FCAI Response to the Energy Green Paper

Federal Chamber of Automotive Industries
Level 1, 59 Wentworth Avenue
KINGSTON ACT 2604
Phone: +61 2 6229 8217
Facsimile: +61 2 6248 7673

Contacts:
Mr James Hurnall, Technical Director
Mr Ashley Wells, Policy Director

EXECUTIVE SUMMARY

The FCAI welcomes the opportunity to respond to the Federal Government's Energy Green Paper. The Federal Chamber of Automotive Industries (FCAI) is the peak industry organisation representing the manufacturers and importers of passenger vehicles, light commercial vehicles and motorcycles in Australia.

On 23 September, the Minister for Industry, the Hon Ian Macfarlane MP, released the Federal Government's Energy Green Paper. The Paper canvasses a range of issues and options to ensure Australia continues to have strong and diverse energy diversity.

The Paper also canvassed the option of introducing mandatory emissions standards for motor vehicles.

The Paper notes at p.56:

> The Green Vehicle Guide and mandatory labelling give consumers information on car fuel efficiency. There is also potential to make the current vehicle fleet more fuel efficient. Further efficiencies could come from vehicle efficiency standards or targets for products entering the Australian market. Mandatory standards are in place in 70 per cent of the global light vehicle market, including the European Union, the United States, Canada, Mexico, Brazil, Japan, China and Republic of Korea.
>
> More efficient vehicles could reduce Australia's liquid fuel use, emissions and running costs. Any increase in the purchase cost of more efficient vehicles would typically be offset by the reduction in fuel costs.
>
> A national focus on energy productivity can ensure that energy needs are met in the most efficient way, looking across both the supply and the demand sides of the economy.

The Paper concludes at p.57 that improved vehicle energy efficiency could form part of a comprehensive national approach to energy productivity.

The FCAI is limiting its comments to this item.

Motor vehicles form a fundamental part of Australia's transport infrastructure and around 16 per cent of Australia's GHG emissions come from transport. Private transport (predominately passenger cars, SUVs and light commercial vehicles) accounts for approximately half of the total transport emissions with new motor vehicles making up less than 1 per cent of Australia's annual GHG emissions.

The FCAI is supportive of moves by Government to ensure that Australia continues to have a strong energy future and acknowledges that lower motor vehicle CO2 emissions deliver better fuel efficiency.

However, a whole of Government approach is required to incorporate all associated issues, including fuel quality standards, which have a significant impact on vehicles' ability to meet both CO2 targets and air pollution emission standards. This approach is recognised as necessary globally by industry and regulators alike.

INTRODUCTION

The FCAI welcomes the opportunity to respond to the Federal Government's Energy Green Paper and is supportive of moves by Government to ensure that Australia continues to have a strong energy future and acknowledges that lower motor vehicle CO2 emissions deliver better fuel efficiency.

The FCAI and our member brands support improved air quality for citizens and fuel efficiency of motor vehicles. The FCAI has taken a consistent approach that this can and should be done through the consistent application of measures at technological, behavioral and regulatory levels.

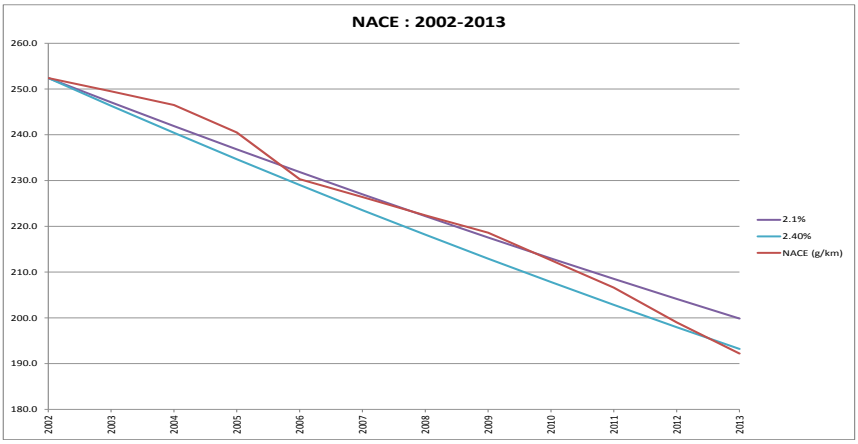
The FCAI and member companies consider that a whole of Government approach is required to incorporate all associated issues, including fuel quality standards, which have a significant impact on vehicles' ability to meet both CO2 targets and air pollution emission standards. The FCAI's position that fuel quality standards, Green House Gas emission standards (i.e. CO2 standards) and pollutant emission standards all need to be considered together, as they are all interrelated, is not a unique one. In fact, it is shared by global industry and regulators alike.

MOTOR VEHICLE CO2 EMISSIONS

New light vehicles[1] have provided a year-on-year reduction in CO_2 (or fuel consumption) as demonstrated by the National Road Transport Commission's (NTC) annual update[2].

The National Average Carbon Emissions (NACE) for all new light vehicles (including passenger cars, SUVs and light commercial vehicles) sold in Australia for each calendar year from 2002 to 2013 (in Figure 2.2) reduced from 252.4 gCO_2/km to 192.2 gCO_2/km. This is an overall reduction of 23.8 per cent with an average annual reduction of 2.4 per cent.

Figure 2.2 – NACE 2002-2013



This annual reduction is influenced by both consumer choice and the introduction of new technology. As the Australian new car market is one of the most competitive in the world, with around 67 brands offering more than 350 models, it is expected that the trend of an annual reduction in CO2 will continue as brands continue to introduce state of the art fuel efficient vehicles.

[1] Light vehicles in this submission refers to passenger cars, sport utility vehicles (SUVs) and light commercial vehicles up to 3.5 tonne GVM (LCVs)

[2] NTC Australia, Carbon Dioxide Emissions from New Australian Vehicles 2013, Information Paper, May 2014

If the Government considers the introduction of fuel consumption targets, it must acknowledge that the Australian car market is different to other major automotive (especially European) markets. In their 2014 Information Paper; *Carbon Dioxide Emissions from New Australian Vehicles 2013*, the National Transport Commission (NTC) undertook a Case Study comparing the Australian and UK markets. The NTC found that:

- Australians have a preference for larger cars, SUVs and light commercial vehicles than Europeans.
- Australians purchase vehicles with larger engines than Europeans.

The NTC report also acknowledged that consumer preferences can be influenced by government policies and found that compared to the UK, Australia had:

- Fewer policies aimed at reducing the average CO2 emissions from vehicles,
- fewer lower CO2 vehicles available for purchase, and
- Cheaper fuel.

MOTOR VEHICLE POLLUTANT EMISSIONS

Through the Australian Design Rules, the Government has introduced successively more stringent air quality standards for vehicles to reach the point where new light vehicles introduced into Australia need to meet the Euro 5 standards (ADR 79/03 introduced from 1 November 2013) and plan to introduce the requirements for Euro 6 standards (ADR 79/05) from 1 July 2017.[3]

It needs to be recognised that Euro 6 vehicle emission standards provide only limited reductions over Euro 5 standards:

- Carbon monoxide – no reduction for either passenger or light commercial vehicles.
- Hydrocarbons – no reduction for either passenger or light commercial vehicles.
- Oxides of nitrogen;
    - No reduction for petrol engine passenger or light commercial vehicles
    - Approx. 50% reduction for diesel engine passenger vehicles and light commercial vehicles <1305kg
    - Approx. 15% reduction for diesel engine light commercial vehicles >1305 kg.
- Particulate matter – no reduction for either passenger or light commercial vehicles.

The progressive tightening of vehicle emissions standards, especially over the last 10+ years as Australia has progressed from Euro 2, through Euro 3 to Euro 4 and now Euro 5 standards, has contributed to improvements in air quality in Australian cities. For example, a 2013 study by the CSIRO for the Victorian EPA found that by 2030 total motor vehicle exhaust emissions will have significantly reduced and that improved technology is entering the vehicle fleet at a faster rate than growth of vehicle use[4].

Air quality in Australian cities has significantly improved over the last few years with the introduction of stricter environmental controls including vehicle emission standards. Recent studies in NSW and Victoria have shown that industrial and domestic applications (e.g. wood fired heaters) are more

[3] DIRD Vehicle Emission Standards, www.infrastructure.gov.au [accessed 3 October 2014]
[4] EPA Victoria, Future air quality in Victoria-Final Report, Publication 1535 July 2013

detrimental to air quality and health impacts than vehicle emissions (as vehicle emissions have and will continue to improve with ongoing renewal of the fleet).

To this end, the FCAI does not support the introduction of Euro 6 vehicle emission standards (as ADR 79/05) within the timeframe initially announced as:

- Significant vehicle emission improvements have taken place over recent years. As a result, emissions from industrial and domestic applications (as shown by NSW and Victorian studies) now have significantly more impact on urban air quality than vehicle emissions.
- There are little further reductions in emissions than from (current) Euro 5 emission standards.
- Without the concomitant market fuel, introduction of Euro 6 vehicle emission standards is likely to result in an increase in cost to the community (e.g. new car owners) without delivering the expected (i.e. as estimated in the RIS) air quality benefits.
- Lack of suitable market fuel is likely to lead to consequential potential for brand damage from degraded performance, operability and durability of some vehicle technologies.

FUEL QUALITY

Vehicles are designed and developed to meet CO2 targets and/or air pollutant emission standards with an expectation of fuel quality in a particular market. While air pollution emission standards have been introduced into Australian legislation and CO2 targets are being considered, the Government has not introduced the concomitant fuel quality standards. Improving the quality of fuel available in Australia will deliver improvements for the entire motor vehicle fleet, not just new motor vehicles.

Indeed, Australian transport fuels are of lower standard than other major markets, especially the EU and USA. This restricts the introduction of some engine variants and inhibits the performance of the latest generation of engines (i.e. Euro 6 compliant), particularly due to high sulphur concentration.

To make further CO2 improvements (more closely aligned to Europe), vehicles increasingly need access to lower sulphur content fuels to bring certain engine technologies to market - equivalent to those already available overseas. Maintaining multiple fuels (E10, E85, ULP & PULP, LPG, diesel, etc.) across all states (and metro/rural) creates additional complexity and costs to the consumer.

With the decline of local refining and introduction of international vehicle emission standards the FCAI believes that Australia should move towards international harmonisation of fuel quality standards. This will become increasingly important from around 2017 as imported engines will increasingly aim to achieve Euro 6 level emissions. If Australia does not align to higher world fuel quality standards Australia will be at risk that future vehicle models will shift Australia's vehicle fleet towards lower grade offerings. This potentially degrades Australia's progress towards more technologically advanced and efficient vehicles.

The FCAI and member companies consider that a whole of Government approach is required to incorporate all associated issues, including fuel quality standards, which have a significant impact on vehicles' ability to meet both CO2 targets and air pollution emission standards. The FCAI's position that fuel quality standards, Green House Gas emission standards (i.e. CO_2 standards) and pollutant emission standards (i.e. ADR 79/0x or Euro 5/6) all need to be considered together, as they are all

interrelated, is not a unique one. In fact, it is shared by global industry and regulators alike. An example of this is demonstrated by the US EPA stating *"considering the vehicle and its fuel as an integrated system"* in the opening paragraph of their Draft Regulatory Impact Analysis: Tier 3 Motor Vehicle Emission and Fuel Standards (released in 2013). Similarly, in the European Union fuel quality standards are linked to both pollutant and CO_2 standards.

The global auto industry position is based on the World Wide Fuel Charter (WWFC) which is an extensive and comprehensive compilation of research and testing of engine, fuel and control systems by a wide group of expert contributors. The most recent version, published in 2013, can be viewed and downloaded at the following URL:
http://www.acea.be/uploads/publications/Worldwide_Fuel_Charter_5ed_2013.pdf.

The objective of the WWFC is to promote global harmonisation of fuel to:

- Reduce the impact of motor vehicles on the environment by enabling reduced vehicle fleet emissions;
- Facilitate the delivery of optimised fuels for each emission control category, which will minimize vehicle equipment complexities and help reduce customer costs (purchase and operation); and,
- Increase customer satisfaction by maintaining vehicle performance for a longer period of time.

The WWFC contains both minimum specifications of necessary fuel quality parameters and a summary of the impact of the various fuel parameters on vehicle operation. In the "Technical Background" section there is an excellent overview of the research conducted on the effects of octane and sulphur and includes the following statements on octane and sulphur:

> *"Increasing the minimum octane rating available in the marketplace has the potential to help vehicles significantly improve fuel economy and, consequently, reduce vehicle CO2 emissions."* (Page 17)

and

> *"Sulphur removal requires prolonged rich operating conditions…"* (Page 19)

On the matter of a relevant octane rating and level of sulphur for Australia, the WWFC outlines the required parameters for various fuel categories. The ones of specific relevance to Australia considering the current emission standards (i.e. ADR 79/04 or Euro 5) and proposed emission (ADR 79/05 or Euro 6) and fuel consumption standards are (Page 1):

> **Category 4:**
> Markets with advanced requirements for emission control, for example, markets requiring US Tier 2, US Tier 3 (pending), US 2007 / 2010 Heavy Duty On-Highway, US Non-Road Tier 4, California LEV II, EURO 4/IV, EURO 5/V, EURO 6/VI, JP 2009 or equivalent emission standards. Category 4 fuels enable sophisticated NOx and particulate matter after-treatment technologies.

Category 5:
Markets with highly advanced requirements for emission control and fuel efficiency, for example, those markets that require US 2017 light duty fuel economy, US heavy duty fuel economy, California LEV III or equivalent emission

The maximum sulphur level for both Category 4 and Category 5 gasoline is 10 ppm and Category 5 gasoline specifies a minimum of 95 RON (refer pages 6 and 7).

The current Australian market fuel quality standards are lower than the WWFC recommendations. The Australian fuel quality standards, set under the authority of the Commonwealth Fuel Quality Standards Act and consequential Fuel Standard determinations, specify the following grades of petrol (gasoline):

- Unleaded petrol (ULP) - 91 RON (min) and 150 ppm sulphur (max)
- Premium unleaded petrol (PULP) – 95 RON (min) and 50 ppm sulphur (max).

In addition to the research contributing to the WWFC, the FCAI is also aware of and supports the findings of a yet to be released report prepared for the Australian Department of the Environment in 2013 which reviewed existing standards and research on the impacts of sulphur levels in petrol and reached similar conclusions to the WWFC extracts above, namely that:

- Fuel standards work in partnership with vehicle emission standards to reduce emissions.
- Exhaust emissions will be higher with existing Australia market fuels (150 ppm or 50 ppm sulphur) than if low sulphur (10 ppm) petrol is introduced.
- Reducing sulphur levels (to 10 ppm) would allow use of some specific technologies and also reduce fuel consumption through the reduction of frequency of catalyst regeneration.

This report also acknowledges the potential for degraded performance, operability and durability of some vehicle technologies due to low quality market fuel. As a result of the potential for technical problems associated with the vehicle's operation, the FCAI is concerned that the resultant degraded vehicle performance, operation or component durability could lead to owner dissatisfaction and subsequent reputational brand damage if the vehicle does not operate as expected. To protect against such damage, some brands may instead choose to restrict from Australia the introduction of new technologies that require higher fuel standards.

If appropriate market fuel quality is not available, higher exhaust emissions (both CO2 and pollutants) will be generated with lower than expected improvements to air quality and health outcomes. Vehicle operability and durability issues will also be experienced such as:

- Reduced time between regeneration of NOx catalysts leading to increased fuel consumption and reduced catalyst life
- Early activation of malfunction indicator warning lamps (MIL)
- Increased operating and servicing costs.

To this end, the FCAI considers that a comprehensive or integrated approach to reducing emissions from passenger vehicles will result in larger, more cost-effective emission reductions from road transport than targeting one area in isolation. This approach should include reducing kilometres travelled, reducing the number of vehicles on the road and improving the energy efficiency of the entire vehicle fleet together with improved road infrastructure. Indeed, reducing emissions through one area (e.g. a sole focus on vehicle technology) can be more expensive than measures such as the increasing use of alternative fuels, improved fuel quality, better infrastructure and traffic management, and adopting an economic driving style.

EMISSIONS REDUCTION FUND

Light vehicles have been excluded from the Government's signature climate change policy, the Emissions Reduction Fund.

A proposal that initially appeared to apply to FCAI members is no longer open to light vehicles. The proposal was being able to aggregate sales of low emission vehicles (e.g. electric vehicles, hybrids or alternative fuel vehicles) across many owners for the purpose of calculating emission reductions. The Government advised the proposal is no longer open to light vehicles due to:

- Concerns over how to establish a baseline BAU for the rate of improvement and light vehicle turnover.
- Acknowledgment that light vehicles currently have a rate of improvement.
- CO_2 reductions in light vehicles is high-cost (i.e. doesn't meet the Government's objective of lowest cost abatement).

Support for energy efficiency in SME's (dealerships) through schemes similar to the Victorian Energy Efficiency Target scheme (energy saver incentive program) would be welcomed.

INTRODUCTION OF HYBRID AND ELECTRIC VEHICLES

The government does not currently provide a roadmap for its preferred future vehicle mix. The FCAI believes it would be useful to consider investigating such a roadmap to ensure that future infrastructure is suitably identified. This is particularly important given that motor vehicles are increasingly operating on different energy platforms.

CONCLUSION

The FCAI is supportive of moves by Government to improve the air quality for citizens and fuel efficiency of motor vehicles. The FCAI believes that this can and should be done through the consistent application of measures at technological, behavioral and regulatory levels. Indeed, reducing emissions through one area (e.g. a sole focus on vehicle technology) can be more expensive than measures such as the increasing use of alternative fuels, improved fuel quality, better infrastructure and traffic management, and adopting an economic driving style.

Motor vehicle brands are reducing both CO_2 emissions and pollutant emissions year on year with the introduction of new technology in response to both new regulations and consumer demand. An important component of being able to deliver new vehicle technology to continue to achieve improvements in vehicle emissions is improved fuel quality standards.

The FCAI and member companies consider that a whole of Government approach is required to incorporate all associated issues, including fuel quality standards, which have a significant impact on vehicles' ability to meet both CO2 targets and air pollution emission standards. This approach is recognised as necessary globally by industry and regulators alike.

The FCAI trusts that the information contained in this submission assists the Department's work and the Chamber would be happy to participate further with the Inquiry.