carbon emissions, but it also improves the life of the engine and reduces engine noise pollution. Australian innovation using Australian low emitting fuels for Australia's mining industry.

The Autogas industry continues to innovate and evolve having recently opened the LPG Autogas Centre of Excellence in Melbourne. This Centre provides fleet operators with an environmental and economical option. The Centre of Excellence has recently been commissioned to provide 100 LPG hybrid taxis for 13CABS.

EVOL LNG successfully conducted the first commercial LNG marine bunkering operation in Australia with the truck-to-ship refueling of a new Woodside offshore platform supply vessel in January 2017 in Western Australia.



MORE ENERGY SECURITY AND BETTER HEALTH OUTCOMES

There are also strong economic, environmental and health benefits to be gained from removing barriers to the use of Australia's cleaner, cheaper and healthier gas supplies as an alternative fuel and energy source to higher emitting, higher polluting and imported alternatives such as diesel. The World Health Organisation has recently concluded that diesel particulates are cancer causing and that there is no safe level of airborne particulates - which are estimated to be causing up to 3,000 deaths a year in Australia.

In conjunction with other lower emitting sources, gaseous fuels can provide a more independent and cleaner future for Australia and provide more than just energy security, but support local jobs and a cleaner environment.

READ MORE ABOUT OUR 10-POINT ACTION PLAN

While this submission concentrates on four key measures, a consolidated 10-Point Action Plan has been included to provide further context, along with our attached vision documents (A 2030 Vision for Natural Gas Fuels – CNG and LNG and Vision for Stationary Energy Liquefied Petroleum Gas (LPG)).

Our vision documents advocate removing barriers for the greater use of cleaner, cheaper Australian fuels to ensure Australia takes more control over its cleaner energy and economic future.

To find out more, please visit www.cleanercheaperfuels.com.au.





1. ENHANCE THE OPERATION OF THE NATIONAL ENERGY GUARANTEE (NEG) BY INCORPORATING DISTRIBUTED ENERGY RESOURCES, INCLUDING GASEOUS FUELS

Strengthen Australia's energy security with gas sourced distributed energy

The recent blackouts in South Australia, the Tasmanian energy security crisis and the closing down of the Hazelwood coal-fired power station are recent examples of the need for greater energy security across Australia. Gaseous fuels can strengthen Australia's energy security by providing more low-emission power and more distributed energy, including through renewable energy hybrid options.

No other fuel source in Australia offers both existing and emerging technology in conjunction with sufficient abundance of resource to significantly displace higher emitting transport and stationary energy fuels.

Of course, a country as large and regionalised as Australia, has a heavy reliance on off-grid generators, that service some 400,000 Australians, businesses and industry. However, much of the electricity for these entities comes from generators running on imported dirty diesel and increasingly from often subsidised unreliable renewable sources.

It is essential that we shift our offshore islands/resorts and other off-grid communities away from dirty diesel generation to cleaner gas generation and renewable hybrids.

To this end, it is encouraging to see that the new Queensland State Government has made a firm commitment to convert some of Queensland's offshore islands – particularly those in the Great Barrier Reef - to cleaner fuels by developing business cases for solar, wind and gas generation on the Great Barrier Reef. This plan will cut emissions, but will only provide secure power if gas is part of the mix - as the power for these islands and remote communities is currently reliant on higher emitting and polluting diesel generators. Few people realise that gaseous fuels are Great Barrier Reef friendly as they evaporate

off water if they spill rather than sediment and slicking like oil based fuels.

This initiative provides a fantastic opportunity for the Federal Government to work with a willing gaseous fuels industry – along with state and territory governments - to deliver an innovative national pilot program to provide energy security for off-grid, remote or small communities.

Although the Queensland Government commitment is currently limited to offshore islands near the Great Barrier Reef, other potential locations that the Federal Government could include in a national pilot program would be off-grid, remote or small communities at the fringe of unreliable networks in South Australia or Tasmania.





As gaseous fuels are currently transported by tanker to essentially create 'virtual pipelines' of energy without the capital expense of fixed energy infrastructure, this pilot program would be supported by the hundreds of thousands of kilometres of existing 'virtual pipelines' currently providing LPG, CNG and LNG to communities and industries all around Australia. These 'virtual pipelines' move readily with demand and already create thousands of Australian jobs.

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

Gaseous fuels can also provide a flexible and rapid-response energy source for communities affected by natural disasters, which are an all too familiar events here in Australia.

One such gaseous fuel that currently has the price advantage, availability, portability and proven environmental benefits is LPG.

Not only are there LPG suppliers in some of Australia's rural and regional communities, but LPG is often the best choice for powering and supporting many of those same communities. LPG is cleaner, affordable, is easily transportable with 'virtual pipelines' and is available anytime, anyplace and anywhere. That makes it an ideal fuel option for rural and regional homes, businesses and communities.

LPG's person-to-person distribution system has created a rich distribution network of local and national distributors across Australia. This includes those significant areas beyond the reach of existing reticulated natural gas networks.



No other commercial fuel has flexibility for transportation, and the capability for being one of the lowest infrastructure cost options for energy, compared to electricity and natural gas.

This flexible distribution network provides security of supply across regional Australia at competitive prices. Because LPG can be transported by virtual pipelines, Australians living in rural and regional communities don't have to wait for expensive permanent pipelines to be funded and built.

Given the recent network disruptions by weather, the concern about over-reliance on renewables and the cost of expensive interconnectors – estimated at up to \$3.5 billion for additional interconnectors to South Australia and Tasmania alone – there is a strong economic and energy security case to explore the value and risk mitigation of greater use of distributed energy options including LPG.



GEA applauds the Federal Government’s changes to the regulatory framework governing the stationary energy market, in particular the National Electricity Rules (NERs) governing the National Electricity Market (NEM) to reduce incentives to over-invest in infrastructure.

While these regulatory changes have increased opportunities for non-network providers and distributed energy, the rules and regulations remain very complicated and represent a barrier for potential new suppliers.

As the NEG is developed, GEA has concerns that the current regulatory regime represents an obstacle to third parties providing distributed energy solutions to reduce network demand, such as network customers going off-grid. Consequently, GEA would like the Government to remove impediments to our fuels being part of the energy mix offered to consumers by retailers.

To this end, GEA calls on the Federal Government to:

- ***establish a pilot program in conjunction with the gaseous fuels industry – along with State and Territory Governments - to convert off-grid or fringe communities to the use of reliable cleaner fuels including gas and gas hybrids - which will provide greater energy security for these communities and deliver considerable environmental benefits; and***
- ***commit to reforming the current regulatory barriers that exist to the uptake of distributed energy resources.***

OUTCOME:

NEW EXPENDITURE OF AROUND \$2 MILLION OVER THE NEXT FOUR YEARS



Implement an effective Consumer Education Plan as part of the NEG framework

The Federal Government's recently released National Energy Guarantee (NEG) policy responds to the energy challenges every Australian is facing – affordability, reliability and environmentally sustainable energy. It is made up of two parts that together will require energy retailers and some large users across the NEM to deliver reliable and lower emissions energy generation each year.

- *A **reliability guarantee** will be set to deliver the right level of dispatchable energy—from ready-to-use sources such as coal, gas, pumped hydro and batteries—needed in each state. It will be set by the AEMC and AEMO.*
- *An **emissions guarantee** will be set to contribute to Australia's international commitments. The level of the guarantee will be determined by the Federal Government and enforced by the AER.*

It is critically important that energy suppliers and retailers are directly involved with the future development of the framework around this policy, as it will ensure that the Government's intention of technology neutral policy will be implemented, potential regional impacts of the policy are mitigated and will facilitate greater competition in the market. However, as they will also be responding to consumer demand it is important consumers are reliably informed on the range of low emitting options, so their choices reflect a factual understanding of the options and are not driven by unreliable commentary and political activism.

To this end, GEA calls on the Federal Government to:

- ***ensure that distributed energy resources providers - including Gas Energy Australia representing gaseous fuels suppliers - are directly involved with the future development of the NEG framework; and***
- ***deliver an effective consumer education program that helps to educate the community about the range of lower emitting fuel energy sources available to them and how they can help to mitigate against supply disruptions, increase energy security and provide lower business and consumer energy costs.***

OUTCOME:

NEW EXPENDITURE OF AROUND \$4 MILLION OVER THE NEXT FOUR YEARS





PRIORITY TWO

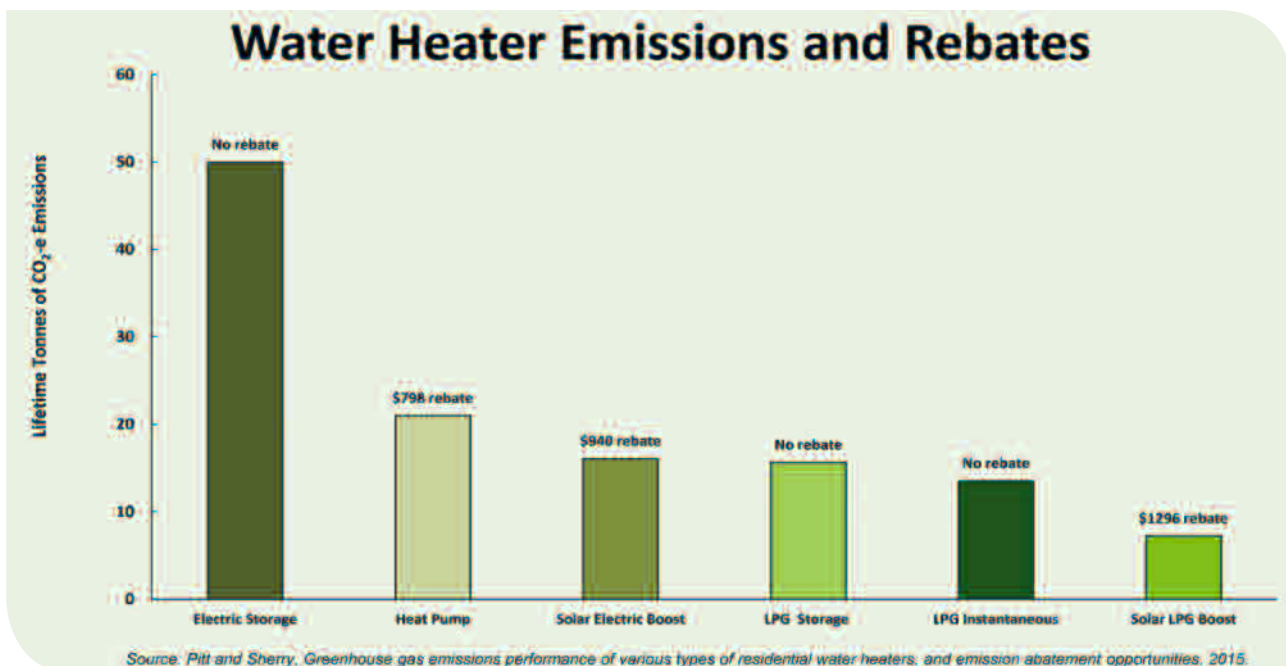
2. IMPROVE ENVIRONMENTAL OUTCOMES COST EFFECTIVELY WITH GASEOUS FUELS

Reform government policies and programs to ensure gaseous fuels have the same access to clean energy programs and innovation initiatives as other low emission energy technologies

As part of the 2018-19 Federal Budget, GEA is calling on the Federal Government to fulfil its Energy White Paper commitment to energy technology neutrality, by ensuring its policies do not favour one technology or energy source over another.

Gaseous fuels - including biogas (eg, biomethane and biopropane) - should be given the same access as renewable energy sources, given their significant environmental benefits and their ability to be easily accessed in rural, regional and remote communities.

This can be done by ensuring that gaseous fuels are not disadvantaged by schemes such as the Renewable Energy Target (RET), including the Small-scale Renewable Energy Scheme (SRES), administered by the Clean Energy Regulator and programs administered by the Australian Renewable Energy Agency (ARENA). The below chart highlights the inconsistent treatment of different types of water heaters under the SRES.



Further, gaseous fuels should also be given the same access to 'green schemes' such as the Clean Energy Finance Corporation, the Emissions Reduction Fund and the Clean Energy Innovation Fund, as renewable energy.


This would be consistent with the Minister for the Environment and Energy's recent observation that going forward we need diversity of supply.

By adopting these simple measures, it would not only lower energy costs for government, businesses and every day Australians, but would also reduce carbon emissions.

For example, when used to power household hot water systems, LPG can be much better for the environment than current solar electric hot water systems - producing almost 15 per cent or 2.5 tonnes less CO2 emissions.

But it's not just the environment that can benefit from the use of gaseous fuels – everyday Australians can also dramatically reduce their household energy costs.

CASE STUDY



LIZ HAYWARD, TAMWORTH

After much consideration, Liz replaced her old electric hot water system with an LPG hot water system, because of its efficiency and because it is a better option for the environment.

The installation of an LPG hot water system saw Liz's three-person household electricity bills reduce from an average usage of 1650kWh per quarter at a cost of \$340.00 to 660kWh at a cost of \$190.00 per quarter excluding service charges.

"I love the LPG hot water system and I would recommend it to anyone who was needing to buy a new hot water system to replace an electric one. Not just for the environment but also the amount of money you save and less electricity you use."

Another example of bias towards one energy source is that the powering of a truck powered by electricity generated from combusting biomethane would be eligible for Renewable Energy Certificates (RECs), while powering a truck directly from biomethane isn't eligible for any RECs.

There are currently no Federal Government rebates or energy concessions available for commercial or residential use of gaseous fuels.

As noted in the Independent Review into the Future Security of the NEM, 'gas generators are well-placed to complement variable renewable electricity generators' and as such, should be included in programs and policies that support carbon abatement. This includes smaller scale, distributed energy generation in remote and offshore communities where bottled and tank LPG, CNG and LNG can provide a competitive, lower emitting, lower polluting and reliable energy source either as stand-alone or as part of a hybrid with renewable intermittent alternatives.

Because budget funded 'green schemes' and initiatives generally have a capped cost associated with them, this is a budget savings measure, as gas is a cheaper form of abatement than most renewable technologies.

GEA also believes that even as governments contemplate fuel efficiency and tighter emissions standards for passenger vehicles, it makes sense that governments themselves can lead the way with their own fleets and public transport options.

CLEANER, CHEAPER ENERGY

A Productivity Commission research report - *Carbon Emission Policies in Key Economies* - found that **the cost of abatement using gas switching incentives ranged from 16 to 49 per cent of the cost of using renewable energy incentives.**

Even if the \$756 million of total grants provided by ARENA to 2022 were discounted by only 10 per cent - this would **yield a budget saving of over \$75 million.**

To this end, The Federal Government - through COAG and the COAG Energy Council - should also call on State and Territory Governments to make a strong commitment to adopt lower emitting gaseous fuel technologies for major bus, ferry and train services - by encouraging them to ensure that their procurement rules and policies include gaseous fuels.

The Federal Government needs to promote the greater use of lower polluting technologies by taking tangible actions that demonstrate their commitment to that policy objective.

For example, governments could help protect Sydney's iconic harbour not just by tightening diesel fuel standards on cruise ships, but also by adopting the much cleaner emission standards operating in Europe and North America, which are being met by ships and ferries switching to gaseous fuels.



In fact, there is a perverse risk that if Australia does not move in concert with the rest of the world on marine fuels, shipping lines can be incentivised to redeploy their older polluting vessels from elsewhere to Australia. Australia can readily provide bunkering and other portside gaseous fuels options – for example, Evol LNG supplying a Woodside supply vessel in Western Australia.

To this end, the GEA calls on the Federal Government to:

- ***adopt a truly technology neutral approach to 'green schemes' and innovation initiatives - and give gaseous fuels the same support as they currently do for other competing low emission technologies; and***
- ***call on State and Territory Governments to ensure that their procurement rules and policies include low emission options, including gaseous fuels for their own fleets and public transport options.***

OUTCOME:

BUDGET SAVINGS OF UP TO \$75 MILLION OVER THE NEXT FOUR YEARS

Vehicle Emission Standards for Cleaner Air

Gaseous fuels are a significant source of energy in Australia, providing not only energy for homes and businesses, but also as fuel to power vehicles more cost effectively and with reduced vehicle emissions.

The LPG sector alone in 2015, had domestic production totalling over 1.8 million tonnes of product. The Energy in Australia 2014 publication by the Bureau of Resources and Energy Economics (BREE), estimated that 3 per cent of energy consumption in the transport sector is autogas (LPG) and that natural gas (LNG and CNG) accounted for approximately 2 per cent of transport energy consumption.

The role of gaseous fuels in the Australian transport sector is significant with:

- *almost 380,000 LPG powered vehicles;*
- *in excess of 3,300 dispensers supplying Autogas to Australians every day;*
- *over 4,000 CNG buses; and*
- *over 3,700 natural gas powered rigid trucks and non-freight carrying vehicles.*

GEA commends the Federal Government's actions in taking a whole-of-government approach to vehicle emissions. It is through looking at all three aspects of vehicle emissions – CO₂, noxious emissions and fuel quality - that the best outcome will be achieved for both consumers and the environment. Particularly as focusing on one aspect of emissions may change consumer behaviour to such an extent that other undesirable results occur.

For example, if the Federal Government were to examine CO₂ emissions in isolation, it may encourage an uptake in diesel vehicles - which produce less CO₂ but produce nitrogen and sulfur (NO_x and SO_x) – which has occurred recently in Europe. Now Europe is grappling with the significant rise in diesel vehicles as they try to deal with their air quality.



Looking at vehicle emissions in their entirety should ensure that noxious emissions of oxides of NO_x and SO_x, particulate matter (PM), hydrocarbons and carbon monoxide (CO) - which are all harmful to humans - are also included in the discussion.

As highlighted in the AMBARC research "Analysis of the Australian 2015 New Light Vehicle Fleet and Review of Technology to Improve Light Vehicle Efficiency" - commissioned by the Department of Infrastructure and Regional Development - an outcome of meeting the Australian Climate Change Authority's Target A in 2025 (105g CO₂/km) might well be a greater number of diesel vehicles, around 57 per cent of the fleet. Australia's vehicle fleet is currently dominated by petrol vehicles at nearly 70 per cent of the fleet.

GEA is encouraged by the Federal Government's efforts to extensively consult with industry to investigate potential measures to address CO₂ and noxious emissions from vehicles in Australia.

With transport accounting for around 17 per cent of total emissions in Australia, there is significant scope for this sector to contribute to the government's environmental objectives.



GEA also notes that gaseous fuels can be used across the range of transport options but has a particular energy and technology advantage over renewable options in public transport, marine, heavy transport (including long haul), mining and rail as well as medium vehicles.

In particular, GEA supports the Federal Government's commitment

to maintaining a technology neutral approach to assessing the implementation costs, environmental benefits and other impacts of different policy options - to ensure that the most efficient and cost-effective option is pursued rather than the one that is most popular.

There are currently no emission control regulations in place for off-road vehicles used in mining, agricultural and construction – which predominately run on imported dirty diesel. It is imperative that the Federal Government accelerate the emission control regulations to include these off-road applications for the environmental and health benefits that it will bring - in a similar way that the government is looking at on road and sea transport emissions.

Australia has vast supplies of affordable LPG and natural gas which both have a low carbon and noxious chemical content.

The gaseous fuels industry is confident that it can continue to assist the transport sector to achieve improved emission and environmental outcomes with the aid of supportive government policy settings.

For example:

- *Autogas emits 22 per cent less CO₂ than petrol;*
- *Autogas emits 95 per cent less NO_x than diesel;*
- *Autogas emits 68 per cent less NO_x than petrol; and*
- *Autogas produces 120 times less small particle emissions than diesel vehicles.*

Natural gas fuels – CNG and LNG – are also cleaner and healthier than diesel, having:

- *30 per cent lower CO₂;*
- *75 per cent lower NO_x;*
- *90 per cent fewer particulate emissions; and*
- *99 per cent lower SO_x.*

Therefore, and as per our submission to the Ministerial Forum on Vehicle Emissions Draft Regulation Statement – Vehicle Emissions Standards for Cleaner Air, GEA supports the proposed mandatory standards for light and heavy vehicles. Furthermore, GEA encourages the Government to design its CO₂ target in conjunction with adoption of Euro 6 emission standards.



GEA also recommends that the Federal Government should recognise comparable overseas testing of vehicle standards and require the use of portable emissions measurement systems (PEMS) to get a more realistic measurement of emissions. It is imperative though, that any standard introduced must not result in an increased discrepancy between average laboratory testing and real-world fuel efficiency.

Further, GEA supports the initiative proposed by the Australian Automobile Association (AAA) in their 2018 19 Pre-Budget submission - that real-world emissions testing is urgently needed in Australia to better inform consumers and improve environmental/health outcomes.

To this end, the GEA calls on the Federal Government to:

- *maintain a technology neutral approach to reducing vehicle emissions;*
- *include off-road vehicles that are used in mining, agricultural and construction into emission control regulations;*
- *introduce mandatory emission standards for light and heavy vehicles; and*
- *adopt AAA's proposal for a real-world emissions testing program to better inform consumers.*

OUTCOME:

NEW EXPENDITURE OF \$14 MILLION OVER THE NEXT FOUR YEARS

(AS PER THE AAA SUBMISSION)



Better support for innovation in the development and deployment of low emission gas technologies

In line with its agenda to support innovation, the Federal Government needs to also ensure it supports innovation, R&D and manufacturing jobs in the development of specific gas technologies that Australia has a natural advantage in and specific need for.

It is not just new industries that are innovating - the gaseous fuels sector is constantly innovating to deliver cleaner and cheaper products, lower emissions and better outcomes for their customers.

Examples include the LPG Autogas Centre of Excellence, the LPG dual fuel heavy truck trial and 'plug in plug out' tank, EVOL LNG's LNG marine bunkering and HDCNG fuel system technologies discussed earlier.



A joint initiative between Unigas, Prixcar and Sprint Gas established the LPG Autogas Centre of Excellence in Melbourne, which opened in December 2017.

The LPG Autogas Centre of Excellence will provide Australian fleet operators with direct access to a low-cost, high quality LPG installation service for new vehicles through port of entry or dealerships. The new facility provides a strict

quality control with highly experienced Autogas system designers, manufacturers and skilled vehicle fitters that streamline installation processes to ensure competitive conversion costs.

The LPG Autogas Centre of Excellence is currently completing a contract where a Sprint Gas Sequential Vapour Injection LPG system is being installed into 100 new Toyota Camry Hybrids. Testing has revealed that the Toyota Camry Hybrid with LPG produces fuel cost savings of up to 45 per cent, with a payback on conversion of just over six months. Switching to LPG also reduces CO₂ emissions by approximately 3.45 tonnes per vehicle.

Working closely with the National Heavy Vehicle Regulator, Unigas and its partners working on the LPG dual fuel heavy truck trial are now discussing steps for developing an Australian compliance model that will allow the industry to adopt the solution that involves installing an engine system that runs on both diesel and LPG.

The system has the advantage of maintaining engine power and torque, while remaining within the engine's designed operating performance. Trial results consistently showed 18 to 20 percent energy equivalent savings, a 60 per cent reduction in particulate matter and 2 per cent CO₂ reduction.

While still in the early stages, results show this technology has the potential to help the Australian heavy vehicle industry reduce emissions and operational costs, without compromising safety.



The need to support innovation in the gaseous fuels industry with initiatives like those above, was noted in our previous Budget submissions and was an issue that resonated during the 2016 Federal Election.

GEA welcomed the efforts from the former Minister for Industry, Innovation and Science, the Hon Greg Hunt MP, to emphasise the role of innovation in a wider cross section of Australian industry. Unfortunately, it appears that little has been done since.

However, there is strong national interest in ensuring the National Science and Innovation Agenda and economic policy support the Australian gas sector because of its potential contribution to energy security, emissions reductions, niche Australian technology/manufacturing jobs, and the clean air agenda.

It is also imperative that Australia retains the skills and knowledge from its manufacturing sector and capture and develop the expertise and skills from the recent capital investment phase of the growing export gas sector. Supportive innovation and R&D policy settings can help do this and build and promote a leading role for Australians in developing gas-related technologies.

This would mean we are not just exporting another resource commodity, but also harnessing the downstream environmental and health benefits and the niche design, manufacturing and production jobs right here.

What is little known to most Australians, is that we operate some of the largest truck engines in the world. Ironically - because the rest of the world does not run things like road trains to the same extent as Australia - there is little demand elsewhere for 15 litre truck engines which are no longer being made overseas. However, Australia still needs such large engines for our heavy freight applications which are an ideal platform for lower emitting gaseous fuels where renewables are not a feasible alternative.



To this end, GEA calls on the Federal Government to:

- ***facilitate recognition and approval of new technologies to meet more ambitious environmental and health targets; and***
- ***ensure that all innovation related policies and programs extend funding beyond the information and high technology sectors - to include all industries including the gas sector - to support real world gaseous fuels innovation that has practical and beneficial outcomes.***

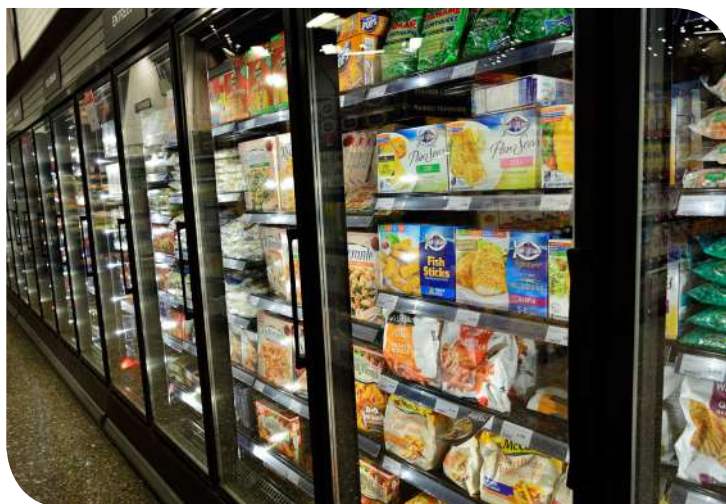
OUTCOME:

BUDGET NEUTRAL (NOT ACCOUNTING FOR REDUCED HEALTH EXPENDITURES AS A RESULT OF CLEANER AIR IMPROVING HEALTH OUTCOMES)

Faster phase down of synthetic refrigerants and support the introduction of natural refrigerants

The hydrofluorocarbon (HFC) phase-down was announced by the Federal Government in June 2016, along with other measures to reduce emissions and increase the efficiency of the Ozone Protection and Synthetic Greenhouse Gas Management (OPSGGM) Program. This will be a gradual reduction in the maximum amount of bulk HFCs permitted to be imported into Australia, beginning in January 2018.

The HFC phase-down will also provide a residual amount of HFCs for maintenance of equipment that has already been imported into Australia, after the completion of the phase-down schedule in 2035 - and provides for continued use of HFCs for low volume uses where alternatives are difficult.



However, propane and iso-butane are current alternatives to synthetic hydrofluorocarbon (HFC) refrigerants that are readily available and currently used within Australia - that can assist the Federal Government with a faster phase-down than the current program proposes.

The use of propane and bio-butane shows that gas can be a cost-effective option to help fill a gap as a result of accelerating the phase out of particular chemicals that have a disproportionately large greenhouse impact. In other words, gas makes possible a regulatory approach to reducing greenhouse gas emissions that does not require funding from the budget as would topping up the Emissions Reduction Fund.

In short, this is a simple Budget neutral regulation change that can also provide a more cost-effective carbon abatement contribution.

To this end, GEA calls on the Federal Government to:

- ***support a rate of HFC phase down that is faster than that currently being proposed - plus the phase down of refrigerants imported in pre-charged equipment such as air conditioners or refrigerators.***

OUTCOME:

BUDGET NEUTRAL



PRIORITY THREE

3. MAINTAIN AND DEVELOP NATIONAL GASEOUS FUELS TRANSPORT INFRASTRUCTURE

Restore the rate of taxation on gaseous fuels to the promised level

The significant economic and environmental benefits of gaseous fuels in the transport sector cannot be fully realised without addressing barriers to entry.

The tax on LNG and CNG, and prospectively LPG, used in heavy transport, it is still currently well over 70 per cent as shown in Chart 2 and must be reduced. Government inaction on this important issue in recent Budgets, has had the unintended consequence of contributing to the decline of natural gas powered heavy transport.

This must be urgently addressed if we are to meet our international environmental obligations, given the large and regionalised nature of Australia - and the need to transport goods and services over long distances.

Despite this, the gaseous fuels industry is confident that it can continue to assist the transport sector to achieve improved emission and environmental outcomes - through the

development of new initiatives like the LPG dual fuel heavy truck trial detailed earlier in this submission and with the assistance of supportive government policy settings.

By restoring the relative tax burden, it would fulfil an already promised obligation by both sides of Federal Parliament - that the tax on gaseous fuels should not be more than 50 per cent of the rate on diesel/ petrol on an energy equivalent basis - and would be a demonstration of the importance of promoting innovative clean fuel sources to reduce carbon emissions.

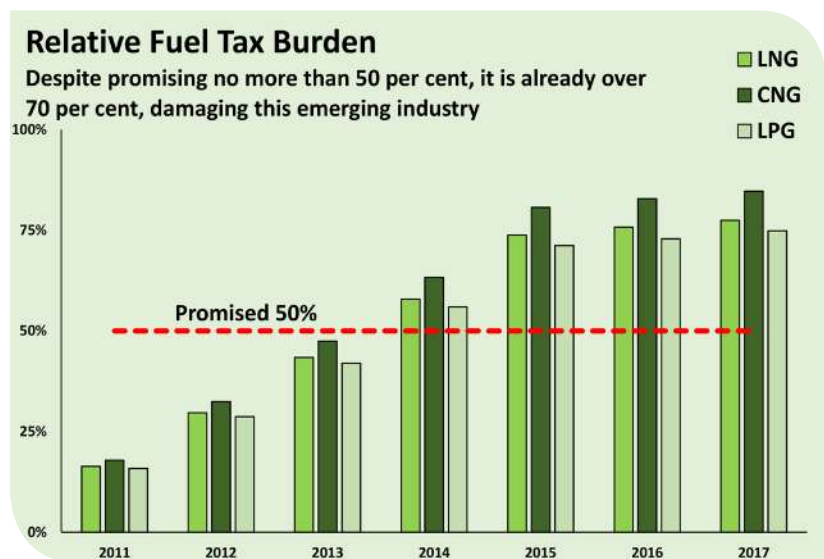
In addition, if the Federal Government were to honour its 50 per cent commitment, this would have the added benefit of increasing take-up of LPG fuelled heavy trucks following the successful trial discussed above. This would increase demand for autogas and thereby increase the viability of the autogas distribution network - ensuring autogas users still have access to their low-emission fuel, particularly in regional areas.

To this end, GEA calls on the Federal Government to:

- ***honour its commitment that the tax on gaseous fuels should not be more than 50 per cent of the rate on diesel/petrol on an energy equivalent basis - given its environmental, energy security and regional development benefits.***

OUTCOME:

NEW EXPENDITURE OF \$64 MILLION OVER THE NEXT FOUR YEARS





PRIORITY FOUR

4. INCREASE FREIGHT TRANSPORT PRODUCTIVITY

The importance of effectively moving gaseous fuels around Australia

Gaseous fuels are a significant source of energy in Australia, providing energy for homes and businesses and fuel to power vehicles. This energy transits national freight infrastructure and can do so multiple times - in the case of the LPG sector - before it reaches consumers. It is worth noting the volume and worth of this trade, the extent of the current supply infrastructure and how reliant it is on freight corridors to deliver product to consumers in a timely manner.

There are multiple uses for LPG in Australia, which can be categorised into two key markets – traditional and autogas use. The traditional market for LPG comprises residential (eg, water heating, space heating and cooking), recreational, commercial (eg, forklifts) and industrial uses (eg, steam-raising, kiln firing and food processing). LPG for the traditional market is mainly propane to meet specifications for domestic and industrial heating appliances.

Although GEA supports the key principle that sound data and information should inform transport planning in Australia and considers planning decisions should take into account the impact on all of the different load types, including gaseous fuels - transport planning can sometimes deliver unintended consequences that increase costs for industry and produce inferior safety and health outcomes for local communities.

As an example, GEA offers the following Tugun Tunnel case study into the impacts felt by one carrier and a local community, with respect to a tunnel's access restrictions and the resulting dangerous goods alternative route used for the carriage of a class 2 dangerous good.

TUGUN TUNNEL - QUEENSLAND

CASE STUDY

The Tugun Tunnel in Queensland is a 334m tunnel which forms part of the Tugun Bypass project. The Tugun Bypass takes traffic to the west of the Gold Coast Airport, connecting to Stewart Road interchange at Currumbin and the Tweed Heads Bypass north of Kennedy Drive at Tweed Heads West.

When designed, the Tugun Bypass was expected to take 55% of traffic off the existing Gold Coast Highway by 2017 and reduce the average travel time between Currumbin and Tweed Heads West to 5 minutes. The project opened to traffic on 3 June 2008.

The Tugun Tunnel currently precludes the carriage of:

- *dangerous goods class 1*
- *dangerous goods class 2.1; and*
- *dangerous goods: mixed class.*

This requires tankers transporting Liquefied Petroleum Gas (LPG) to take an alternate route using the Gold Coast Highway. The alternate route passes through commercial areas, entrances to the John Flynn hospital, Southern Cross University and the Gold Coast Airport. LPG tankers must navigate 5 traffic lights and 5 intersections.

While the alternate route is only 1km longer, the transit time increases to between 15 and 30 minutes depending on the time of day, compared to the transit time on the Tugun Bypass of 5 minutes. The Tugun Tunnel's access restrictions require one carrier's LPG tankers to transit the Gold Coast Highway 14 times per day and more during the winter period. Over 5,000 movements per year could have been avoided by one carrier alone with careful assessment of the public risk and appropriate design of the tunnel infrastructure.



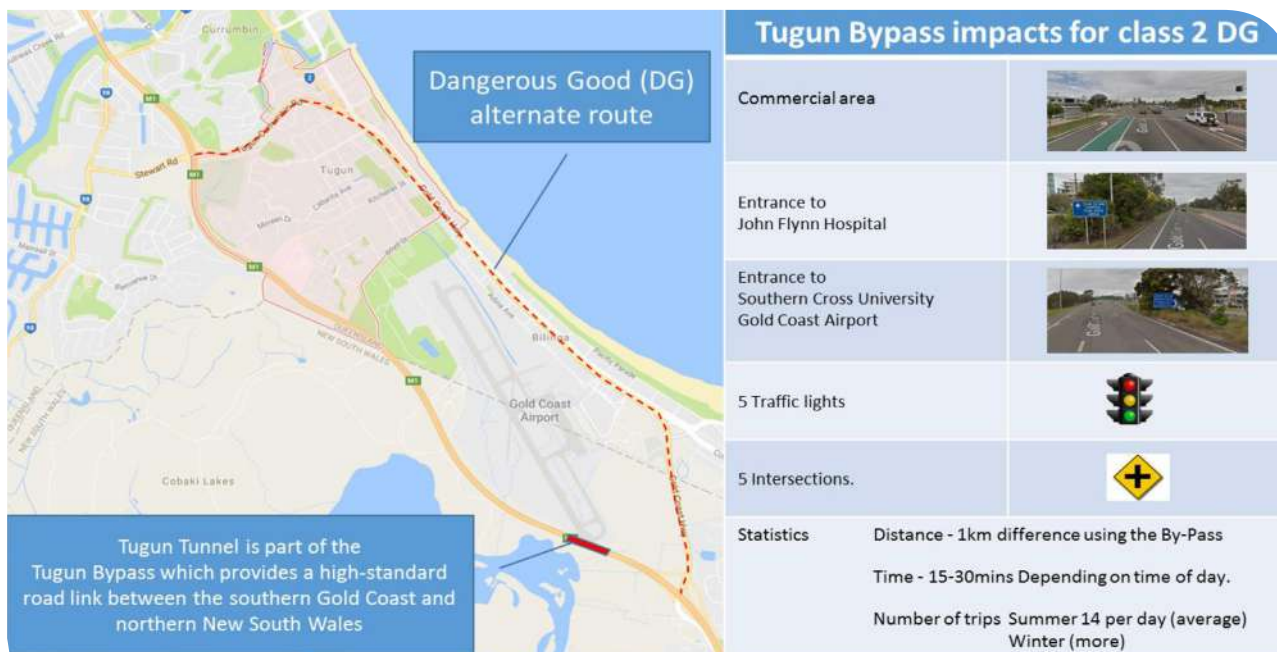


Diagram of Tugun Bypass and dangerous goods alternative route

As outlined in the case study above, it is imperative that jurisdictional lead agencies for vehicle registrations and dangerous goods have open data policies, as these are valuable sources of information on vehicle type, tanker volume and route data, which can better inform transport planning decisions. Further, GEA believes that local government impacts should also be included in future data capture.

If there was open and reliable data informing sound planning decisions in the future, restrictions in one area would not create unintended negative impacts, such as what we have highlighted in our case study above – that not utilising 334m of tunnel exposes a community to over 5,000 additional heavy vehicle movements a year.

In conclusion, GEA is seeking priority action for national freight transport planning and regulations to support the safe and efficient movement of dangerous goods freight rather than treat them as a pariah. Currently, people fear and attempt to exclude dangerous goods even though they are a key component in the supply of many consumer goods, be that as an energy source or as an input. Urban growth, port access, regulation and changing technology are all issues which are now impacting the transport of gaseous fuels, increasing cost burdens on consumers and exposing industry and road users to greater risks.

To this end, GEA is calling on the Federal Government to adopt the following:

- ***inclusion of GEA in a review of regulations and requirements for national transport planning initiatives to eliminate unnecessarily restrictive freight transport regulations applied by all levels of government, including exclusions from tunnels and the imposition of curfews;***
- ***the integration of dangerous goods transport into a national freight and logistics strategy (inclusive of all levels of government) that incorporates the necessary mechanisms to protect designated dangerous goods transport corridors from the impact of urban intensification; and***
- ***the alignment and removal of duplication of freight transport regulation across Australia.***

OUTCOME:

BUDGET NEUTRAL

CONCLUSION

Gaseous fuels address the triple drivers of security, cost and environment and it is therefore critical to take the necessary steps to ensure that these fuels become a bigger part of Australia's energy mix.

With rising energy prices, the release of the National Energy Guarantee (NEG) and the Federal Government's recent efforts to encourage State and Territory Governments to increase domestic gas supplies, now is an opportune time for the government to act to promote diversification into other low-emitting energy sources with different risk profiles - particularly gaseous fuels.

However, GEA's 2018-19 Pre-Budget Submission isn't about choosing between gas or renewables. It is about making sure that the right energy and right technology can co-exist, to provide, secure, affordable and low emission energy to all Australians.

This submission calls on the Federal Government to make changes to policy settings to help harness the best of Australia's natural advantages - and ensure that gaseous fuels are treated the same as other low emission energy sources - so we can secure our energy future, lower the cost of energy, take care of the environment and protect niche manufacturing jobs.

Realisation of these benefits can be achieved by a partnership between a willing and proactive gaseous fuels industry and a committed Federal Government that wants to take the steps necessary to deliver better economic, environmental and energy outcomes for Australia.





1. Support cleaner air and improved health outcomes through greater use of gaseous fuels.
2. Support policies to reduce greenhouse gas emissions given the inherent low carbon content of gaseous fuels.
3. Ensure gaseous fuels have the same access to government policy, procurement and programs as other low emission energy technologies
4. Build awareness of the benefits of cleaner, affordable gaseous fuels to the Australian community.
5. Encourage greater use of gaseous fuels to power regional and remote Australian communities and fuel bus, ferry and train services.
6. Introduce appropriate tax settings to encourage greater use of gaseous fuels for transport, especially heavy vehicles.
7. Reduce regulatory costs and red tape that impose costs on consumers and taxpayers and discourage the use of domestic gaseous fuels.
8. Support training, innovation, R&D and manufacturing of new vehicles, equipment and appliances using Australia's gaseous fuels.
9. Recognise the role of virtual pipelines in providing energy to Australia's dispersed communities and the importance of facilitating refuelling infrastructure.
10. Continue to support the ability of communities to withstand and recover from natural disasters through the flexibility and portability of gaseous fuels.

IMPORTANT GASEOUS FUELS FACTS



There are 400,000 Australians and thousands of businesses in regional Australia that are not on the electricity grid – many of which run on dirtier, more expensive and often subsidised diesel generation.



Half of the gas used in Australia is for mining and manufacturing – contributing \$196 billion to the national economy and employing over 949,000 Australians.



LNG and CNG natural gas fuels can reduce carbon emissions by up to 25% and virtually eliminates particulates along with NOx and SO2.



There are over 380,000 gas vehicles in Australia.



The stationary energy LPG sector supports 2500 direct jobs while over 3600 automotive technicians are qualified to work on LPG autogas vehicles.



Australia's gas infrastructure can store the same amount of energy as 6 billion Powerwall batteries.



Every 10% substitution of imported diesel by Australian gaseous fuels would save \$870 million in import costs.



Almost 70% of homes use mains or bottled gas – that's 6.5 million homes and growing.



GEA Members have almost \$4.3 billion invested in LPG facilities, trucks and cylinders.



Electricity emissions are the largest source of emissions in Australia, representing 45% of emissions, making it an important sector for abatement.



Displacing 10% of diesel used on heavy on-road transport could reduce imported diesel by 1,018 million litres per annum - reducing CO2 emissions by up to 597,000 tonnes.



Transport related greenhouse gas emissions are predicted to grow by 37% between 2005 and 2025 – unless we support cleaner fuel options like gas.



Gas currently delivers 44% of Australia's household energy - but only 13% of household greenhouse gas emissions.



LPG already contributes more than \$3.5 billion a year to the national economy and other gaseous fuels add to this contribution.

Find out more at:

www.cleanercheaperfuels.com.au

WHAT OTHERS HAVE SAID ABOUT GASEOUS FUELS...

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This is a great opportunity to use our local expertise and natural resources to meet Australia growing vehicle fleet needs.

We know that an over reliance on one fuel source has its limitations so why wouldn't we seek to maximise the use of a fuel that provides great economy for motorists and that also reduces CO2 emissions compared to petrol?

Geoff Gwilym
VACC Executive Director ...commenting on the Victorian Government's support for the LPG Vehicle Demand Study

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Australian natural gas is a high quality, environmentally friendly fuel, that is cheaper than distillates and supports Australian jobs.

In Tasmania, we were proud to be a first mover, designing the world's first high speed LNG ferry.

The experience of sourcing and using domestic gas on this world's first vessel, proved to be very satisfactory, as the quality experienced is far greater than is available to our customers in other global markets

Robert Clifford AM
Chairman, Incat Group of Companies

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Australia has a natural gas advantage that should translate into a world leading natural gas industry and competitive advantage driving economic growth and local engineering, design and other jobs.

Engineers Australia supports the need for a diverse domestic fuel market in Australia ensuring we are not 100% dependent on foreign fuel imports

Dr Brent Jackson
Engineers Australia

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In its 2014 Australian Liquid Fuels Technology Assessment, BRRE found that natural gas fuels offer “the lowest LCOF (levelised cost of fuel) over most of the projection period and they remain cost competitive with the lower cost renewable technologies out to 2050.

Bureau of Resources and Energy Economics (BRRE)

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Australia should explore and trial the use of CNG passenger cars and LNG in heavy vehicles to increase our utilisation of domestic energy sources.

Chief Executive
Australian Automobile Association

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Australia's fuel self-sufficiency could be increased to 50 to 70% by 2030 through using natural gas as a transport fuel, compared to just 30 to 40% using current fuel sources.

Professor Robert Clark
University of New South Wales

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