GAS ENERGY AUSTRALIA

SUBMISSION

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SUBMISSION TO

THE FEDERAL DEPARTMENT OF INDUSTRY

ON THE

ENERGY WHITE PAPER ISSUES PAPER

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10 February 2014

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GAS ENERGY AUSTRALIA SUBMISSION TO THE FEDERAL DEPARTMENT OF INDUSTRY

Energy White Paper - Issues Paper

Dear Ms Sewell

Gas Energy Australia is pleased to make a submission responding to the Federal Department of Industry's Energy White Paper (EWP) Issues Paper, dated December 2013.

Gas Energy Australia welcomes the release of the EWP Issues Paper as the first step in developing a coherent and integrated energy policy framework for Australia.

In keeping with Gas Energy Australia's mission "to optimise the value of gaseous fuels for the benefit of the national interest and the community…leading to improved energy security, carbon reduction, lower energy costs and the development and growth of the industry", this submission will principally address what needs to be done so these attributes can contribute to achieving the goals set out for the EWP.

The key message this submission seeks to convey is that gaseous fuels are already a significant part of Australia's energy mix and also have the potential to contribute further to increasing energy security, reducing greenhouse gas (GHG) emissions, improving air quality and leveraging Australian manufacturing industries' expertise and capabilities in developing new and innovative gaseous fuel technologies.

1. Gas Energy Australia

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

At present, LPG is the main alternative gaseous fuel used in Australia and it makes a significant contribution to meeting the nation's energy needs in two ways:

a. As a stationary energy source, LPG is used by households and businesses for a variety of uses.

1) LPG has given Australians access to gas for cooking, space and hot water heating since the 1950s and has provided a pathway for consumer acceptance and take-up of natural gas. Today, it is the gaseous fuel used by around one million households for these purposes. LPG is also used by around seven million households for recreational activities (BBQs and outdoor heating).

2) LPG also supplies around 100,000 commercial and industrial enterprises and is used in a variety of industrial processes, including power generation and heating.

3) LPG's use is most prevalent in areas not connected to the natural gas network, especially regional Australia.

b. As an automotive fuel, LPG autogas is Australia's most significant alternative transport fuel accounting for the bulk of the sector's share of the overall transport fuel market. It fuels almost 500,000 vehicles, the majority being owned by private motorists, is the predominant fuel used by the taxi industry and is heavily used by fleet and trade vehicles, including light commercial vehicles.

While not as well established as LPG, on the back of recent substantial infrastructure investments, the use of LNG and CNG has the potential to expand in a variety of both domestic stationary energy and transport applications, particularly power generation, heavy trucks and buses.

2. Responses to EWP Issues Paper questions

Gas Energy Australia offers the following comments on the questions posed in the EWP Issues Paper.

a. The Security of Energy Supplies

Question… ways community expectations can be better understood and reflected in reliability standards

Gas Energy Australia recommends that the EWP assesses and develops appropriate policy responses to the important role that distributed energy currently plays, and the potential it has to play a larger role, in reducing energy costs, improving stationary energy security and improving reliability standards in terms of lessening loads on grids, reducing infrastructure investment needs and improving overall energy supply resilience. Distributed energy includes diesel generators, solar panels, small wind turbines, fuel cells as well as on-site energy generation using gaseous fuels.

In particular, because gaseous fuels are portable and can be readily transported virtually anywhere by sea, rail or road, their supply chain is especially resilient. Increased use of gaseous fuels as a stationary energy source can delay or postpone indefinitely the significant costs of expanding or upgrading electricity and natural gas grids as well as reduce the strain on the electricity grid during peak load periods. This can be especially critical in remote areas where electricity supply is restricted. The portability and the resilience of gaseous fuels' supply chains make them especially well-suited to support areas affected by emergencies and natural disasters.

The LPG industry's supply, storage and distribution infrastructure, which includes sea, rail, road and pipeline transport links, cylinder filling plants and bulk storage facilities, is diverse, well established and extremely resilient. It includes seven natural gas processing plants, nine coastal terminals, 170 regional depots, roughly 1,000 local small business distributors and over 3,700 autogas refuelling stations across Australia. As such, while not as visible as some critical energy infrastructure such as major power lines or

natural gas pipelines, it nonetheless represents a valuable and unique national asset in terms of its resilience and ability to fuel a wide range of energy applications anywhere across Australia.

Moreover, the integrated nature of its supply chain, whereby LPG used in the stationary energy and autogas markets can be stored and distributed together, allow it to capture economies of scale that enhances its affordability, bearing in mind that on average over time, autogas costs up to 50 per cent less at the bowser than petrol.

As noted above, while not as well established as LPG, the use of LNG and CNG has the potential to expand in a variety of stationary energy applications, especially power generation.

Question…. the value of developing fuel reserves to meet Australia's international oil security obligations, and augment domestic security

Gas Energy Australia suggests that the EWP needs to assess Australia's current and future liquid fuel security and then determine the most efficient and effective policy response which may or may not include developing fuel reserves to meet Australia's International Energy Agency (IEA) obligations. Gas Energy Australia notes the EWP Issues Paper's estimate that building strategic reserve stocks to maintain compliance with the IEA treaty would cost $6.8 billion and that this would be passed on to consumers in the form of higher energy costs unless funded by taxpayers.

Gas Energy Australia agrees with the conclusion of the 2011 National Energy Security Assessment (NESA) that Australia's liquid fuel security will deteriorate from 2016 as a result of continued rising oil prices as well as increased import reliance combined with decreased non-OPEC and conventional oil supplies, leading to a greater reliance on international supply chains and geopolitically and geologically difficult locations.

While Gas Energy Australia agrees these factors will reduce Australia's liquid fuel security, it considers the NESA does not place sufficient weight on the significant downside risk to global oil supplies posed by the potential for a major global oil supply shock (eg, as a result of increased military action in the Middle East) or a shortfall in global investment over the medium or long term of the sort assessed by the IEA in its 2011 World Energy Outlook (WEO).

A February 2013 NRMA report on Australia's liquid fuel security prepared by strategic defence and security expert Air Vice-Marshal John Blackburn AO, concluded that the Australian Government has downplayed the risk of a major disruption to global oil supplies as has occurred during past Middle East conflicts. Air Vice-Marshal Blackburn found we face a "critical dependence on oil for the effective functioning of our society" and a major disruption to supply would disrupt transport services and threaten supplies of food, drinking water and pharmaceuticals. In addition, the report concluded that "alternate fuels, particularly those in plentiful supply in Australia, are the obvious option to improving our fuel resilience from both the supply and demand side".

In September 2013, the CEO of Caltex Australia, Mr Julian Segal, noting that in a military crisis, neither ships carrying oil nor those carrying finished fuel would reach Australia, said "so really the security of supply in the context of a military situation boils down to the 15 per cent of crude that we produce locally".

Australia is especially vulnerable to a major disruption in the supply of imported fuels. Our large land mass and dispersed population make Australia heavily reliant on the transportation of goods over long distances and 97 per cent of transport is fuelled by increasingly imported oil. And while more than 75 per cent of oil is used for transport purposes, the remainder is used in a range of stationary energy applications vital to Australia's manufacturing, mining and agricultural industries.

Not only would oil prices escalate in response to a disruption to supplies but overtime oil prices have fluctuated more than the prices of gaseous fuels, especially the price of domestically produced natural gas which is not subject to exchange rate movements. Higher oil prices reduce Australia's energy security in terms of less affordable prices that adversely affect the competitiveness of the economy.

When Australia joined the IEA shortly after its establishment in November 1974 in response to the 1973 Arab oil embargo, there were no widely available alternatives to oil-based fuels. That situation has changed. Both the Federal Government's 2011 NESA and 2011 Strategic Framework for Alternative Transport Fuels (SFfATF) acknowledged that it is prudent to maintain a diverse energy supply and encourage the development of commercially viable alternative liquid fuels and technologies.

The 2011 NESA also concluded that diversity of supply, including access to alternative fuels, helped Australia maintain its liquid fuel security in the face of a spate of unhelpful events, including a return to high global oil prices, the political crisis in Libya, as well as oil spills and natural disasters.

Not only is Australia completely self-sufficient in LPG but it is also a net exporter of LPG. In 2012, Australia produced 2,415 kilotonnes of LPG, satisfying a local demand of 1,710 kilotonnes with net exports of 803 kilotonnes. Gas Energy Australia acknowledges the findings of the 2011 NESA that self-sufficiency or adequacy alone does not guarantee energy security. Nevertheless, it wishes to highlight the fact that, as noted above, Australia's LPG industry has the infrastructure and product affordability to make a significant contribution to Australia's energy security in term of reliability and competitiveness.

Australia also possesses vast natural gas reserves which the Federal Government, in its 2012 Energy White Paper, estimated to be equivalent to 184 years of supply at current production rates. The contribution of these reserves to Australia's liquid fuel security as a substitute for petrol and diesel when transformed into LNG and CNG will increase in line with the progressive roll-out of refuelling infrastructure.

Consequently, Gas Energy Australia considers the EWP's development of policies to turn around Australia's expected decline in liquid fuel security need to take account of the nation's large-scale production of LPG and natural gas, much of which is exported, and its extensive domestic LPG storage and distribution infrastructure. Together, these give Australia the capability to quickly respond to any disruption to supplies of imported liquid fuels as well as reduce our growing dependence on imported fuel. This capability will increase as more LNG and CNG refuelling infrastructure is rolled out. More open access to Australian ports, especially loading and storage facilities, would further enhance this capability.

In light of the increase in liquid fuel security increased availability and use of alternative fuels in both transport and stationary applications would deliver, Gas Energy Australia suggests the EWP should recommend that the Government develop an alternative transport fuels policy which would quantify what is a prudent take-up of alternative transport fuels. And following on from this, Gas Energy Australia suggests this policy should include an overarching aspirational target for the take-up of such fuels to which Australian governments would commit, along with actions to achieve the target.

To improve future assessments of liquid fuel security, Gas Energy Australia also suggests the EWP should endorse implementation of a mandatory reporting mechanism for the Bureau of Resources and Energy Economics (BREE) Australian Petroleum Statistics.

Question … ways to increase new gas sources to meet demand and measures to enhance transparency in market conditions

Gas Energy Australia supports the removal of regulatory barriers to new natural gas supplies, especially in NSW, which is needed to dampen the upward pressure on prices from LNG exports.

Gas Energy Australia notes this is important to enable provision of feedstock to produce commercially viable LNG and CNG which can displace electricity thus reducing electricity load and emissions. Gas Energy Australia further notes it is also important because around 80 per cent of the LPG produced in Australia is sourced from natural gas fields and this proportion is expected to rise over the next ten years as a number of major natural gas developments come on stream.

In addition, and as noted above, more open access to Australian ports, especially loading and storage facilities, would also open up new gas sources, especially LPG.

Another source of new gas is renewable natural gas (i.e. biomethane). For example, garbage trucks running on landfill gas not only reduce CO2 emissions associated with running the trucks but also prevent fugitive emissions of methane which are far more damaging to the environment than CO2.

Question … issues relating to the regulation of energy infrastructure

Gas Energy Australia notes that Australia's disaggregated gaseous fuels distribution infrastructure is privately owned and helps reduce the costs associated with large-scale energy network infrastructure. In general, gaseous fuels distribution infrastructure is small-scale and can be readily expanded in response to consumer demands. However, transport of gaseous fuels by sea is constrained by the difficulty of gaining access to Australian ports.

Consequently, Gas Energy Australia calls on all levels of government to work together to improve regulatory approval processes to make it easier to construct and expand storage and supply infrastructure around Australian sea ports. This would give the gaseous fuels industry more flexibility to better meet local demand for its product. This is essential if the industry is to reduce its costs and be more responsive to its customers' needs.

In addition, Gas Energy Australia suggests that Australia's refuelling network be regarded as part of Australia's energy infrastructure and covered in the Federal Government's next Liquid Fuels Vulnerability Assessment.

Key recommendations:

Assess and develop appropriate policy responses to the role distributed energy does and can play in reducing energy costs, improving stationary energy security and improving reliability standards.

Assess Australia's liquid fuel security and determine the most efficient and effective policy response which may or may not include developing fuel reserves to meet Australia's International Energy Agency (IEA) obligations.

Develop an alternative transport fuels policy which would quantify what is a prudent take-up of alternative transport fuels and include an overarching aspirational take-up target which Australian governments would commit, along with actions to achieve the target.

Remove regulatory barriers to new natural gas supplies, especially in NSW, which is needed to dampen the upward pressure on prices from LNG exports.

Improve regulatory approval processes to make it easier to construct and expand storage and supply infrastructure around Australian sea ports.

Include Australia's refuelling network in the next Liquid Fuels Vulnerability Assessment.

b. Regulatory Reform and Role of Government

Question … priority issues, barriers or gaps within the Council of Australian Governments (COAG) energy market reform agenda

Gas Energy Australia notes that the COAG energy market reform agenda has been largely focussed on issues related to Australia's large-scale electricity and natural gas networks and accepts this is understandable given the size of these networks. However, Gas Energy Australia notes that the failure to implement the previously agreed electric hot water phase out across all mainland jurisdictions represents a significant missed opportunity to use natural gas and LPG to reduce Australia's GHG emissions at minimum cost.

Gas Energy Australia suggests a number of regulations applying to the gaseous fuels sector could be added to the COAG energy market reform agenda to reduce energy costs for businesses and consumers. For example, the SFfATF identified the following regulatory barriers to the uptake of LPG:

1) inconsistency between State and Territory regulations applicable to the Autogas sector (which for example require different LPG conversion kits to be sold in some jurisdictions);

2) differences between Australian and international standards for Autogas equipment design and compliance standards;

3) the inability to recognise international standards for Autogas equipment; and

4) the lack of national compliance and certification for persons performing LPG conversions, including compliance standards for equipment and the use of certified kits.

In addition, the SFfATF identified regulations preventing LNG and CNG vehicles from having larger fuel tanks to achieve similar ranges to conventional heavy duty vehicles as a specific barrier discouraging the take-up of these vehicles.

At present, Gas Energy Australia is examining the following gaseous fuels sector regulatory reforms, which are focused on harmonising regulations applying to gas applications in the transport and stationary sectors, which could be added to the COAG energy market reform agenda to reduce energy costs for businesses and consumers.

1) Standardisation of state and territory procedures for issuing a permit to transport gaseous fuels across state and territory borders.

2) Harmonise and standardise the state and territory procedures for registering pressure vessels that hold gaseous fuels.

3) Mutual recognition of approvals granted by Australian States to transport gas cylinder automotive components prior to manufacturing assembly.

4) Recognise testing of LPG under-bonnet kits conducted in comparable jurisdictions (eg, Europe) and obviate the need to retest the kits in Australia.

With regard to gas powered vehicles, Gas Energy Australia is concerned that if a vehicle, or vehicle component, has satisfied international testing and certification standards, there is no obvious benefit from re-testing and re-certifying if the international standard is equivalent or better than the Australian standards. Re-testing and re-certifying imposes costs on the Australian community which include creating a barrier to the adoption of new technology if Australian standards and regulations fail to keep pace with the latest developments overseas.

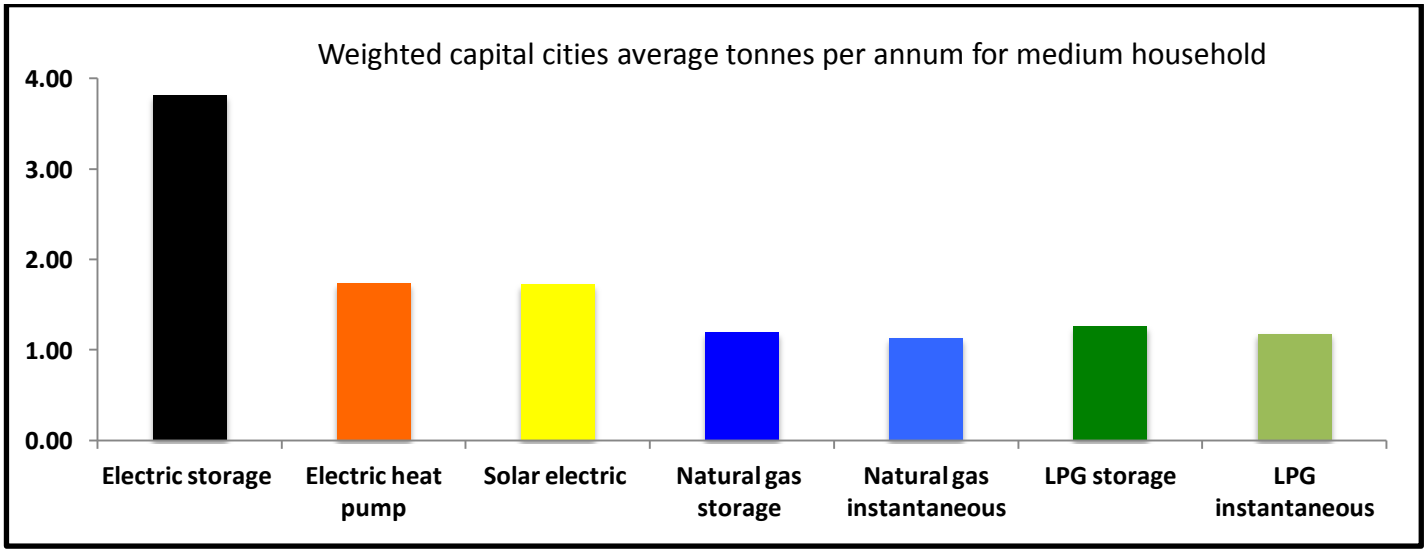
The additional costs associated with re-testing and re-certifying also increase the price of gas powered vehicles and discourages their take-up, thereby denying the community the environmental and energy security benefits they offer. Moreover, because gas-powered vehicles occupy a much smaller segment of the market than petrol or diesel powered vehicles, these additional costs are shared by fewer vehicles which disproportionately increase the price of gas-powered vehicles.

Question … possible approaches and impacts of review of tariff structures including fixed network costs, further time-of-use based electricity tariffs and the use of smart meters

With regard to the review of the Renewable Energy Target (RET) being integrated into the Energy White Paper, Gas Energy Australia supports this approach and considers it an important step to better aligning climate change policies with a broader energy policy framework. Gas Energy Australia suggests the review needs to include the Small Renewable Energy Scheme (SRES) and can see no justification why the SRES continues to provide financial assistance to households to buy solar and electric heat pump household water heaters but not natural gas or LPG water heaters.

The folly of this policy is highlighted by research undertaken by Pitt & Sherry in 2013 on behalf of Gas Energy Australia which is summarised in Figure 1 below. It shows that in terms of emissions reductions, natural gas and LPG water heaters outperform solar-electric and electric heat pumps as well as electric storage water heaters.

Figure 1: GHG emissions from residential hot water systems



Source: Pitt&Sherry (2013) and the ABS.

With regard to the lack of cost reflective electricity pricing identified in the EWP Issues Paper, Gas Energy Australia agrees with the previous findings of the COAG Standing Council on Energy and Resources that cross-subsidies can "distort efficient consumption, affect production efficiencies and lead to cost padding". Gas Energy Australia considers the presence of such cross-subsidies, especially those benefitting electricity consumers in remote and regional areas, disadvantages stationary energy gaseous fuels. As a result, Gas Energy Australia supports additional regulatory reforms to make electricity prices more reflective of costs.

Question … areas where further privatisation of government-owned assets would contribute to more effective regulatory frameworks and better outcomes for consumers

As noted above, Australia's gaseous fuels distribution infrastructure is privately owned. However, Gas Energy Australia does not support government policies to subsidise energy network infrastructure expansion which assist some consumers but penalise others, especially those living in regional and remote areas, through higher taxes and charges.

Key recommendations:

Add regulatory reforms applying to the gaseous fuels sector to the COAG energy market reform agenda.

Include the Small Renewable Energy Scheme (SRES) in the review of the Renewable Energy Target (RET) and end financial assistance to households to buy solar and electric heat pump household water heaters.

Implement regulatory reforms to make electricity prices more reflective of costs.

End government policies that subsidise energy network infrastructure expansion.

c. Growth and Investment

Question … commercial or market initiatives that could enhance growth and investment in the energy and resources sectors

Gas Energy Australia considers the EWP should consider energy related commercial or market initiatives that could enhance growth and investment in all sectors of the Australian economy including the energy and resources sectors.

For example, reduction of barriers to the use of gaseous fuels in both transport and stationary energy applications would not only stimulate the gaseous fuels industry but also the industries that support such applications. The Government's Emissions Reduction Fund (ERF) might encourage adoption of low emissions gaseous fuels technologies.

Growth in transport applications of gaseous fuels would encourage development and manufacturing in areas such as engine manufacturing and modifications as well as supporting industries such as insulation, tanker and vessel manufacturing. And the range of transport applications is growing to cover marine, rail and mining trucks as well as road transport.

Increased adoption of transport LNG would also boost jobs and investment in regional Australia where refuelling networks and the appropriate supporting infrastructure would be required.

Growth in stationary energy applications of gaseous fuels would improve the competiveness of businesses where the costs of connecting to the natural gas pipeline network are prohibitive as well as

where downward pressure on electricity prices is exerted by reducing the load on the electricity grid, especially during peak demand periods.

Question … areas where approvals processes could be further streamlined while maintaining proper environmental and social safeguards

See above in relation to regulatory reform and role of government.

Question … further ways that regulatory burdens could be reduced while maintaining appropriate levels of disclosure and transparency in energy markets

See above in relation to regulatory reform and role of government.

Question … the impacts of variable land access policy and ways the community could be better informed and engaged on development in the energy sector

Gas Energy Australia suggests that governments need to play a more active role in explaining safeguards in current coal seam gas (CSG) approvals processes and addressing unfounded concerns about CSG developments.

Key recommendations:

Consider commercial or market initiatives that could enhance growth and investment in all sectors of the Australian economy.

Governments should play a more active role in explaining safeguards in current coal seam gas (CSG) approvals processes and addressing unfounded concerns about CSG developments.

d. Trade and International Relations

Question ... ways to remove unnecessary barriers to continued foreign investment in Australia's energy sector

Gas Energy Australia considers implementation of a mandatory reporting mechanism for the BREE Australian Petroleum Statistics, including standardisation of reporting and measurement of supply and production across all fuels, as suggested above, would facilitate foreign investment in Australia's oil and gas sector.

Question … ways to support business to maximise export opportunities for Australia's energy commodities, products, technologies and services, including the value of Australia's participation in the variety of international forums

Gas Energy Australia suggests harmonisation of Australian vehicle standards, especially in relation to gas powered vehicles, with international standards would facilitate adoption of the latest gas technologies as well as the export of specialised gas appliances where Australia has particular expertise.

Key recommendations:

Implement a mandatory reporting mechanism for the BREE Australian Petroleum Statistics.

Harmonise Australian vehicle standards with international standards.

e. Workforce Productivity

Question … the nature of any current skills shortages being experienced and how these could be addressed by and with industry

Gas Energy Australia notes there are skills shortages in the manufacturing of LNG vehicles and vessels.

Gas Energy Australia suggests the Australian Government invest in the retraining of some retrenched automobile manufacturing workers to enable them to transition into manufacturing engines and transport vessels for gaseous fuels.

Question …. specific long-term training and skills development needs for alternative transport fuel, renewable energy, energy management and other clean energy industries

Gas Energy Australia suggests that to meet longer-term needs, the Government should work with industry, state governments and training providers to identify future needs for specialised skills for the gaseous fuels sector.

Key recommendations:

Invest in retraining of retrenched automobile manufacturing workers to enable them to transition into manufacturing engines and transport vessels for gaseous fuels.

Governments should work with industry and training providers to identify future needs for specialised skills for the gaseous fuels sector.

f. Driving Energy Productivity

Question … the current suite of energy efficiency measures, ways these could be enhanced to provide greater energy efficiency or possible new measures that would enhance energy productivity

As discussed above, Gas Energy Australia notes the important role alternative gaseous fuels play in lowering peak demand loads on grids, thereby reducing infrastructure investment needs and cutting energy costs. Moreover, increasingly efficient gas appliances, for both households and businesses, can further contribute to reducing energy usage and GHG emissions.

However, Gas Energy Australia notes with significant concern that energy efficiency standards have the potential to disadvantage natural gas and LPG if focused on end-use efficiency rather than full life-cycle energy efficiency or full life-cycle GHG emissions. Most importantly, by discouraging use of low cost low emission gaseous fuels, such standards disadvantage Australian consumers by pushing up the price of energy.

In addition, Gas Energy Australia considers the ability of the Federal Government's ERF to address climate change in a way that minimises costs to the community would be compromised if it focused on end-use GHG emissions rather than full life-cycle GHG emissions. Consequently, Gas Energy Australia considers it is critical that the ERF's design incorporates technology neutrality and is sufficiently flexible to accommodate the disaggregated supply chain that characterises the alternative gaseous fuels industry in relation to its treatment of emission reduction measurement standards. Such an approach would help

better aligning climate change policies with a broader energy policy framework that placed a premium on containing energy costs.

Gas Energy Australia also suggests the EWP should attempt to quantify the costs of current poor national energy efficiency governance arrangements.

Gas Energy Australia also suggests indicators of energy intensity and energy efficiency should focus on full life-cycle energy efficiency rather than end-use energy efficiency.

Question … the use of demand-side participation measures to encourage energy productivity and reduce peak energy use

As discussed above, Gas Energy Australia notes increased use of gaseous fuels as a stationary energy source can achieve the same result by delaying or postponing indefinitely the significant costs of expanding or upgrading electricity and natural gas grids as well as reduce the strain on the electricity grid during peak load periods.

Question … measures to increase energy use efficiency in the transport sector

Gas Energy Australia considers that because the principal-agent problem is much less prevalent for transport vehicles than homes, as well as transport fuel cost savings being more significant and more easily measured, the case for imposing energy efficiency standards in the transport sector is less strong than in the stationary energy sector. On the other hand, a much stronger case exists to apply CO2 emission standards to vehicles as is the case in Europe, North America and Japan given that the costs of GHG emissions are external to individual vehicle operators.

Gas Energy Australia also notes the demise of Australia's car manufacturing industry provides greater scope to align with CO2 emission standards in Europe, North America and Japan which would encourage greater take up of advanced gaseous fuels technologies.

Consequently, Gas Energy Australia suggests the EWP consider Australia adopting CO2 emission standards for vehicles aligned with CO2 emission standards in Europe, North America and Japan rather than energy efficiency standards.

Key recommendations:

Energy efficiency standards and carbon reduction policies and programs such as the Emissions Reduction Fund (ERF) should be technology neutral and focus on full life-cycle energy efficiency or GHG emissions not end-use energy efficiency or GHG emissions.

The costs of current poor national energy efficiency governance arrangements should be quantified.

Indicators of energy intensity and energy efficiency should focus on full life-cycle energy efficiency rather than end-use energy efficiency.

Adopt CO2 emission standards for vehicles aligned with CO2 emission standards in Europe, North America and Japan.

g. Alternative and Emerging Energy Sources and Technology

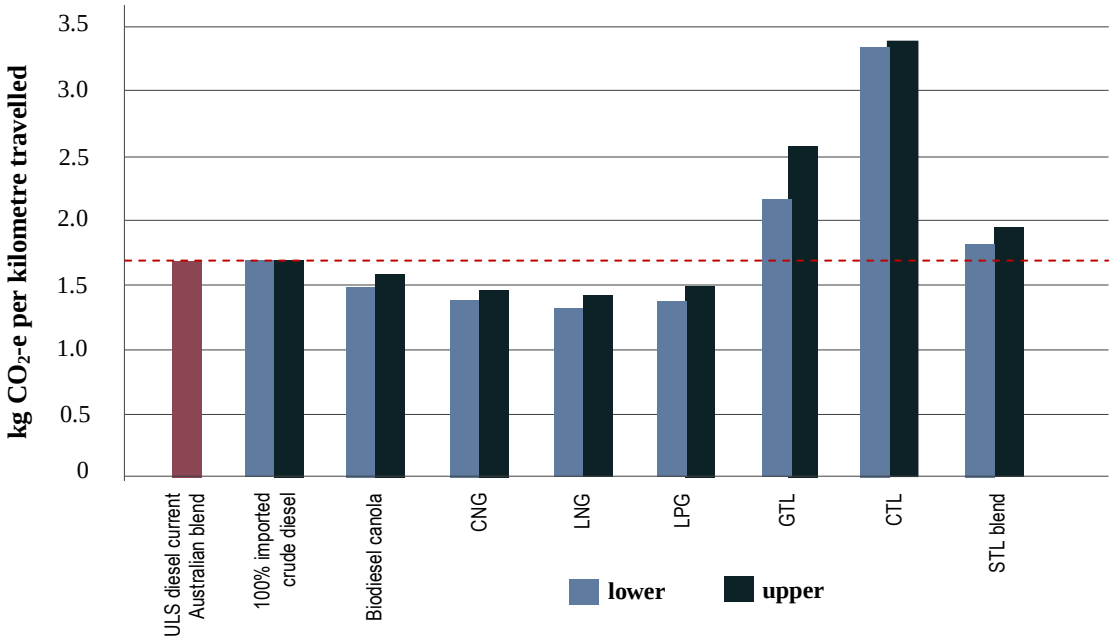
Question … ways to encourage a lower emissions energy supply that avoids market distortion or causes increased energy prices

A key finding of Gas Energy Australia's 2013-14 Budget Submission is that increased use of gaseous fuels provides a least cost pathway to realisation of GHG emissions reductions from transport and non-transport energy use. The research undertaken by Rare Consulting (a division of engineering and economic consultancy firm Pitt & Sherry) that underpinned the Submission concluded that while gaseous fuels do not necessarily provide the greatest level of abatement, they do provide significant GHG reductions for a low cost relative to alternatives such as electric vehicles in transportation or photovoltaics for residential energy consumption.

The principal means by which greater use of alternative gaseous fuels reduces GHG and other emissions is fuel switching – converting existing vehicles and appliances to run on gas or purchasing new vehicles and appliances that run on gas. This stems from the fact that the combustion of gas produces significantly lower emissions than the dominant fuel sources in the transport and non-transport sectors which are petrol and diesel, and coal respectively.

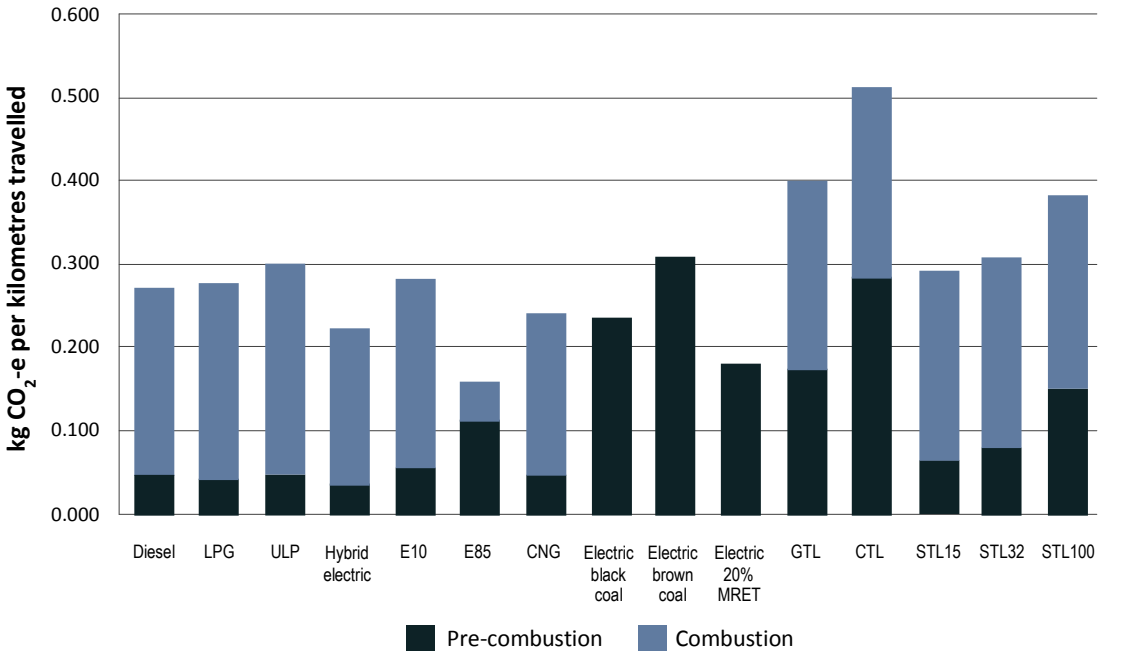
There are costs associated with converting existing vehicles and appliances to run on gas and gas powered new vehicles and appliances often cost more than those powered by the dominant fuel source. But the cost of gaseous fuels is frequently less than that of the dominant fuel, especially in the transport sector, which offsets higher capital costs. As a result, switching to gas powered vehicles and appliances can be a very cost effective form of abatement.

Figure 2: Carbon intensity of an Australian articulated truck (43 t gross weight)



Source: Rare Consulting (2009)

Figure 3: Carbon intensity of Australian passenger vehicles



Source: Rare Consulting (2010)

Transport sector: When used in transportation, and depending upon the sophistication of the combustion technology used, LPG powered vehicles can deliver GHG emissions benefits in the order of 10% to 16%. Similarly, and subject to the same caveat in terms of the nature of the combustion technology used, natural gas–powered vehicles (CNG and LNG) can deliver benefits in the order of 8 to 25 per cent (see Figures 2 and 3 above).

In addition, economic modelling by Rare Consulting suggested the Submission's initiatives would deliver:

1) a diversion of transport energy demand from liquid fuels to gas of 139.9 petajoules (PJ) by 2020, and nearly 1965 PJ by 2030 (equal to about 57.5 billion litres of petrol); and

2) a resulting saving in GHG emissions exceeding 0.2 million tonnes (Mt) of CO2 over the next four years, and a cumulative emissions saving exceeding 1.7 Mt of CO2 by 2020.

Further, the United States Department of Energy (US DOE) has concluded that natural gas burns cleaner than conventional gasoline (petrol) or diesel due to its lower carbon content and that switching from oil-based fuels to natural gas can result in substantial reductions of hydrocarbon, carbon monoxide and oxides of nitrogen, as well as greenhouse gas emissions. It also noted that because natural gas is non-toxic, it isn't harmful to soil or water.

In particular, in studies of heavy-duty vehicles, US DOE's review found that the use of CNG and LNG, when compared to diesel, reduces life cycle particulate matter from 85 per cent to near 100 per cent (ie, undetectable levels), emissions of nitrogen oxides by 17 to 80 per cent and emissions of GHGs by at least 16 to 23 per cent.

Non-transport sector: Similarly, the use of gaseous fuels in lieu of electricity provides a significant opportunity to realise low cost abatement from domestic and industrial energy consumption. This can include actions such as switching from solid fuel fired boilers to gas fired ones, substituting diesel fuelled off-grid power generation with gas or converting diesel powered off-road mine haul vehicles to run on gas. The deployment of gas heat pumps and gas fired air conditioning represent opportunities for further abatement and information on these technologies can be obtained from Gas Energy Australia.

In the case of electricity consumption by households, the replacement of electric storage hot water heaters with gas hot water heaters is estimated to deliver a large reduction (see Figure 1 above) for a relatively small cost compared with solar alternatives. Gas Energy Australia estimates that if every home without a natural gas connection or not using solar or LPG water heating was to switch from an electric hot water system to one powered by LPG, around 6.2Mt million tonnes of CO2 could be saved each year.

Question … the need to review existing network tariff structures in the face of rapidly growing deployment of grid-backed-up distributed energy systems, to ensure proper distribution of costs

As discussed in relation to regulatory reform and role of government, Gas Energy Australia supports the review of the RET including the SRES and can see no justification why this Scheme continues to provide financial assistance to households to buy solar and electric heat pump household water heaters but not natural gas or LPG water heaters.

Question … any barriers to increased uptake of LPG in private and commercial vehicles and CNG and LNG in the heavy vehicle fleet

In addition to regulatory barriers to the uptake of gas powered vehicles discussed above, the SFfATF identified a range of other barriers to the increased take-up of LPG vehicles which Gas Energy Australia considers still exist, most notably:

1) a lack of consumer awareness of advancements in LPG technology;

2) the costs of upgrading infrastructure; and

3) product and technology constraints.

Gas Energy Australia considers similar barriers exist in relation to increased take-up of stationary energy LPG.

Gas Energy Australia also agrees with the findings of the SFfATF that a somewhat different set of barriers are currently holding back the take-up of LNG and CNG vehicles, most notably:

1) a lack of distribution infrastructure, especially adequate refuelling networks;

2) the availability of CNG and LNG original equipment manufacturer (OEM) vehicle products in Australia being limited to the heavy line haul segment; and

3) high switching costs with the initial capital cost of gaseous heavy duty vehicles being, in some cases, up to $110,000 more than conventional fuel vehicles.

In addition, lack of distribution infrastructure and the high costs of conversions also represent barriers to the take-up of stationary energy LNG and CNG.

Another barrier to the growth of gas-powered vehicles is the progressive imposition of fuel excise on transport LPG, LNG and CNG which commenced in December 2011. The introduction of an excise on transport LNG and CNG at a formative stage in the industry's development has coincided with a stalling of

growth in this market. In response, Gas Energy Australia suggests the EWP should recommend the impact of the progressive imposition of fuel excise on transport LNG and CNG be reviewed.

More recently, the decisions by Ford Australia and General Motors Holden, which are the only suppliers of factory fitted LPG vehicles to the Australian market, that they will cease manufacturing in Australia in 2016 and 2017 respectively, represents an additional barrier to growth of Australia's autogas industry. These decisions, on top of declining conversion numbers, put at risk the supply and distribution network for autogas which is one of the key pieces of infrastructure that enables fuel switching. In response, Gas Energy Australia, in partnership with the Victorian Automobile Chamber of Commerce, has developed a proposal to develop a national autogas centre of excellence and conversion centres to replace the loss of Ford and Holden LPG new vehicles.

Similarly, Westport's recent decision to stop supplying 15 litre natural gas engines to the Australian market has dealt a blow to the growth of gas powered heavy vehicles in Australia.

As a result, Gas Energy Australia suggests the alternative transport fuels policy recommended above should also include policies to reduce barriers to the adoption of gaseous transport fuels to which Australian governments would commit.

Key recommendations:

Include policies to reduce barriers to the adoption of gaseous transport fuels in an alternative transport fuels policy.

Review the impact of the progressive imposition of fuel excise on transport LNG and CNG.

3. Conclusion

Gaseous fuels are a significant part of Australia's energy mix and have the immediate potential to contribute further to increasing energy security, reducing GHG emissions, improving air quality and leveraging Australian manufacturing industries' expertise and capabilities in developing new and innovative gaseous fuel technologies. However, for this potential to be realised it is essential that governments and industry work together to overcome a range of barriers holding back the use of gaseous fuels in Australia. One of these barriers has been a failure to align climate change policies with a broader energy policy framework.

Gas Energy Australia looks forward to working with the Government to develop an Energy White Paper that addresses such barriers with a coherent and integrated energy policy framework for Australia that places a premium on containing energy costs.

4. Recommendations

Gas Energy Australia recommends that the EWP assesses and develops appropriate policies necessary to implement the recommendations detailed within this Submission.

For your consideration.

Yours sincerely

Mike Carmody
Director and Chief Executive Officer

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