

Submission



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Department of Infrastructure and Transport

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Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper

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Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper Forward

There are twenty five good questions posed in this discussion paper such as suggesting what reductions of CO2 emissions targets dates are necessary to implementation of these measures. These entire #25 questions do need to be addressed by someone, but I believe that other matters associated with reducing Greenhouse gas emissions [CO2] from passenger vehicles have been overlooked and is not mentioned in this paper as an issue

Light passenger petrol vehicle [in Europe & elsewhere] are now being designed primarily to operate under Euro 5/6 emission standard using a Sulphur content 10ppm which is estimated to provide a fuel consumption benefit of up to 5%. However in Australian Government has deemed that Sulphur levels for ULP of 50 ppm & PULP 50ppm will not have an impact on passenger vehicle emissions and exhaust after treatment devices

Contrary to what the API say on this matter I considers that there are serious implications for not adopting a petrol fuel standards with Sulphur content level of 10ppm the Euro 5/6 vehicles were designed to operate efficiently with Euro 5/6 emission .It is accepted that further changes to the current legislation for Australian standards for petrol will be necessary under auspices Fuel Standards Consultative Committee [FSCC]

Therefore this submission will focus entirely on convincing the Australian Government to introduce Sulphur content level of 10ppm for Euro 5/6 designed vehicles. With an emphasis on the long term serious implications by retaining the current Sulphur levels for ULP of 50 ppm & PULP 50ppm. As not to reduce Sulphur level in petrol to a level of 10ppm will lead to an unnecessary increased in greenhouse gas emissions [CO2] from passenger vehicles in Australia

Moreover my proposition that lower sulphur levels of 10ppm is required in petrol to further reduce CO2 emission in Euro 5/6 vehicles is given solid support by these 'snap shot' comments by reputable organisations See also Appendix :A page 12

- **VW**

*Fuel Quality as recognised in the Impact Assessment, fuel sulphur levels above those experienced in the European Union (10 ppm) have **detrimental effects on the durability of emissions after treatment technology and potentially on the CO2 emission** of the vehicles in use.*

- **Ferrari**

*It is a nuisance to use **poor fuel** in vehicles with high-tech emission control systems. ----- **cleaner fuels with lower sulfur content.**—“*

- **NRMA**

*Fuel Quality “--- **impact on greenhouse emissions due to the higher sulphur levels in Australian** .*

- **Bosch**

***150ppm sulphur in petrol is considered by Bosch to be too high for robust and durable system performance at Euro 5 level--.**”*

- **FCAI**

The higher the sulphur level in the fuel, more frequent regeneration is required with a higher CO2 penalty, higher emissions and shorter life of the NOx trap.

Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper

1. Introduction

Transportation is the fastest-growing source of human-produced greenhouse gases. To prevent climate change and reduce health impacts, the sector needs to move towards improved fuels such as ultra low Sulphur that have a lower carbon footprint, and reduced emissions of sulphur and other conventional pollutants.

The Australian motor vehicle fleet kilometres travelled are predicted to increase markedly in the next decade. As a result most Australian cities will experience an increase in air pollution (smog). Estimated by year 2020 traffic congestion could cost \$20 billion (ABARE). Australia's present greenhouse gas emissions per capita are amongst the highest in the world. And was predicted that by 2010 that Vehicle Kilometres Travelled (VKT) travelled would increase 1.8%

The local motor vehicle industry has failed to manufacture fuel-efficient vehicles by choosing to produce gas guzzling petrol passenger vehicles. Across the OECD the average figure was in 2005 around 8 litres per 100 km for new cars (including SUVs and minivans [this figure including both petrol and diesel vehicles]. And future levels are predicted by OECD to be at levels of 4litres/100 kms .In comparison for year 2010/11,the average fuel consumption for petrol passenger fleet vehicles in Australia was still averaging ~ 9.5 litres /100 kms . As a result petrol passenger vehicle with these STILL high levels of fuel consumption are major contributors to (1) poor air quality[Ozone levels] in Australian Cities and (2) further increases our already much too high levels CO2 emission from transport. However, measure such as reducing current levels Sulphur content in petrol [ULP 150ppm & PULP 50ppm] in Australia to the lower Sulphur content of 10ppm have been discussed in discussion paper . Lower sulphur content would contribute to reduced levels of greenhouse emissions

The average goals the Australia Government have set for CO2 mandatory emission standards of 190 g/km by 2015 and 155 g/km by 2024 are not achievable. Other countries such as: United States, European Union, Japan, China, Canada, and South Korea [not Australia] have already adopted as mandatory efficiency standards[Sulphur 10ppm in petrol] for passenger vehicles, with the OECD predicting consumption levels 4 litres per 100 km[90 g/km of CO2] for petrol passenger vehicles. Note Some of this material is referenced from :Global passenger vehicle standards <http://www.theicct.org/passenger-vehicles/global-pv-standards-update/>

2. Fuel efficiency of Passenger Vehicles in Australia

(1) In 1997 it was stated: “---- *Potential improvement in fuel consumption expected for the vehicle fleet 15 years from now is likely to be in the order 30-40% with a possibility of achieving 5.7 litres/100km compared with the present fleet average of just 9 litres/100 km. However, this may not be achieved unless there is a strong worldwide push to improve fuel efficiency.*” Source Page 126 ‘Urban Air pollution in Australia Inquiry’ 1997 Australian Academy of Technological Sciences & Engineering.

(2) It was estimated that a”--- 2000 target was **8.2 litres per 100 km.** *These targets have been voluntary, and have not delivered the environmental outcomes sought, nor provided investment certainty for the Australian car industry. A national standard, set in legislation, will ensure the Australian car industry focuses on both fuel efficiency and carbon emission standards.* Source: *Light vehicle CO2 emission standards for Australia Key Issues — Discussion Paper — 2011 Department of Infrastructure and Transport- Appendix A EMISSION STANDARDS FOR CARS* How is this different to now? *Extract page 2*

Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper Fuel efficiency of Passenger Vehicles in Australia

(Cont)

(3) And in 2007 the “--Average fuel consumption, ----- varies according to the fuel and the vehicle class. Most passenger vehicles operate using petrol, with an average fuel efficiency of 11.2 L/100km¹. -----

-----The average fuel consumption of all light vehicles has hardly changed over the last decade. Engine technology in terms of fuel consumption per power output has improved substantially and there has been an improvement in fuel efficiency in the new passenger vehicle fleet. However, potential fuel savings across the whole light vehicle fleet have been offset by increases in vehicle power, size and weight, by the strong growth in sales of four wheel drive sports utility vehicles (SUVs), and increases in the fuel consumption of light commercial vehicles”²-----Department of Environment, Water, Heritage and the Arts (DEWHA) has estimated that the average fuel consumption of new government and business fleet purchases of passenger vehicles in 2007 to be 10.5 L/100km, whereas the average fuel consumption of new private purchasers of passenger vehicles was 9.6L/100km in the same year, an eleven percent difference. Source: Extract from Pages 15-16 2.1.4 Fuel Consumption Performance

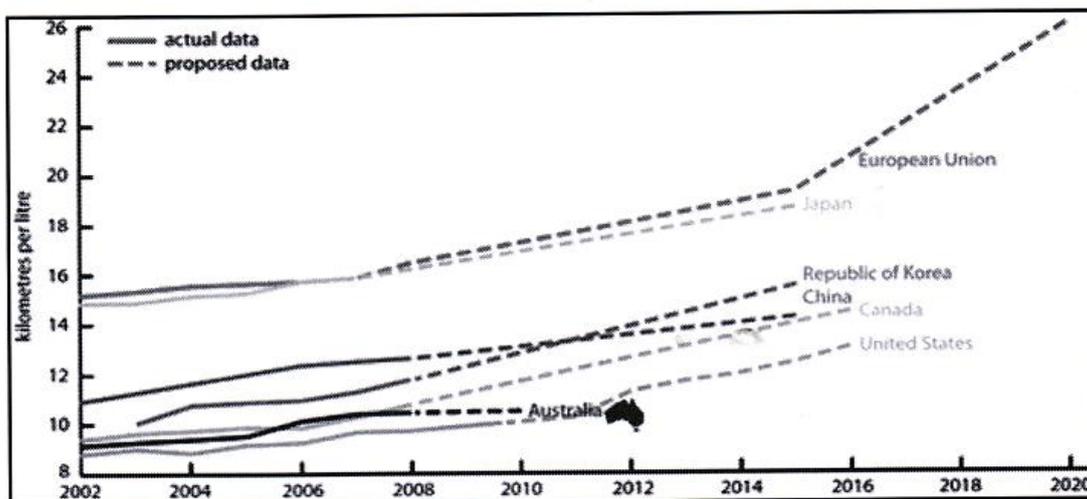
Source: Vehicle Fuel Efficiency – Public Discussion Paper August 2008 Prepared by Australian Transport Council (ATC) and Environment Protection and Heritage Council (EPHC) Vehicle Fuel Efficiency Working Group

Ref: 1. Table 2 :Average Vehicle Consumption for Vehicle Class 2005, ABS, 2007 Survey of Motor Vehicle Use 9208-

Ref: 2.ABS Survey of Motor Vehicle Use 9208.0, BTRE Information Sheet 18 – Fuel Consumption of New Passenger Vehicle

(4) Chart 1 below shows that for year 2011 for passenger vehicles in Australia fuel efficiency is estimated at ~ 10.5 km/ litre [est]which relates to ~ 9.5 litres /100km This value appears to have been constant with no apparent fuel efficiency gains since years 2005/6

Chart 1



Implemented and proposed fuel efficiency standards of passenger vehicles

SOURCE: Dept of Climate Change and Energy Efficiency Fact Sheet, 14 June 2011

Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper

3. World Trends in Fuel Consumption and CO2 Emissions. Reference material derived from "50 by 50: Global Fuel Economy Initiative" 2/2009 www.50by50campaign.org

3.1 Overview

Fuel consumption and emissions of CO₂ from the world's cars will roughly double by 2050 (IEA, 2008). Fuel economy improvement are important contain the rise in global CO₂ emissions shifts to low-carbon fuels, will be needed to help move toward outright reductions in CO₂. Worldwide, cars currently account for close to half of the transport sector's fuel consumption and CO₂ emissions. Their dominant position in the sector is set to remain although their share will fall to just under 40% by 2050,

3.2 OECD

Current average fuel economy levels vary considerably by country. Across the OECD the average figure in 2005 was around 8 litres per 100 km for new cars (including SUVs and minivans and including both gasoline and diesel vehicles). With a 50% fuel economy improvement, the average new car performance in OECD markets would improve to around 4 litres per 100 km (about 90 g/km of CO₂).

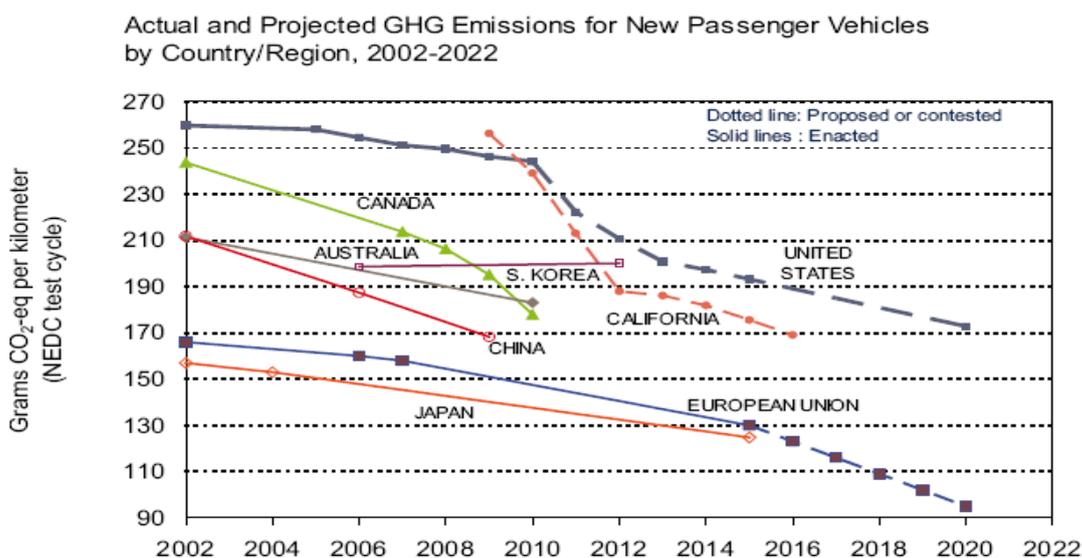
3.3 United States [USA]

In the United States, fuel consumption is considerably higher than the OECD average: doubling of tested fuel economy would mean moving from the current new car (and light truck) average of 26 mpg to 52 mpg (about 9 to 4.5 litres per 100 km). In non-OECD countries, more work is needed to better understand current fuel economy levels and their likely future trends, but a level of 4 litres per 100 km (or even lower) should be attainable in most countries over the time frame considered.

In principle, cutting vehicle fuel use per km in half [8litres/100kms to 4litres/100kms will halve the rate of CO₂ emissions from vehicles.

- The overall change in CO₂ emissions will also depend on the types of fuels used,
- Improving fuel efficiency and promoting, newer, more fuel efficient cars, will also reduce other vehicular emissions that contribute to global climate change, especially N₂O and black carbon. Recent studies show that black carbon is likely to be the second most important contributor (next to CO₂) to global warming

Chart 2. Comparison of New Car Fuel Efficiency / CO2 Emissions Standards



Note 12 The ICCT approach converts each regions's test numbers to a common (NEDC) test cycle based on modelling estimates. Therefore these are not the official numbers from each country's own testing system. For additional comparisons see IEA 2008b. Source: Passenger Vehicle Greenhouse Gas and Fuel Economy

Light vehicle CO₂ emission standards for Australia Key Issues Discussion Paper

3.3 United States [USA]

(Cont)

Chart 2 on page 6 summarises the fuel economy standards in place and under development around the world making adjustments for differences in fuel economy test cycles in different countries

The standards currently in place covers a relatively short period of time, none extending beyond 2016. It will be important that standards are renewed and tightened in order to keep fuel economy improving. Source Standard: A Global Update, ICCT. January 2009 update.

The United States introduced Corporate Average Fuel Economy (CAFE) standards in 1975 following the first oil crisis, in order to improve oil supply security. The recently passed EISA law in the

United States will require a 40% increase in new car and light truck miles per gallon (about a 25% improvement in litres per 100 km) over 2007 levels by 2020 11. This is not far from the research findings from King and Heywood of a potential of 30% improvement in a decade.

4. Overseas Passenger Vehicles – Fuel/Emission Standards

4.1. Europe [EU]

In Europe Sulphur content has long been a critical parameter and petrol used in road transport now has a sulphur content of 10 parts per million (ppm). EU Environment minister's stated that this measure will allow industry to develop new generations of "lean burn" (fuel-efficient) engines and improve the efficiency of catalytic exhaust gas converters." Low Sulphur road fuel also will help the EU reach its goal of reducing carbon dioxide [CO₂] emissions from new cars to 130 grams per kilogram of fuel on average.

“Work undertaken by the European Commission has indicated that a move to 10ppm sulphur limits in petrol is cost effective (principally on the basis of greenhouse and fuel consumption benefits) and will be critical in facilitating the adoption of technology designed to deliver significant improvements in fuel consumption. This is now reflected in petrol sulphur limits of 10-15ppm in Europe, US and Japan by the end of the decade. The EU then estimated that a reduction from 50ppm to 10ppm content of Sulphur in petrol would provide a fuel consumption benefit of up to 5%.”

The European Commission has proposed improving efficiency around 18% over 6 years or more, a roughly equivalent annual rate of improvement compared to the United States (although starting from a much lower level of average fuel consumption. The average new car emissions in Europe was 160 gCO₂/km in 2006 (based on test results) and a new standard of 130 gCO₂/km is to be introduced with phase-in beginning in 2012 and full compliance to be achieved by 2015.

Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper 34 Overseas Passenger Vehicles – Fuel/Emission Standards Cont)

4.2. United States [USA]

4.2.1 Ultra Low-sulphur fuels in Petrol

“U.S. state and local authorities are required to meet federal health-based air-quality standards for ozone, particulate matter, nitrogen dioxide, and sulfur dioxide. Cars and trucks are key sources of all these pollutants, and fuel composition is a key factor in vehicle emissions. Hence the National Association of Clean Air Agencies strong interest in federal fuel quality standards. ‘<http://www.4cleanair.org/>. Yesterday the NACCA released a report on the costs and health and environmental benefits of lowering the sulfur standard for gasoline in the U.S. to 10 ppm from the present 30 ppm and making other changes in how sulfur content is measured. Low-sulfur fuel contributes to cleaner vehicle emissions both directly and indirectly, by making it possible to use more advanced emission control devices.”

Source <http://www.theicct.org/2011/11/u-s-low-sulfur-fuels/>

4.2.2 National Association of Clean Air Agencies [NACAA] Report

Excerpts below are from the NACAA report” *Cleaner Cars, Cleaner Fuel, Cleaner Air: The Need for and Benefits of Tier 3 Vehicle and Fuel Regulations*” NACAA October 2011 [<http://www.theicct.org/2011/10/refining-economics-of-a-national-low-sulfur-low-rvp-gasoline-standard/>]

(a) Extract page 1

Executive summary

EPA is expected to introduce, later this year, a “Tier 3” program of tougher light-duty vehicle emissions standards that follow closely the Low-Emission Vehicle (LEV) III requirements being pursued by the California Air Resources Board (CARB). A critical piece of this program, and one that will ensure cost-effective implementation of these stricter standards, is further improved gasoline quality, particularly a reduction in average gasoline sulfur levels from approximately 30 parts per million (ppm) today, enacted as part of the 1999 Tier 2 program, to an average of 10 ppm.”

(b) Extract Page 12

III. The Recommended Tier 3 Program: Fuel Standards Global Trends

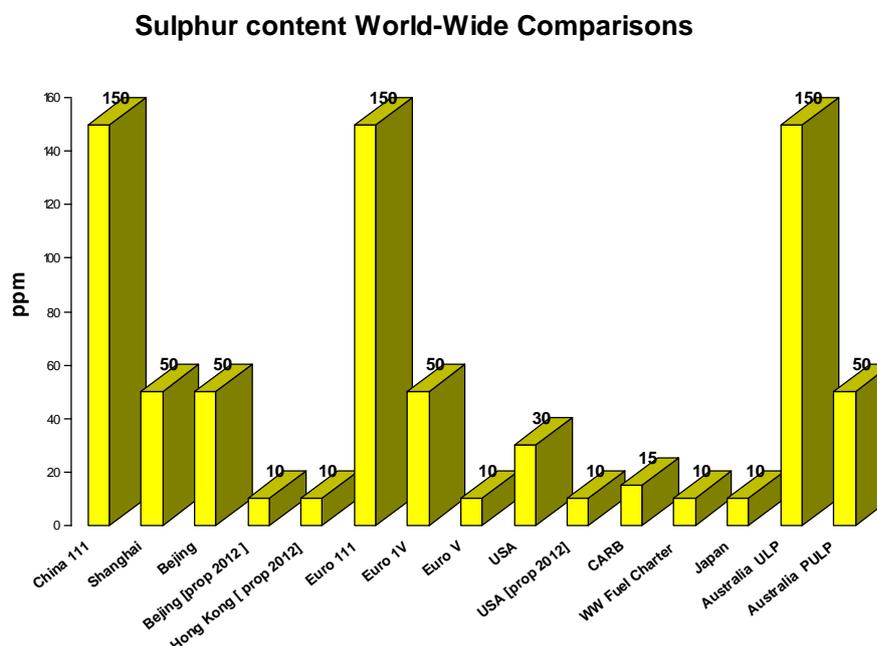
“ -----in order to achieve the stricter emissions standards at minimal cost, and to take advantage of technologies already in the market place, EPA will need to lower sulfur levels in gasoline from the current average of about 30 parts per million (ppm) to approximately 10 ppm. Such a reduction in national sulfur levels will immediately improve the NOx control

California’s gasoline already achieves this level and, and as illustrated by the chart below, there is a global movement toward lower-sulfur gasoline. In fact, it is expected that the city of Beijing, China will introduce a 10-ppm sulfur limit for its gasoline next year”.

There are now World-Wide consensus for reduction of Sulphur content in petrol to level of 10ppm However the Australia government has failed to address this issue to lower Sulphur in petrol [opposed by API] to 10ppm. As illustrated by the chart 2 on page 8, there is a global movement toward lower-sulphur petrol. In fact, it is expected that in both USA and in cities such as Beijing, China they will introduce a 10-ppm sulphur limit for its petrol next few years. (2012.

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Chart 2 Various Countries Sulphur Content in Petrol



Source: Page 13 “Cleaner Cars, Cleaner Fuel, Cleaner Air: The Need for and Benefits of Tier 3 Vehicle and Fuel Regulations” NACAA October 2011

4.3. Japan

4.3.1. Introduction

In Japan, fuel efficiency standards are developed using the “Top Runner” method. Standards are determined based on the vehicles whose performance is currently the best in the weight class (plus an escalation factor), with a lag time for other vehicles to improve to current best practice. This system was first introduced in 1999 for light duty vehicles (passenger cars and commercial vans). The standards required a 19% improvement in fuel economy by 2010 (in litres/100km; equal to a 23% increase in km/L). In 2007, additional standards were introduced which require a similar 19% improvement in litres /100km (24% increase in km/litre) between 2004 and 2015.

3.3.2. ICCT comment on Passenger Vehicle [PV] fuel economy standards

<http://www.theicct.org/2011/09/japans-draft-pv-fueleconomy-standards/>

Excerpts

“--International Council on Clean Transportation [ICCT] estimates that the [Japan] ministries’ proposed 2020 stringency level of 20.3 km/L, or an efficiency improvement of 24% from 2009 levels for MY 2020 vehicles, translates to approximately 105 grams of carbon dioxide (CO₂) per kilometer on the European (NEDC) test cycle, unadjusted for differences in vehicle mass and average horsepower.

This compares to anticipated targets of 95 g/km for Europe (2020) and 93 g/km for US passenger cars (2025), also on the NEDC. Normalized by vehicle size, mass, and power-to-weight ratio, ICCT estimates that the anticipated EU targets translate to 89 g/km on the 2009 Japanese fleet, while the proposed US 2025 passenger car targets range from between 76 and 86g/km for the Japanese fleet, assuming no alternative

Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper
3.3.2. ICCT comment on Passenger Vehicle [PV] fuel economy standards (Cont)
fuel vehicles and varying degrees of air conditioning credits.

On a technology basis (using constant vehicle size, mass, and power-to-weight ratio across the three regions), it is likely that Japan's 2020 targets will be less stringent than anticipated EU and US standards. Another way to assess standard stringency is to look at the annual percent increase in fuel economy.

The proposed increase of 24% from 2009 levels for MY 2020 vehicles is approximately a 2% per year reduction in fuel consumption. For comparison, for passenger cars the US 2012-16 standards require an annual 4.6% reduction in fuel consumption. The US 2025 standards require further passenger car fuel consumption reduction of more than 4.1% per year, even after adjusting for the various credits allowed.

In the EU, a reduction from 2010 average of 142 g/km to 95 g/km in 2020 represents an annual reduction in fuel consumption of about 3.9% per year (4.1% annual increase in fuel economy). Thus, on an annual efficiency improvement basis, the proposed Japanese standards are substantially less aggressive than the anticipated US and EU standards.

We focus our comments here on the following aspects of of 95 g /km for Europe passenger cars (2025), also on the NEDC. Normalized by vehicle size, mass,ing constant vehicle size, mass, and power-to-weightcars the US 2012-16 standards require anurther passenger car fuel 3.9% per year (4.1% annual increase in fuel economy)—“.

4.4. Australia

Adoption Euro 5/6 emission limit standards to level 10ppm in petrol in Australia will resulted in greater fuel efficiency and thus reduce GHG emissions

Source: Vehicle Emissions & Fuel Standards Review Discussion Paper May 2003

Most imported European vehicles Euro 5/6 emission standards will require petrol with 10ppm content to operate efficiently and A/W vehicle manufactures warranty And the adoption of direct injected (DI) engines will result in production of much cleaner fuels (Lower Sulphur) and improved fuel efficiency. The EU decision to provide fuels with a maximum sulphur content of <10 ppm fulfils this requirement.

However availability of clean fuels (10ppm Sulphur in petrol) needed for this new technology is not available in Australia.

As Australia is now a part of the global market fuel harmonisation fully adopting Euro 5/6 best practise standards we will eventually have to agreed to these EU vehicle emission Standards. Therefore there is no reason why the Euro5/6 emission standards for petrol in Australia cannot be accelerated much to an earlier date (2015]

**Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper
4. Australia (Cont)
Extracts from “RIS for Vehicle Emissions & Fuel Quality Standards for Post 2006
Period”: Final paper December 2004**

10ppm Sulfur 95RON & 98RON Petrol Proposal

(a) 7.3. Page 57

“There was also broad support for the introduction of 10ppm sulfur limits in 95RON and 98RON petrol grades, however the AIP and the Independent Petroleum Group (representing importers) expressed concerns about the cost and availability of 10ppm sulfur petrol, particularly if a standard was imposed before 2010.”

(b) 8.2 Page 60-61

“LTEC recommends the introduction of a 10ppm sulfur limit in 95RON and 98RON petrol, with an indicative introduction date of 1 January 2010, ----- considers that there is a strong case on greenhouse gas reduction grounds and on a monetary cost benefits basis, to move to 10ppm sulfur limits in 95RON and 98RON petrol in 2010.

In Australia the vehicle industry has committed to deliver a significant reduction in the National Average Fuel Consumption (NAFC) of new vehicles by 2010, and the FCAI has indicated that availability of 10ppm sulfur petrol is a key factor in achieving that target.

LTEC also notes that the CBA indicates that net greenhouse benefits and monetary benefits arising from fuel consumption savings are substantially improved if the 2010 NAFC target is met.----In Australia the vehicle industry has committed to deliver a significant reduction in the National Average Fuel Consumption (NAFC) of new vehicles by 2010, and the FCAI has indicated that availability of 10ppm sulfur petrol is a key factor in achieving that target.

Conclusion The Adoption of Euro 5/6 emission limit standards for Light Vehicles (LV’s) by adopting a 10 ppm Sulphur content in Petrol will give a 3% improvement in fuel efficiency compared to current (business as usual) 50ppm Sulphur content in Petrol in Light Vehicles that were designed for Euro 4 emission limit Standards

**Light vehicle CO₂ emission standards for Australia Key Issues Discussion Paper
Appendix A**

Comments: Adoption of 10ppm Sulphur content in Petrol in Australia

Extract from submissions made to the Draft Regulation Impact Statement for Review of Euro 5/6 Light Vehicle

1. VW

“--Fuel Quality As recognised in the Impact Assessment, fuel sulphur levels above those experienced in the European Union (10 ppm) have detrimental effects on the durability of emissions aftertreatment technology and potentially on the CO₂ emission of the vehicles in use. It can only be restated how vital it is to synchronise fuel quality and emissions standards and Volkswagen requests that the decision to handle the two pieces of legislation separately be reconsidered.—“

2. Ferrari

“--We also agree with the adoption of cleaner fuels with lower sulfur content because it is necessary to consider the system "vehicle+fuel" to guarantee that cleaner vehicles can be fuelled with corresponding inherently cleaner fuel. Otherwise, the capability to reduce exhaust emissions is undermined. It is a nuisance to use poor fuel in vehicles with high-tech emission control systems. Studies carried out in U.S.A. regarding low-emissions vehicles (during the rulemaking to introduce in California the LEV II standards) demonstrated the greater sensibility for these vehicles to the sulfur content in the gasoline. Some studies showed a reduction of catalytic converter efficiency and a poisoning effect on both catalysts and oxygen sensors due to high sulfur content. Furthermore, the On-Board Diagnostic system could be affected by poor quality fuel, with the risk of false detections. Accordingly, it is a prerequisite to cut sulfur concentration in both petrol and diesel fuels to further reduce tailpipe criteria pollutants. This is also relevant to guarantee the compliance for the extended useful life up to 160,000 km.

In summary, Ferrari agrees with the proposal to adopt in Australia a new emissions rule ADR 79/03, provided it is fully harmonized with "Euro 5-6" standard, implemented following Option 3, along with corresponding cleaner fuels with lower sulfur content.—“

3. NRMA

“--While the discussion paper is not intended to address fuel issues, there will be some impact on greenhouse emissions due to the higher sulphur levels in Australian, compared with European, petrol and consequent catalyst function. To fully accrue the benefits of the new standards, sulphur levels in Australian petrol should be reduced to under 10ppm. The Government should introduce more stringent sulphur level requirements for standard unleaded petrol to ensure emission control systems function as they are intended, or reduce the excise on the premium grades of petrol, which have lower sulphur levels, so their retail prices are competitive with that of standard unleaded.—“

Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper Appendix A

Comments: Adoption of 10ppm Sulphur content in Petrol in Australia

Extract from submissions to the Draft Regulation Impact Statement for Review of Euro 5/6 Light Vehicle

4. Bosch

“--With reference to the influence of sulphur concentration on the fuel injection and engine management sensors and controls, Bosch can confirm that an upper limit of 50ppm for petrol and 10ppm for Diesel fuelled vehicles is acceptable for Euro 5 compliant systems. However the main influence of sulphur for Diesel engine systems is on the exhaust gas treatment. The smaller the sulphur content, the smaller also the exhaust gas treatment system that can be designed, with potential reduction of system cost. An upper limit of 150ppm sulphur in petrol is considered by Bosch to be too high for robust and durable system performance at Euro 5 level--.”

5. FCAI

7.2 Fuel Standards

“---The draft RIS, “Section 1.5.4 Fuels and Technology Content” assumes no change in the current Australian fuel quality standards is required and notes on page 12 that “the sulfur content of petrol and LPG is considered to be the only relevant parameter” and on page 13 that the “decision to adopt 10ppm standards was made primarily to support carbon dioxide emissions ... not to support air pollution standards such as Euro 5/6.” While the draft RIS (page 14) recognises that “sulfur levels in fuel can accelerate degradation of catalytic converters” it was “not able to access any definitive information to assess the impact of this particular level of sulfur on technologies likely to be used for Euro 5 standards.” The FCAI does not agree with the assumption that 50ppm sulfur fuel is adequate to ensure continued in - service compliance with Euro 5 standards, especially the 160,000km durability requirement.

With the growing inclusion of direct injection gasoline technology to deliver improved fuel consumption, 10 ppm sulphur enables and promotes the use of lean NOx traps. Sulphur will store on the lean NOx trap and high temperature regeneration is required to remove the sulphur. The higher the sulphur level in the fuel, more frequent regeneration is required with a higher CO2 penalty, higher emissions and shorter life of the NOx trap.

Also, Euro 5/6 introduces additional on - board diagnostics (OBD) requirements. Currently, many brands offer desensitized Euro 5 OBD systems due to the high (i.e. >10 ppm) sulphur levels in Australian petrol. Introduction of Euro 5 and 6 would imply the need for the full OBD requirements which will require 10 ppm sulphur petrol to operate the full range of European OBD requirements.

As noted above in Section 4, the FCAI considers that a review of the Fuel Quality Standards is necessary.--”

6. MTAA

“--In addition, the Association believes it likely that, at the very least, more widespread use of higher quality unleaded fuel may be necessary in order for Euro 5 / 6 emission levels to be optimally met; this being a consequence of the very same engineering-based strategies being employed in engine design to realise Euro 5 / 6 emission standards with the retention of engine durability. Before Euro 5 / 6 standards are adopted in Australia, it might be reasonable to consider the capaci y

Light vehicle CO2 emission standards for Australia Key Issues Discussion Paper References

Appendix A

Comments: Adoption of 10ppm Sulphur content in Petrol in Australia

Draft Regulation Impact Statement for Review of Euro 5/6 Light Vehicle

Extract from submissions (Cont)

6. MTAA (Cont)

– or the lead times for capacity to be developed – of domestic refiners to supply these higher specifications.

A further consideration in need of some attention might be the relation to the documentation (for example, handbooks, owner’s manuals and other papers) attaching to certain vehicles compliant with Euro 5 / 6 in the context of fuel standards.----- Any documentation in relation to a given vehicle would be best if it reflected those circumstances so that consumers could be confident no harm would come from running fuels differing in specification from those ordinarily used in a vehicle’s country, or broader region, of origin—“.

7. AFMA

“--While the discussion paper was not intended to address fuel issues we concur with the contention that fuel standards are inseparable from vehicle emission standards. The higher sulphur levels in Australian petrol, compared with European, may have negative consequences for long-term effectiveness of emission control systems. AFMA believes that benefit would accrue should sulphur levels in Australian petrol be reduced to below 10ppm.

We note the observation in the draft RIS that there was an expectation that market forces would make the use of standard unleaded petrol (ULP) redundant. As this did not eventuate we see a role for the Federal Government to use its fuel excise option to positively encourage the use of premium 95 and 98 RON petrol (PULP and UPULP), which have lower levels of sulphur, over ULP.

We suggest that this be achieved by the 2012 Euro 5 introduction date. In addition we believe that vehicle manufacturers should be required to include the provision in the vehicle owners' manuals that only premium fuel must be used.--”

8. AAA

“--The importance of appropriate fuels to support Euro 5 and Euro 6 vehicle technologies must be recognised and advice from vehicle manufacturers will be necessary to determine whether complementary changes are required to the FQS Act to support Euro 5 and Euro 6 vehicle standards. This is not fully recognised or considered within the Draft RIS.

The Draft RIS states that Europe adopted a fuel sulphur limit of 50ppm (PULP) to support Euro 4 engines, and that sulphur levels of 50ppm or less are likely to be required to enable the increased durability of catalytic converters demanded by Euro 5 and Euro 6 vehicle standards. It is important to recognise that motorists would bear the cost of using premium fuels that may be required to support Euro 5 and Euro 6. This has not been considered in the cost-benefit analysis.—“