



5 May 2017

Climate Change Policies Review – Discussion Paper
2017 Review Branch
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601
Via email climatechangereview@environment.gov.au

Dear Sir or Madam

Gas Energy Australia is pleased to make a submission in response to the Climate Change Policies Review – Discussion Paper.

Gaseous fuels are Australia's natural advantage and greater uptake of gaseous fuels should be encouraged as part of the Australian Government's plan to reduce carbon emissions.

It makes sense for Australia to embrace gaseous fuels as a stationary energy source in the commercial, household, recreational and off-grid power generation sectors as well as a transport fuel. Gaseous fuels are cleaner, cheaper over the longer term than higher emitting imported fuels, support cleaner air and local jobs and help Australians take control of their economic and energy future.

In line with the Australian Government's commitment to addressing climate change while at the same time ensuring we maintain energy security and affordability, our submission focuses on the range of benefits gaseous fuels can provide as Australia transitions towards a cleaner energy future.

Our submission highlights the ongoing innovation and R&D that our industry is investing in and how gaseous fuels can work with renewables to provide the cleanest, most affordable and reliable energy solutions for Australian homes and businesses. We also highlight the range of possibilities and benefits that increased use of gaseous fuels would provide to the Australian community.

This submission also draws on our broader Vision documents that can be found at www.cleanercheaperfuels.com.au.

Yours sincerely

A handwritten signature in black ink, appearing to read "John Griffiths", with a long horizontal flourish extending to the right.

John Griffiths
Chief Executive Officer

EXECUTIVE SUMMARY

Gas Energy Australia (GEA) welcomes the opportunity to comment on the Federal Government's Climate Change Policies Review Discussion Paper.

Gaseous fuels are Australia's natural advantage. They are cleaner, cheaper over the longer term than higher emitting imported fuels, support cleaner air and local jobs and help Australians take control of their economic and energy future. With Australia's abundant supplies of gaseous fuels, it makes sense for Australia to embrace gaseous fuels as a stationary energy source in the commercial, household, recreational and off-grid power generation sectors as well as a transport fuel.

In line with the Australian Government's commitment to addressing climate change while at the same time ensuring we maintain energy security and affordability, our submission focuses on the range of benefits gaseous fuels can provide as Australia transitions towards a cleaner energy future.

As the peak industry body for downstream gaseous fuels, our submission focuses on the current applications for domestic gaseous fuels as a stationary energy source and transport fuel, while highlighting the range of possibilities and benefits that increased use of gaseous fuels would provide to the Australian community.

In Australia, gaseous fuels are currently reducing emissions and particulate matter in all of their applications, including providing reliable energy to remote and regional areas and reducing pollution on our roads and in our waterways, but we can do more.

Our submission highlights the ongoing innovation and R&D that our industry is investing in and how gaseous fuels can work with renewables to provide the cleanest, most affordable and reliable energy solutions for Australian homes and businesses.

We recently released a 2030 Vision for Natural Gas Fuels and Vision for Liquefied Petroleum Gas (LPG) Stationary Energy, both of which contain comprehensive 10 Point Plans that map out how industry and government can work together to take control of Australia's energy future. Both these Visions are consistent with a range of Government policy objectives, including lower pollution and lower emissions and are included as part of our submission.

While the lower emissions associated with natural gas fired electricity generation compared to coal fired electricity generation are well known, using gas as a distributed energy source can further cut emissions as a result of avoiding the energy losses associated with transmitting electricity over long distances. And this includes using gaseous fuels as a distributed energy source.

For example, LPG is a lower carbon alternative to other fossil fuels such as coal-fired electricity and imported diesel. Using LPG in the home, instead of electricity, for water heating, cooking or home heating, can reduce greenhouse gas emissions by up to 70 per cent.



As a transport fuel, LPG autogas is a superior environmental choice for fueling vehicles when compared to diesel and petrol. Additionally, autogas is an Australian fuel, thereby adding to Australia's fuel security.

- 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.
- Autogas produces 120 times less small particle emissions than diesel vehicles¹.

Natural gas fuels – Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) – used as a transport fuel 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_x².

Gas Energy Australia strongly supports the work of the Ministerial Forum on Vehicle Emissions to reduce both carbon and toxic tailpipe emissions, the latter which is also being addressed by the Commonwealth, State and Territory Government National Clean Air Agreement.

In addition, using gas instead of diesel, reduces engine noise in trucks.

¹ WLPGA Autogas, European Commission, Life Cycle Assessment
² www.ferus.com/products-services/products/lng-cng



AUSTRALIA'S PARIS TARGET

- ***Australia has committed to considering a potential long-term emissions reduction goal for Australia beyond 2030. What factors should be considered in this process?***

Gas Energy Australia concurs with the Government that business and community awareness of climate change has grown in recent years and Australians are increasingly demanding cleaner and more affordable energy solutions.

In order to achieve this target, while keeping energy affordable for Australians, the Government should fulfil its Energy White Paper commitment to energy technology neutrality by ensuring its policies do not favour one technology or energy source over another. This would ensure the cleanest and most effective fuel for each particular job is used rather than having governments pick winners – with sometimes perverse emissions and energy security outcomes. This can be done by including gaseous fuels in 'green schemes' and innovation initiatives such as the Renewable Energy Target, Small-scale Renewable Energy Scheme and other programs administered by the Australian Renewable Energy Agency (ARENA). Gaseous fuels should also be given better access to schemes such as the Clean Energy Finance Corporation, the Emissions Reduction Fund (ERF) and the Clean Energy Innovation Fund.

We agree with the Minister for the Environment and Energy, the Hon Josh Frydenberg MP, that, "gas is an important part of the energy mix" and as one of the cleanest energy sources available, it makes sense for gaseous fuels – as an important part of the energy mix and a cleaner one at that, to be included in all low emitting energy policies and schemes. As noted in the Independent Review into the Future Security of the National Electricity Market, "gas generators are well-placed to complement variable renewable electricity generators" and as such, should be included in programs and policies that are intended to support carbon abatement.

It is also critical that Australian Governments do not introduce policies and programs supporting other alternative fuels, technologies and appliances that have the 'unintended consequence' of disadvantaging gaseous fuels. A market-based level playing field that is technology neutral is more likely to deliver affordable energy than one favouring higher cost options. In fact, limiting the discussion to one type of technology may result in the creation of barriers to the uptake of other more cost effective and affordable low emission energy sources which would weaken competitive pressures in energy markets and impose extra costs on consumers and taxpayers.

The Government should adopt a truly technology neutral approach and allow the range of cleaner fuel technologies available to each work to deliver the Australian community cleaner and affordable energy solutions.

- ***What process could Australia use to implement its Paris commitment to review targets every five years?***

Gas Energy Australia has no comment to make on this question.



- ***What are the issues in the transition to a lower emissions economy with respect to jobs, investment, trade competitiveness, households (including low income and vulnerable households) and regional Australia?***

Australia is a vast continent with many people living in regional and remote communities. Over 400,000 Australians and many industries and businesses in remote and regional communities require off-grid electricity.

Not only do gaseous fuels originate from some of Australia's remote and regional communities, but it is often the best choice for powering and supporting many of those same communities.

Gaseous fuels, via their virtual pipelines, are available anytime, anyplace and anywhere. That makes them an ideal and flexible 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 such flexibility of supply along with low infrastructure costs compared to electricity and natural gas.

This flexible distribution network provides security of supply across regional Australia at competitive prices. Because gaseous fuels 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.

In considering the issues surrounding the transition to a lower emissions economy, the Government should consider removing obstacles that limit gaseous fuels from playing a major role in power generation, particularly in off-grid in remote and regional Australia.

For example, in Queensland, Ergon Energy has the highest proportion of Single Wire Earth Return (SWER) networks among all Australian Distribution Network Service Providers (DNSPs). According to a report from Ergon, SWER has poor outage performance and is susceptible to reliability issues as a result of conductor failure (How Ergon Energy Compares 2014).

New South Wales (and the ACT) also has an extensive network of around 30,000km of SWER.

It would be advantageous to replace much of the energy demand SWER networks meet with gaseous fuels. Gaseous fuels deliver energy onsite thereby eliminating issues with supply such as voltage fluctuations and transients like lightning strikes. Also, gaseous fuels reduce the bushfire risks inherent in the SWER powerlines which are well known. Consequently, GEA considers it should be a priority to review the placement of powerlines



that cross bushfire prone areas. This would reduce the incidence of power lines starting bushfires as well as increase the security of energy supply to regional areas.

In addition, Ergon has 33 remote power stations, 29 of which run on diesel and four are diesel/renewable hybrids (Ergon Energy – Network Management 2016). Gaseous fuels, not diesel, are the ideal way to supplement renewable power for regional and remote Queensland towns and islands. Giving these towns reliable 24 hour a day, lower cost and cleaner energy. Gaseous fuels are the only fuel that, at scale, can significantly reduce carbon emissions and even more when part of a renewable hybrid generator.

Even though, as outlined above, gaseous fuels are one of the cleanest energy sources available, they are excluded from a number of Federal Government schemes which support specific technologies rather than supporting the best lower emissions technologies for particular applications.

Given the significant environmental benefits of gaseous fuels as well as their ability to be easily accessed in rural and regional communities, these fuels should be provided the same support from governments as other competing technologies.

In addition, one of the major barriers to entry is a lack of consumer choice. The Federal Government should support consumer choice for the right energy for their circumstances.

The Federal Government should, through the COAG Energy Council, encourage State and Territory Governments to consider providing community service obligation payments directly to consumers in regional and remote areas. This would allow them to choose the cleanest and cheapest energy options for their circumstances.

As outlined in the Federal Government Energy White Paper, 'consumers should have easy access to information to encourage the productive use of energy', and that enables them to make informed choices about their energy use'.

It is not that regional communities should not get support, but the subsidies for regional communities should support the best choice of energy for their energy circumstances, not just the energy source a government has chosen to support.

Importantly, our experience is that some of the concerns in regional communities about upstream gas developments are propagated by a sense that increasingly gas benefits are being exported while perceived costs are localised. Specific examples of the direct benefits of gas applications to regional energy and job security and the value of the downstream technology and jobs to the Australian economy – as well as the emissions benefits – can also result in more local support for gas projects.



ELECTRICITY GENERATION

- ***What are the opportunities and challenges of reducing emissions from the electricity sector? Are there any implications for policy?***
- ***How can energy and climate policy be better integrated, including the impact of state-based policies on achieving an effective national approach?***
- ***Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered when reducing emissions in the electricity sector?***

The Federal Government has an opportunity to reduce the price of energy and reduce emissions by strengthening Australia's energy security with gas sourced distributed energy.

As the Prime Minister has said "energy security should always be the key priority" and "a number of the state governments have over the years set priorities and renewable targets that are extremely aggressive, extremely unrealistic, and have paid little or no attention to energy security". Gas Energy Australia's submission isn't about choosing between gas or renewables, it is about making sure that the right energy and right technology can exist on a level playing field to provide, secure, affordable and low emission energy to Australians.

The recent blackouts in South Australia and the Tasmanian energy security crisis are recent examples of the need for greater energy security across Australia. Gas can strengthen Australia's energy security by providing more low emission baseload power and more distributed energy, including through 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. Given the current focus on energy security, gas provides an ideal lower emitting base load option in conjunction with renewables as part of the transition towards a low emissions energy future.

Energy security in Australia could be greatly increased with diversification into other energy sources which have different risk profiles, including distributed energy resources such as Australian gaseous fuels. 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 roof top solar water heaters and photo-voltaic panels, 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.

Gaseous fuels can support a range of distributed energy options and are also consistent with the Federal Government's commitment to cleaner, lower emitting energy. As the Finkel Review rightly points out, "consumer choices can help avoid the cost of future network upgrades and improve grid security, but this requires the right price signals and incentives."



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.

Both industry and governments need to work together to continue to educate the community about the range of lower emitting energy sources available to them and how using a range of energy sources can help to mitigate against supply disruptions and increase our energy security.

The preliminary report of the Finkel Review also noted “the need for greater gas supplies for electricity generation is increasingly urgent”. It further noted an increase in gas supply for domestic consumption would lower the price of gas, provide certainty of supply and in turn cheaper, reliable and locally available energy to Australians.

Gas Energy Australia has welcomed the recent statements from Minister Frydenberg about the need to unlock gas reserves and lift state and territory moratoriums. As the Minister has said, the answer to rising energy prices is “a truly national approach that involves the states and territories unlocking their abundant gas reserves as a means of driving down prices and creating jobs while enhancing energy security”.



HOUSEHOLDS, SMALL TO MEDIUM SIZED ENTERPRISES AND THE BUILT ENVIRONMENT

- ***What are the opportunities and challenges of reducing emissions for households, SMEs and the built environment? Are there any implications for policy?***
- ***Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness and regional Australia that should be considered for households, SMEs and the built environment?***

Australian LPG alone already supports 154,000 Australian businesses and more than 5 million individual users, not to mention the range of businesses and households that are using natural gas.

Some of the 1000 everyday uses for Australian LPG



But if policy settings didn't favour imported and more expensive options like renewable technologies, gaseous fuels could provide even more opportunities to households and businesses to use cleaner and more affordable gaseous fuels.

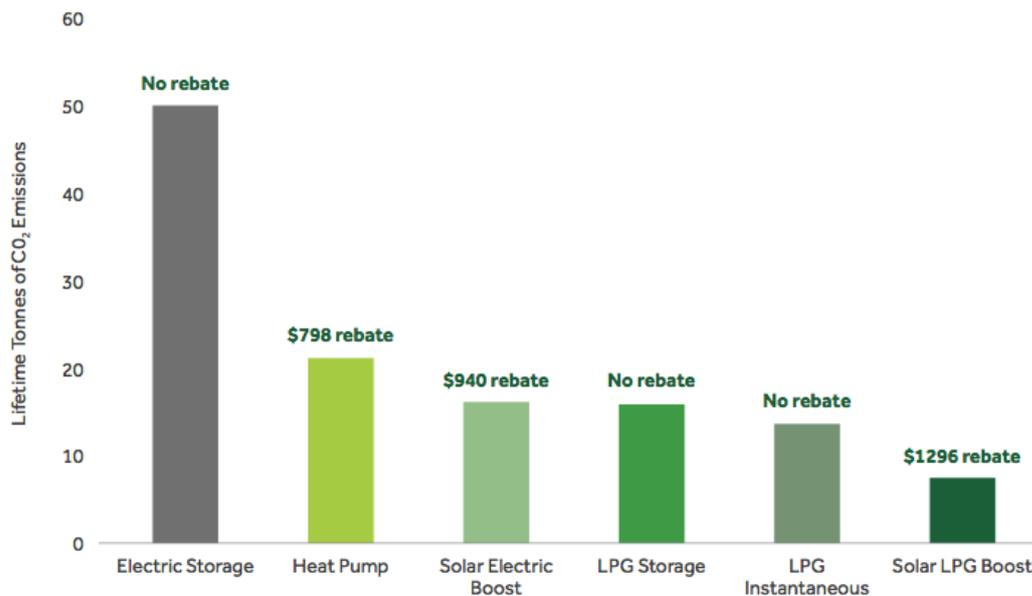
In Australian homes, gaseous fuels are used for hot water heating, cooking and household heating and cooling, patio heaters and even bug killers, not to mention the iconic Australian BBQ.

In business more specifically, gaseous fuels can be used as a source of energy for forklifts, for hot water heating, generators, cooking, heating and cooling, laundry



appliances, factory machinery, commercial drying and pharmaceutical production to name a few examples.

Water Heater Emissions and Rebates



Source: Pitt and Sherry, Greenhouse gas emissions performance of various types of residential water heaters, and emission abatement opportunities, 2015.²⁰

As mentioned above, few Australians know that using gaseous fuels can be better for climate change outcomes than current conventional electric and even solar electric hot water systems. Over 15 years, the average LPG instantaneous hot water heater emits 39 tonnes less than an electric hot water heater. LPG hot water systems are even cleaner than solar electric hot water heaters, producing almost 15 per cent or 2.5 tonnes less CO₂ emissions.

Despite all of the benefits of using LPG in the home, government rebates prop up the solar industry, and encourage its use in households, even when it's not always the right choice or necessarily cleaner and cheaper.

Instantaneous LPG hot water heaters save consumers almost \$500 over its life span, compared with electric storage hot water heaters. Given the Discussion Paper specifically notes that the majority of household related emissions are associated with heating, air conditioning and hot water systems, the Government should be ensuring its climate change policies do not discourage households and landlords from using cleaner and more affordable gaseous fuels.

As outlined in the Discussion Paper, 200,000 homes have been built annually in recent years and SMEs have increased by around 1 per cent each year since 2013, yet governments allow new housing and industrial estates to be built without gas infrastructure. Gas Energy Australia would welcome changes to advancing the National Construction Code energy efficiency requirements to specifically include cleaner gaseous fuels.



RESOURCES, MANUFACTURING AND WASTE

- ***What are the opportunities and challenges of reducing emissions from the resource, manufacturing and waste sectors? Are there any implications for policy?***
- ***Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered when reducing emissions in the industrial sector?***

A range of companies in the United States and across the world, including BOC's parent company, Linde Group, worked to design and build a plant which would capture waste gas and convert it to natural gas fuels, which in turn fuels the local garbage trucks.

Federal Government grants and programs should encourage practical outcomes like this as part of its transition to a cleaner energy future.

Australia is one of the largest gas producers in the world and at the same time, it has 10 per cent of the world's mining activity. It makes sense to adopt cleaner, more affordable gaseous fuels in the mining sector, to really make a difference in our carbon emission reductions.

With the mining and resources sector providing regional employment and supply opportunities, it is crazy to think that the Government is not more actively encouraging the uptake of lower pollution and lower emitting gaseous fuels; leaving the sector largely dependent on increasingly imported diesel fuels and higher emitting coal generated power or higher emitting diesel fuelled off grid generation.

Queensland company Intelligas has 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 reduces carbon emissions, but it improves the life of the engine and reduces engine noise. Government policy should encourage real world innovation that has practical outcomes.

Australia must retain the skills and knowledge from its automotive 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 Australia in developing gas related technologies.

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



TRANSPORT

- ***What are the opportunities and challenges of reducing emissions in the transport sector?***
- ***Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia associated with policies to reduce emissions in the transport sector?***

Transport currently accounts for 38 per cent of Australia's overall energy demand and by 2030 our freight task is set to double. We also have 20 per cent of the world's long-haul trucks. Consequently, any emissions reductions we can make in the transport sector will have significant overall benefits for our environment, including cleaner healthier air for Australians.

It is also little known to most Australians 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. Joint work to make large gas powered engines available in Australia should be a priority for industry and Australian Governments.

Further, gaseous fuels aren't just for trucks - it is real technology that can also run cars, trains, ferries and ships.

In addition to the method determinations that are listed as part of the ERF, we consider there are opportunities to expand on the methods of carbon abatement. For example, including the capture of coal mine waste gas for liquefaction or compression for transport or stationary gaseous liquid fuels use. Emission reductions achieved by converting coal mine waste gas into LNG or CNG are significant where overall well to wheel emissions can be reduced more than the current emissions reduction of coal mine waste gas when it is being flared. The greenhouse gas emission savings will be over 20 times that of vented methane gas from coal mine operations as compared to liquefying the gas and using it as a fuel for transport or stationery energy purposes.

By including capture and subsequent liquefaction, not only is an emission saving achieved by removing and destroying the methane, but it presents a further opportunity for saving by substitution of the diesel that would have otherwise been used to fuel trucks or applications such as off-grid electricity generation.

The end result of turning coal mine waste gas into LNG or CNG would additionally allow the LNG or CNG to be used to fuel remote electricity generators as well as the likely co-generation provided for in the current determination.

By expanding the ERF method determinations to include the capture and liquefaction or compression of waste gas, the gas would stand a better chance of being recycled into an energy source and not just disposed of. It would additionally support domestic gas supply



for manufacturing and the further development of LNG or CNG technology and transport applications that has longer term potential to create further direct action reduction by the displacement of higher emitting fuels on a broader industry wide basis.

Including additional methods would be consistent with the aim of the ERF and Direct Action Plan more broadly along with the objectives of the Energy White Paper. And everyone would gain if coal mine waste gas could be captured and converted to LNG or CNG to achieve a 100 per cent emission reduction - compared to flaring – together with more productive re-use of the captured gas as fuel for transport or stationery energy purposes, not to the mention economy-wide innovation and job opportunities.

However, the significant economic and environmental benefits of gaseous fuels cannot be fully realised without addressing barriers to their uptake.

The Coalition originally opposed the introduction of the *Taxation of Alternative Fuels Legislation Amendment Act*, which applied excise to gaseous fuels for the first time. In Government, it has endorsed the Labor Government's 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. For LNG and CNG used in heavy transport, it is currently well over 70 per cent and should be reduced.

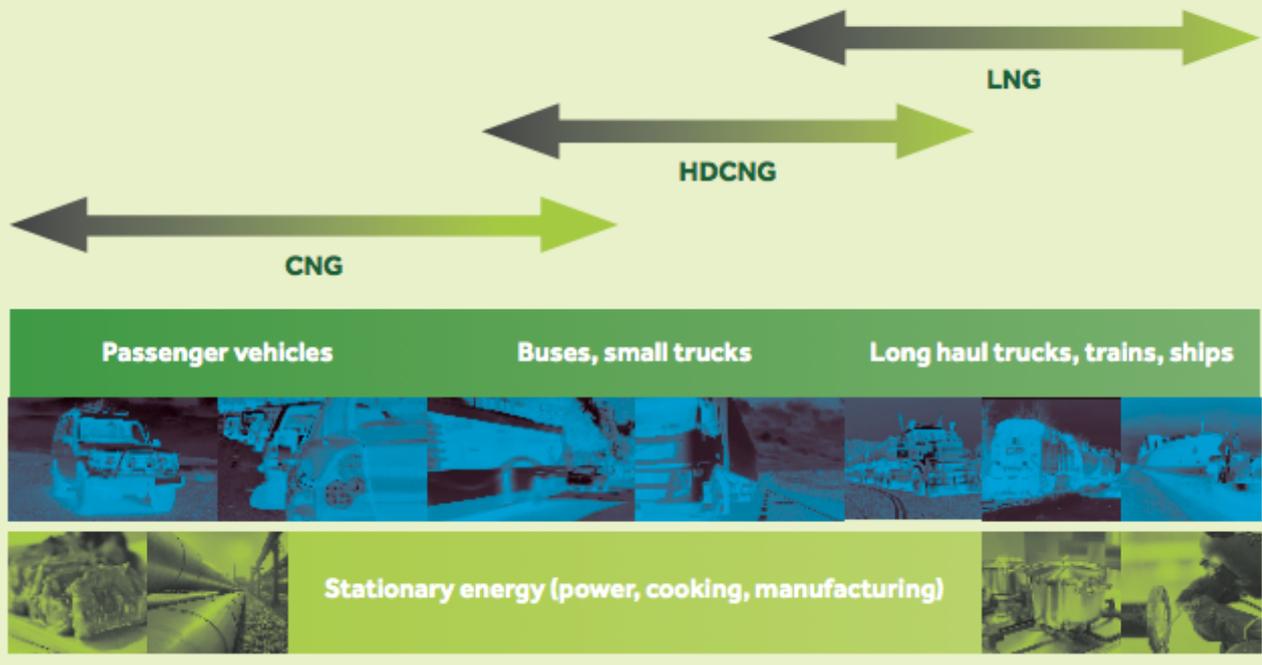
It is also worth noting that Australia still does not have emissions standards for off road vehicles. This could be addressed by the Ministerial Forum into Vehicle Emissions.

Restoring the relative tax burden would fulfil an already promised obligation and would be a demonstration of the importance of promoting innovative clean fuel sources to reduce carbon emissions.

As demonstrated in the figure below, natural gas fuels have a broad range of transport applications, as well as stationary energy applications.



Common Applications of Natural Gas Fuels



LAND AND AGRICULTURE

- ***What are the opportunities and challenges of reducing emissions from the land and agriculture sectors? Are there any implications for policy?***
- ***What can be done to realise further benefits from emissions reduction activities beyond carbon abatement?***
- ***Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia associated with policies to reduce emissions in the land and agriculture sectors?***

Gaseous fuels, LNG and LPG in particular, are already contributing to reducing carbon emission in the agriculture sector and could do more with even handed treatment from the Federal Government.

Practical applications for gaseous fuels in agriculture include its role in crop-drying, poultry breeding, irrigation, thermal desiccation, incineration, insect repellent, greenhouse and animal shed heating and water heating.

A recent report by Infrastructure Australia, found that increasing energy costs are likely to reduce the productivity and sustainability of irrigated agricultural businesses. In particular, sugarcane producers have expressed concern that rising energy costs are making it difficult for them to meet the target of doubling agriculture production. By supporting Australian gaseous fuels, the Federal Government can also assist the agriculture sector, which wants to be able to use affordable clean fuel sources like gas.

Queensland business, Nora Valley farm at Yandina, Queensland, uses LPG as heating for the green houses where they grow tomatoes. Since switching to cleaner, cheaper LPG, they've been able to lower their production costs and expand into new markets, doubling the size of their greenhouse in the last twelve months.

Using gas means they can control the heat in the greenhouse and produce better quality tomatoes for Australian families. It also means they no longer have black soot from their diesel generators which land on the greenhouse roof, and stop direct sunlight coming through.

Nora Valley employs 60 people directly and indirectly and is a great Australian small business that has realized the benefits and opportunities of using gaseous fuels to reduce emissions.



RESEARCH, DEVELOPMENT, INNOVATION AND TECHNOLOGY

- ***What is the role of research, development, innovation and technology in reducing Australia's emissions? Are there any implications for policy?***
- ***Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered in relation to research, development, innovation and technology?***

A greater uptake of gaseous fuels as part of a broader technology neutral plan to reduce emissions has the potential to create jobs, increase investment in the innovation and technology industries.

In line with its agenda to support innovation, the Federal Government should be encouraging 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 to their customers. As outlined in our 2017-18 Budget Submission, the Government should ensure that all innovation related policies and programs extend funding beyond the information and high technology sectors to include all industries, including traditional ones.

These industries, in particular the gaseous fuels industry, are also innovating to deliver lower emissions and better outcomes for their customers.

GEA welcomes the efforts from the then 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.

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 and manufacturing jobs and the emerging clean air agenda.

Indeed, the opportunity for cleaner and ultimately cheaper downstream gas applications in both stationary energy and potentially transport applications – means that Australia should utilise its massive gas reserves and reclaim its role as a world leader in downstream gas technology design and manufacturing.

As mentioned earlier in our submission, Queensland company Intelligas has recently developed technology to retrofit a range of mine vehicles. Government policy should reward real world innovation that has practical outcomes.

As one of the world's largest gas producers, Australia is also in the box seat to be a technology leader in gaseous fuels in areas with direct relevance to our economic and social development.



Examples of existing innovation in this field include:

- Cryoquip at Dandenong designs and manufactures technical equipment and plant for gas installations.
- BOC's micro LNG plants in Dandenong Victoria, Westbury Tasmania and Chinchilla Queensland were designed in Australia.
- Bauer Kompressoren Australia (BKA) in Sydney are pioneers in refuelling system technology, developing a robust 'drop and go' innovative containerised system.
- Innovative thinking and collaborative effort from AGL, APA Group, BOC and Clean Energy Fuels Australia to transport LNG from Dandenong in Victoria to Whyalla in South Australia and inject gas below the breach of a ruptured pipeline while it was repaired to maintain the local community's natural gas supply. A 'virtual pipeline' and our LNG know-how in action.
- The design and development of innovative LPG diesel gas technology for heavy duty vehicles through collaboration between industry and government, including regulators. The image below shows road testing of the technology in Victoria using a portable emissions measurement system of the sort that uncovered VW's attempt to understate emissions from some of its diesel vehicles.

We believe gaseous fuels have an important role to play as we transition to a cleaner energy future. We would like to specifically address the ARENA solar funding case study provided in the discussion paper.

Case studies show that gas and solar hybrid generators for off-grid power generation, actually provide a lower emitting, lower polluting and more cost effective solution than the more common diesel solar hybrids – more common because ARENA funding actually supports the higher emitting alternative.

The Australian Government's Energy White Paper rightly states, that "policies should not favour one technology or energy source over another", and yet Government "clean green" schemes like ARENA funding and the Renewable Energy Target (RET) scheme, clearly favour wind and solar technology – despite LPG often being cleaner and cheaper over its life cycle.

For example, LPG gas hot water systems are up to 73 per cent cleaner than electric hot water systems; whereas solar electric hybrid hot water systems are only 68 per cent cleaner. And yet, government policy – the RET scheme – provides a rebate on the solar electric hybrid, which isn't the cleanest option.

If the objective of the RET scheme is to actually lower carbon emissions in Australia, gas appliances should be included.

The solar gas hybrid is even cleaner again, with emissions savings of up to 85 per cent.



A LPG hot water system is cleaner than a solar electric hybrid but is not eligible for a government rebate because it is not “renewable”.

Governments must adopt a genuinely technology neutral approach, and include displacement technologies that can deliver cost effective abatement outcomes. That is why we support the comments of the then Minister for Resources, Energy and Northern Australia, when he said, “... the Australian Government is committed to a technology-neutral policy and regulatory framework to support new energy sources and enable change, innovation and transformative technologies”.

Regrettably, whilst that might be the intent, that’s not currently the policy outcome.



INTERNATIONAL UNITS

- ***What is the potential role of credible international units in meeting Australia's emissions targets? Are there any implications for policy?***

Gas Energy Australia has no comment on this question.

- ***How can the quality of international units be ensured?***
- ***Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered in relation to international units?***

Gas Energy Australia has no comment to make on the technical aspect of these question.

However, future Government policy shouldn't only consider carbon emissions. It should also consider the need to reduce harmful toxic emissions such as particulate matter, nitrogen dioxide and sulfur oxide.



Additional Interesting Gaseous Fuels Facts

- Gaseous fuels have been recognised by the Bureau of Resource and Energy Economics (BREE) as having one of the lowest cost of production of any fuels in Australia out to 2050.
- Electricity emissions are the largest source of emissions in Australia, representing 45 per cent of emissions, making it an important sector for abatement.
- 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.
- The stationary energy LPG sector supports 2500 direct jobs while over 3600 automotive technicians are qualified to work on LPG autogas vehicles.
- Every 10 per cent substitution of imported diesel by Australian gaseous fuels would save \$870 million in import costs.
- Transport related greenhouse gas emissions are predicted to grow by 37 per cent between 2005 and 2025 – unless we support cleaner fuel options.
- LPG already contributes more than \$3.5 billion a year to the national economy and other gaseous fuels add to this contribution.
- Displacing 10 per cent 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.



What are Australia's cleaner, cheaper gaseous fuels used for?

Australian gaseous fuels, including CNG, LNG and LPG, come from abundant natural supplies across a range of sources and provide local Australian specialist design, engineering, construction and production jobs.

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

- Lower emitting fuel for baseload power generation, especially off-grid generation;
- Being used alone where renewables are not optimal or in hybrid technology along with renewables to ensure cleaner, continuous power;
- Domestic 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;
- The only viable and lower polluting alternative for heavy transport applications such as large long haul trucks, freight trains and ships and ferries 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; and
- Helping reduce Australia's strategic oil reserve shortfall more cost effectively by diversifying some of Australia's domestic fuels needs and reducing imports.



10 POINT ACTION PLAN FOR INDUSTRY AND GOVERNMENT

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.



WHAT OTHERS HAVE SAID ABOUT GASEOUS FUELS

- “The lessons going forward are we need diversity of supply” and we need to “ensure a stable transition to a low emissions future and that’s why you need gas.”
Hon Josh Frydenberg, Minister for the Environment and Energy
- "... we have relied too much on wind rather than baseload renewables, rather than baseload power, including gas which is a fossil fuel but it is 50 per cent cleaner than coal and a good transitional fuel."
Senator Nick Xenophon
- Australia’s heavy reliance on imported fuel is a “discussion we have to have”.
Professor Ian Chubb, former Chief Scientist of Australia
- “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
- “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
- “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
- “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
- In its 2014 Australian Liquid Fuels Technology Assessment, the Bureau of Resources and Energy Economics 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.”
- “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



CONCLUSION

Gaseous fuels have a vital role to play in helping the Australian Government to reduce emissions, deliver energy security and provide more affordable energy to all Australians.

But to do this, Australian Government policies need to apply equally to all cleaner and low emissions technologies, not just renewables which have a range of limitations including reliability and price.

Gaseous fuel is the only option which can quickly upscale and is readily available as a local Australian energy source.

ABOUT GAS ENERGY AUSTRALIA

Gas Energy Australia is the national peak body that represents the bulk of the downstream alternative gaseous fuels industry, which covers Liquefied Petroleum Gas, Liquefied Natural Gas and Compressed Natural Gas.

The industry comprises major companies and small to medium businesses in the alternative gaseous fuels supply chain – refiners, fuel marketers, vehicle and equipment manufacturers, vehicle converters, consultants and other providers of services to the industry.

The Association's mission is to optimise the value and benefits of gaseous fuels for the benefit of Australia's national interest – to achieve energy security and economic prosperity in a lower carbon economy, and the Australian community in providing access to affordable energy.

The Association focuses on advocating the value and benefits of the fuels through engagement with the federal government, state authorities and the community.

