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Ms Judith Zielke

Executive Director

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Department of Infrastructure and Regional Development

111 Alinga Street,

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Via email: vemissions@infrastructure.gov.au

GEA SUBMISSION ON THE VEHICLE EMISSIONS DISCUSSION PAPER

Dear Ms Zielke

On behalf of the members and associates of Gas Energy Australia (GEA), I am pleased to make a submission to the Federal Department of Infrastructure and Regional Development responding to the Vehicle Emissions Discussion Paper issued on behalf of the Ministerial Forum on Vehicle Emissions.

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

GEA considers the work of the Ministerial Forum on Vehicle Emissions to be a very positive step to better coordinate Government policy and enable it to achieve:

- Australia's goal to achieve a 26%-28% reduction in 2005 CO₂ emissions by 2030;
- the air quality objectives in the National Clean Air Agreement; and
- the energy productivity targets of the National Energy Productivity Plan.

GEA is encouraged by the 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 about 17% of total emissions in Australia, there is significant scope for this sector to contribute to the Government's environmental objectives. In particular, the objective, technology neutral approach adopted in the Discussion Paper to assess policy options where implementation costs, environmental benefits and other impacts are considered should ensure that the most efficient and cost effective option is pursued rather than the most popular.

Australia has vast supplies of affordable LPG and natural gas which both have a low carbon and noxious chemical content. Hence, the gaseous fuels industry is confident that it can assist the transport sector to

achieve improved emission and environmental outcomes with the aid of supportive government policy settings.

GEA is pleased to provide the following responses below to the specific questions in the Discussion Paper which we hope will be considered in the development of measures to reduce vehicle emissions.

Adopt Euro 6/VI noxious emission standards for light and heavy vehicles

1. What are the likely costs and benefits of adopting Euro 6 emissions standards for light vehicles and/or Euro VI emission standards for heavy vehicles?

GEA has advocated for higher emission standards for heavy vehicles in Australia. The use of gaseous fuels in vehicles is a potential approach to meet Euro 6 emission standards with new vehicles and conversions of conventional vehicles, provided emission reductions are certified. The costs to the Government of meeting emission standards by supporting this approach would include strengthening regulatory oversight arrangements over conversions. In addition, some marketing efforts may be required to overcome the poor public perceptions of vehicles retrofitted with gas systems. However, these costs are likely to be small compared to the environmental and community benefits of this approach to meeting emission standards. For example, the 2015 journal article, *The health benefits of reducing air pollution in Sydney, Australia* estimates that reducing 2007 PM_{2.5} levels in Sydney by 10% would, over 10 years, result in 650 fewer premature deaths, a gain of 3,500 life years and 700 fewer respiratory and cardiovascular hospital visits.

In the US, the Clean Diesel Funding Assistance Program provides financial support for projects which reduce diesel emissions. Eligible projects involving the replacement of diesel vehicles/equipment with newer and cleaner alternative fuel vehicles/equipment can attract funding of up to 25% of the project cost. A similar program in Australia could encourage use of alternative fuels by the existing heavy vehicle fleet including low cost diesel and CNG dual fuel conversions. This would allow the transport sector to contribute to emission reduction targets more quickly than imposing standards on new vehicles only.

2. If Euro 6/VI standards were adopted, when would be an appropriate start date and why?

GEA has previously advocated for the adoption of stricter emission standards as soon as possible in line with other developed countries. However, the implementation of new emission standards should be carried out in consultation with operators of large fleets of heavy vehicles and importers of light vehicles.

3. To what extent do current Australian fuel quality standards limit the adoption/import of existing technologies and models that meet Euro 6 specifications?

GEA notes that following a review of the Autogas Standard in 2010, the Government introduced new limits on sulfur and residue content which were more closely aligned with the specifications of LPG in Europe. This should reduce barriers to the importation of the latest autogas technologies from Europe, the Asia Pacific and the US, and result in similar emission performance of imported autogas vehicles that meet Euro 6 or similar specifications as those driving in Europe, the Asia Pacific and the

US. Nevertheless, Australia should continue to monitor changes to fuel quality standards in Europe to ensure our fuel is compatible with vehicles from these countries in the future.

4. Are there other ways governments could encourage the purchase and supply of vehicles that meet Euro 6/VI emissions standards?

The Australian Government's reform of the *Motor Vehicle Standards Act 1989* process will remove some of the barriers to the importation of vehicles from the UK, US, EU and Japan. This will increase the availability of environmentally friendly vehicles given that vehicles from these countries meet Euro 6 or equivalent standards. This could also facilitate technology and knowledge transfer to Australia's automobile support and manufacturing industries to maintain the supply of Euro 6 vehicles in the future. LPG and natural gas vehicles including those suitable for conversion are readily able to meet Euro 6 and strict CO₂ standards and already contribute to environmental objectives in other countries. GEA encourages the Australian Government to include arrangements for the import and support for these vehicles in the reform process.

5. What measures could governments adopt to ensure vehicles continue to comply with noxious emission requirements beyond the point of supply to the market?

GEA considers that the Government and industry should conduct more research on the cause of emissions from the transport sector to inform modelling. Real world testing of emissions could be undertaken on a random sample of vehicles periodically to calibrate models and provide a snapshot of actual data on the emission performance of individual vehicles and the transport sector as a whole. This approach would allow the Government to provide ongoing estimates of emission levels and test scenarios at reasonable cost.

GEA has advocated the adoption of portable emissions measurement systems (PEMS) in the review of AS2739:2009 Natural Gas Fuel Systems of Vehicles. And GEA will seek a review of the equivalent LPG standard when the amendments have been approved. The wider use of PEMS in Australia, if endorsed and driven by an independent body, would enable more accurate and credible assessment of emission performance of vehicles under real driving conditions and prevent manufacturers from making vehicles that meet emission standards in laboratory tests but not in typical driving conditions. Currently, emission results from vehicles tested in laboratories are used for approvals under Australian Design Rules but these are not representative of real driving conditions.

6. Should the Australian Government conduct a review to consider whether noxious emissions standards for motorcycles should be adopted in Australia?

With motorcycles making a small proportion of the vehicle fleet and contributing little to total transport emissions, GEA considers greater attention should be placed on the environmental performance of other vehicle types in the first instance. This will ensure that efforts at reducing emissions from the transport sector achieve the greatest benefits.

Develop Fuel Efficiency (CO₂) Standards

7. What are the costs and benefits of adopting a fleet average standard for fuel efficiency (CO₂)?

GEA supports the use of CO₂/km fleet average standards for manufacturers to account for the different types of vehicles produced.

However, we consider that the term fuel efficiency could cause confusion as stakeholders may interpret this to mean fuel consumption per kilometre travelled. GEA suggests that a clearer explanation be given in future documents or the use of a new term such as carbon savings.

8. If standards were adopted, what would be an appropriate fleet average target for 2020 and why? What would be an appropriate target for 2025 and why?

GEA considers that targets should be based on a percentage decrease in emissions per year for the range of cars each manufacturer sells rather than set values to account for different base levels of emissions.

9. How would standards affect the range of vehicles offered in Australia?

Stricter emission standards would open Australia's automobile market to more vehicles with the latest low emission technology. This would benefit Australia by directly improving environmental outcomes and increasing the transfer of knowledge from other countries with more experience in this field. Without these standards, Australia could be supplied with outdated vehicles which do not meet the standards in other developed countries. This could possibly include the last remaining diesel vehicles from countries in Europe that they intend to dispose of.

GEA in collaboration with the Victorian Automobile Chamber of Commerce and the Victorian Government recently commissioned preparation of an autogas vehicle demand study which GEA can provide after its official release by the Victorian Government. Modelling in the study indicates that using the Climate Change Authority's medium CO₂ target would require a significant change in new vehicle sales profile, from LCV and SUV to passenger cars.

10. Apart from standards, are there any complementary or alternative measures that could be adopted to encourage the purchase and supply of more fuel efficient vehicles?

The *Vehicle Emissions Discussion Paper* notes that previous studies from the then Department of Infrastructure and Transport and the Climate Change Authority suggest that the savings from lower fuel consumption can outweigh the higher upfront cost of efficient vehicles over their lives. This suggests that lack of information could be preventing consumers from correctly assessing the private benefits of purchasing a fuel efficient vehicle.

The Green Vehicle Guide is a valuable tool for assisting consumers with evaluating lifetime costs of vehicles. There needs to be greater consumer awareness of this resource and GEA encourages the Australian Government to promote this website through advertising. GEA suggests that including Recommended Retail Prices for vehicles as a field in the comparison tables to enable consumers to easily calculate total ownership costs.

However, existing emission and fuel consumption data on the Green Vehicle Guide are based on results obtained from testing in laboratories. These do not reflect real driving conditions and the use of PEMS and/or data from overseas such as Europe where best practice vehicle testing is conducted could improve the accuracy of the information.

11. What would be the most efficient and effective measures to improve the fuel efficiency of heavy vehicles in Australia?

Improving fuel efficiency (CO₂) standards in heavy vehicles is important given the long distances and volumes involved in road freight transport in Australia. The Australian Government has previously committed to imposing a fuel excise burden for gaseous fuels of no more than 50% of that compared to diesel on an energy equivalent basis on account of the environmental benefits of gaseous fuels. However, subsequent actions including the freezing of the road user charge and reintroduction of fuel excise indexation has resulted in this burden exceeding 50%. GEA considers that restoring this burden to the committed level is an important first step to encourage the uptake of fuel efficient heavy vehicles. Vehicle procurement decisions by transport operators are highly sensitive to cost and a market based approach such as a fuel excise discount would be effective in incentivising desired outcomes.

Further, greater use of these fuels would have the benefit of reducing particulate and other noxious emissions in addition to CO₂. The focus on reducing CO₂ emissions in Europe led to greater uptake of diesel and increased production of these pollutants.

GEA also considers that the term “fuel efficiency standards” implies that fuel consumption per kilometre travelled will be regulated. The Government should provide clarification that this relates to regulation of CO₂ emissions or consider using a different term.

12. Should the Australian Government conduct a review to consider whether fuel efficiency measures for motorcycles should be adopted in Australia?

As noted in Question 6, motorcycles make up a small proportion of the vehicle fleet and contribute little to total transport emissions. GEA considers greater attention should be placed on the environmental performance of other vehicle types in the first instance. This would ensure that efforts to reduce emissions from the transport sector achieve the greatest benefits.

Other complementary measures

Fuel Quality Standards

13. Are there changes to fuel quality standards that could assist with reducing noxious emissions and/or CO₂ emissions?

No comment.

14. Do you have new information that could assist with the assessment of costs and benefits of adopting more stringent fuel quality standards, in particular for petrol?

The classification of diesel exhaust as a confirmed carcinogen by the World Health Organisation should be taken into account in determining petrol fuel quality standards given that it also produces significant levels of particulates. As noted in Question 1, the 2015 journal article, *The health benefits of reducing air pollution in Sydney, Australia* estimates that reducing 2007 PM_{2.5} levels in Sydney by 10% would, over 10 years, result in 650 fewer premature deaths, a gain of 3,500 life years and 700 fewer respiratory and cardiovascular hospital visits. Hence, the benefits of improved air quality are likely to significantly exceed the costs of implementing higher fuel quality standards.

15. To what extent, if any, do current fuel quality standards limit the choices of vehicles/technologies in Australia and why?

As noted above in relation to question 3, Australian fuel quality standards for LPG are closely aligned with Europe EN 589 standards.

16. Are there other measures that governments could adopt to encourage the supply and purchase of higher quality fuels?

The Government could also consider increasing community awareness about the environmental and health benefits of available alternative fuels to the community in addition to the regulatory and tax policies discussed above. The gaseous fuels industry has found a lack of community and government awareness about the inherent lower carbon and noxious chemical content in Australian LPG and natural gas fuels compared to conventional fuels. This has resulted in other clean energy technologies receiving disproportionately more support from governments.

Information and Education

17. Have you found the information provided on the fuel consumption label and the Green Vehicle Guide website useful in considering the purchase of a new vehicle?

As noted in Question 10, the Green Vehicle Guide is a valuable tool for assisting consumers with evaluating lifetime costs of vehicles including the upfront purchase price and running costs. There needs to be greater consumer awareness of this resource and GEA encourages the Australian Government to promote this website through advertising. GEA suggests that including Recommended Retail Prices for vehicles as a field in the comparison tables to enable consumers to easily calculate total ownership costs.

However, existing emission and fuel consumption data on the Green Vehicle Guide are based on results obtained from testing in laboratories. These do not reflect real driving conditions and the use of PEMS and/or data from overseas such as Europe where best practice vehicle testing is conducted could enhance the usefulness of the information.

18. How could the information provided on the fuel consumption label and the Green Vehicle Guide be improved to encourage the purchase of more efficient vehicles?

GEA suggests that including Recommended Retail Prices for vehicles as a field in the comparison tables to enable consumers to easily calculate total ownership costs. Some consideration could be given to enhancing calculator to provide the net present value of upfront and ongoing vehicle costs. The database could also be enhanced to include information on used vehicles and conventional vehicles retrofitted with gaseous fuel systems.

As noted in Question 10, existing emission and fuel consumption data in the Green Vehicle Guide are based on results obtained from testing in laboratories. These do not reflect real driving conditions and the use of PEMS and/or data from overseas such as Europe where best practice vehicle testing is conducted could improve the accuracy of the information.

19. Have manufacturers and dealers found the information provided on the fuel consumption label and the Green Vehicle Guide useful for product planning and marketing?

No comment.

20. At what point in the decision making process is information on vehicle efficiency most effective in influencing purchasing decisions and what information mediums are most effective?

Information on vehicle efficiency is important at the early stage of the purchasing decision because total vehicle costs are one of the key considerations for consumers. A government website such as the Green Vehicle Guide would be effective at communicating information which needs to be impartial, accurate and comprehensive. An online platform would be convenient for consumers looking for information.

Governments should also consider encouraging private car seller websites to provide or link to information on the Green Vehicle Guide as these websites are often the points where initial research and final purchasing decisions are made.

21. What could governments do to improve the availability of data on fuel efficiency of used vehicles?

Australian governments could consider undertaking random PEMS testing of used vehicles to add to existing information on transport emissions at reasonable cost. In addition, testing of vehicles retrofitted to use gaseous fuels would enable comparisons on emission performance to be made with their unmodified counterparts with similar mileage. The Green Vehicle Guide would be a suitable collation point for this information.

As noted in Question 20, governments should also consider encouraging private car seller websites to provide or link to information on the Green Vehicle Guide as these websites are often the points where initial research and final purchasing decisions are made.

22. How could governments encourage more efficient driver behaviour?

No comment.

Fleet Purchasing Policy

23. What role, if any, should the Government fleet purchasing policy play in encouraging the supply and purchase of more efficient vehicles?

The application of government fleet purchasing policy to favour efficient vehicles could be useful in accelerating their uptake while policies addressing the underlying causes of their underconsumption are implemented. These underlying causes include information gaps and the external costs of higher emissions from less efficient vehicles not being priced. The adjustment period required for consumers and suppliers to react to policies encouraging the supply and purchase of efficient vehicles could be long due to the long life of vehicles and uncertainty about quality. Government fleet purchasing policies to include efficient vehicles as well as converted gaseous vehicles could accelerate their uptake in the market.

However, Government fleet purchasing policies alone are not likely to increase the supply and purchase of more efficient vehicles in the long term without appropriate policies, incentives and regulations to address underlying barriers to their uptake.

Tax policy

24. How could taxes and charges for motor vehicle purchase and/or use be reformed to encourage the purchase and supply of more efficient vehicles?

The Australian Government has previously committed to imposing a fuel excise burden on gaseous fuels of no more than 50% of that compared to diesel on an energy equivalent basis on account of the former's environmental benefits. However, subsequent actions including the freezing of the road user charge and reintroduction of fuel excise indexation has resulted in this burden exceeding 50%. GEA considers that restoring this burden to the committed level as an important first step to prevent discouraging the uptake of low emission vehicles. Accelerated depreciation and reducing registration costs such as the cleaner fuels discount offered in ACT would also address the higher costs of using low emission equipment.

In the longer term, the Government should progress options to implement road user charging rather than reforming the existing system of stamp duty, registration and fuel excise charges for funding road investments and maintenance. The Australian Government has identified that the existing system does not promote efficient use of, investment in and operation of the road network and road user charging options have been considered to replace it. Continuing work to encourage the purchase of efficient vehicles through the existing system does not represent an efficient use of resources. However, there is an opportunity to allow road user charges to account for externalities such as congestion and environmental costs. This would provide appropriate incentives to purchase and supply efficient vehicles.

25. To ensure incentives do not have any unintended consequences on air quality, should incentives include noxious emissions requirements as well as CO₂ requirements, or do current noxious emissions standards sufficiently mitigate this risk?

GEA considers that it is important to reduce both noxious and CO₂ emissions from the transport sector. The switch towards diesel vehicles in Europe as a result of CO₂ reduction policies resulted in higher noxious emissions and negative health impacts. Hence, the Government should ensure that vehicle standards cover both noxious emissions and CO₂.

However, simply having strict emission standards for noxious pollutants is not sufficient to ensure there are no adverse impacts on air quality. An accurate and credible method of monitoring vehicle emissions under real driving conditions is also required. The use of PEMS in Australia, if endorsed and driven by an independent body, would be able to fulfil this role.

Alternative Fuels and electric vehicles

26. What measures could be adopted to improve consumer awareness of the benefits of alternative fuelled and electric vehicles, particularly where they complement environmental benefits?

GEA considers that improving consumer awareness of the environmental benefits of these vehicles could assist with increasing their uptake. However, policies to ensure that the costs of emissions are accounted for in market decisions are more important in influencing consumer decisions.

GEA has advocated for the Government to adopt a technology neutral approach to reducing carbon emissions. Hence, we would not support government actions to promote any type of vehicle. Rather, the Government should provide impartial and reliable information on emissions and provide an environment where carbon abatement is rewarded objectively regardless of the type of vehicle or technology used. The Green Vehicle Guide which provides detailed data on the level of emissions by vehicle model is a useful tool for bridging information gaps and the Government should promote its use.

GEA considers that the Government should recognise emission results from overseas such as Europe, US and Japan which are recognised internationally. This would allow the Government to raise awareness of the environmental impacts of different vehicles while minimising costs from undertaking similar tests in Australia.

27. What measures could be adopted to encourage the supply of alternative fuelled vehicles and supporting infrastructure, to reduce emissions from road transport?

An initial step by the Government should be to restore the fuel excise burden on gaseous fuels to be no more than 50% compared to that for diesel on an energy equivalent basis. This would ensure that carbon abatement resulting from their use for transport is rewarded and encourage the uptake and supply of cleaner vehicles. Another measure could involve introducing accelerated depreciation for low emission vehicles to offset their higher costs and account for their environmental benefits.

As noted in our answer to Question 1, financial support for adoption of alternative fuels similar to the Clean Diesel Funding Assistance Program in the US could facilitate emission reductions from road transport. In the US and British Columbia, gas powered heavy vehicles are permitted higher mass and size limits than standard vehicles. This recognises the heavier and larger tanks in these vehicles and allows them to carry similar payloads to heavy vehicles using conventional fuels. The World LPG Association's 2015 *Autogas Incentive Policies* report provides a detailed analysis of measures which other countries have adopted to encourage the take up of autogas vehicles and can be found at <http://www.wlpga.org/wp-content/uploads/2015/09/autogas-incentive-policies-2015-2.pdf>.

Government should acknowledge internationally recognised emission results of alternative fuelled vehicles in other countries to raise awareness of their benefits to Australian consumers and inform future transport policy. This will save costs from repeating tests in Australia. This information could be added to the Green Vehicle Guide website to increase the number of vehicles on the database.

28. How might fuel standards need to be adapted to accommodate alternative fuels?

Fuel standards for LPG are closely aligned with European standards and GEA supports continuing this approach.

Vehicle Emissions Testing

29. Should the Australian Government conduct a testing program to assess the effectiveness of UN Regulations in reducing real-world emissions?

GEA has previously advocated for conducting real world emissions testing in a submission to the Department of Environment on the Clean Air Agreement. GEA identified the potential for PEMS to reduce the cost of testing, provide more accurate data and allow a variety of vehicle configurations to be tested. This could be used to assist with developing, validating and calibrating models which estimate fleet wide emission levels in locations and verifying the emission performance of individual vehicles.

The US EPA is considering testing most new vehicles sold with PEMS to obtain more accurate data on emission performance under realistic driving conditions partly in response to community concerns about the veracity of laboratory vehicle emission tests. GEA supports Australia placing greater reliance on vehicle testing under real driving conditions such as PEMS.

30. How should the costs of a testing programme be met?

The costs of an emissions testing programme should be funded from existing vehicle registration charges and fuel taxes.

31. How could UN Regulations for vehicle emissions testing be improved?

There should be greater reliance on results from vehicle testing which are conducted under real driving conditions. As noted in Question 10, PEMS could be used to obtain more accurate data on vehicle emissions.

Conclusion

GEA considers the Ministerial Forum's work in developing measures to reduce emissions from the transport sector to be pivotal in achieving better air quality, health and environmental outcomes. GEA encourages the Ministerial Forum to maintain an objective and technology neutral approach to assessment of policy options to ensure that the most cost effective and efficient solutions are developed to reach these goals.

The gaseous fuels industry is confident that the advantage of LPG and natural gas over conventional fuels, which include substantially lower carbon and noxious chemical content, wide availability in Australia and proven applications in transport, will allow it to be an important part of vehicle emission reduction efforts in the future.

For your consideration.

Yours sincerely

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

John Griffiths
Chief Executive Officer