Submission to the

Review of Australia's Automotive Industry 2008

30 May 2008

INTRODUCTION

About AIP

The Australian Institute of Petroleum (AIP) was established in 1976 as a non-profit making industry association. AIP's mission is to promote and assist in the development of a sustainable, internationally competitive petroleum products industry, operating efficiently, economically and safely, and in harmony with the environment and community standards.

AIP member companies play various roles in each segment of the fuel supply chain. They operate all of the petroleum refineries in Australia and handle a large proportion of the wholesale fuel market. However, AIP member companies directly operate and control only a relatively limited part of the retail market.

AIP is pleased to present this submission on behalf of the AIP's four core member companies:

BP Australia Pty Ltd
Caltex Australia Ltd
Mobil Oil Australia Pty Ltd
The Shell Company of Australia Ltd.

Contact Details

Should you have any questions in relation to this submission, or require additional information from AIP, the relevant contact details are outlined below.

Dr John Tilley
Executive Director
The Australian Institute of Petroleum
GPO Box 279
CANBERRA ACT 2601
Phone: (02) 6247 3044

1. Key Submission Points

The Australian refining industry is a significant import competing business in Australia.

The industry is facing increasing competition from larger and newer refineries in the Asian region.

Governments need to recognise the competitive pressures faced by the industry and understand that policy settings in Australia are considerably less favourable than those faced by the Australian refining industry's international competitors.

AIP supports policy measures that can demonstrate a net benefit based on sound scientific analysis and rigorous economic assessment.

The automotive inquiry is seeking feedback on fuel quality standards and the adoption of vehicle emission abatement technologies and, in particular, whether fuel standards or Australian Design Rules inhibit imports of fuel efficient vehicles.

AIP members strongly supported the implementation of the Australian Government's Cleaner Fuels Program (CFP) that has facilitated the introduction of new engine technologies with improved fuel economy.

One proposal for further reducing transport greenhouse emissions that has already been considered is the possible introduction of 10ppm sulfur standard for Premium Unleaded Petrol (PULP). This proposal was subjected to a cost benefit study by McLennan, Magasanik Associates (MMA) in 2005.

The MMA study found that, under plausible assumptions, the introduction of 10ppm sulfur PULP could result in a net increase in greenhouse gas emissions and an increase in net costs as the increase in refinery greenhouse gas emissions to produce 10 ppm sulfur PULP outweighed the decrease in emissions from motor vehicles.

The MMA study also noted there were considerable uncertainties and recommended that the proposal be reassessed in the future. AIP strongly endorses this recommendation because of the considerable uncertainties and the significant potential cost to the Australian refining industry.

The report also cautioned that any changes to refinery capital costs, motor vehicle availability to the Australian market and the discount rate utilised would change the results of the study.

Since the report was issued, construction costs have increased significantly, the benefits of the introduction of 10ppm sulfur PULP have decreased and there have been increases in the discount rate, which have made any introduction of 10ppm sulfur PULP more unattractive.

There is continuing uncertainty about the motor vehicle models that could be supplied to Australia. Over the last 3 years, the majority of the global automotive manufacturers have moved away from "lean burn" to "stoichiometric" gasoline direct injection (GDI) engines. This is despite the fact that 10 ppm sulfur petrol is widely available in Europe and Japan. 10 ppm sulfur petrol is only required for "lean burn" GDI engines. The majority of the fuel economy benefits obtainable from using GDI technology are obtained when running these engines in "stoichiometric" mode with only an additional few percent achievable in "lean burn" mode.

The MMA report nominated a 4.3 cents per litre (cpl) increase in petrol prices as a result of the introduction of 10ppm sulfur but the estimate was not based on any rigorous market assessment and it was not included in the cost benefit analysis.

AIP considers that the MMA report did not adequately consider the increased petrol prices as a cost to the community.

AIP considers that there is a need to undertake a further rigorous cost benefit analysis examination of the 10ppm sulfur PULP proposal to address the markedly changed circumstances since 2005 and to address the shortcomings of the 2005 MMA report.

Key considerations would be a thorough examination of:

- refining costs and required construction lead times;
- sulfur sensitive motor vehicle technologies and their availability to the Australian market; and
- regional petrol market impacts and the cost to Australian consumers of introducing 10ppm PULP.

2. Overview of the Downstream Petroleum Industry

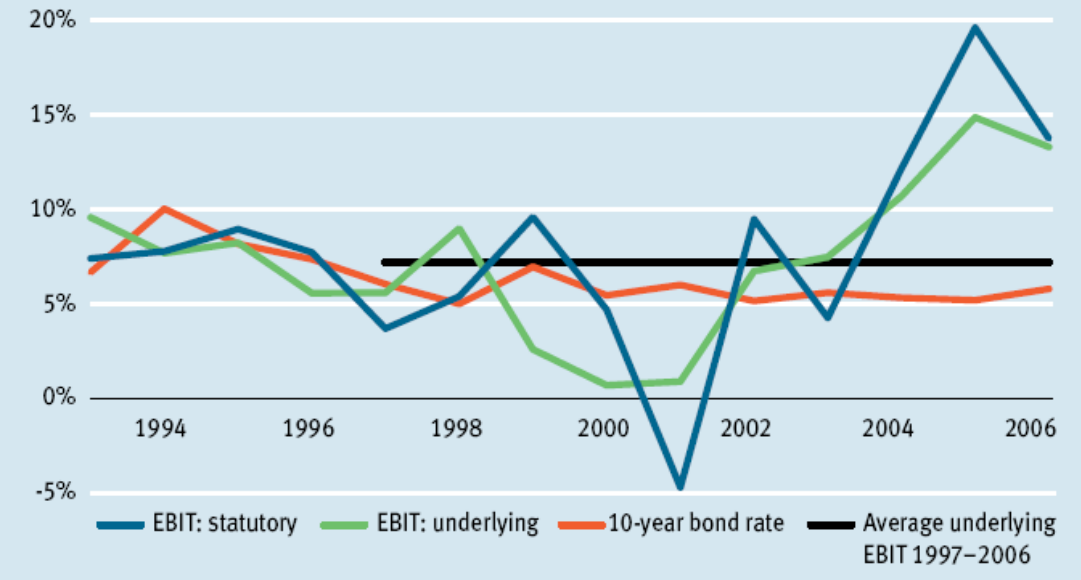
The downstream petroleum industry supplied over 50,000 ML of petroleum products to the Australian market in 2007. Of this volume of product, the Australian refining industry produced over 38,000 ML which is around 75% of Australia's total liquid fuels demand. With total gross industry turnover at $65 billion, the Australian petroleum refining sector is the largest import competing industry in Australia.

The industry does not receive any ongoing government subsidies or tariff protection for production of liquid fuels for the Australia market. Petroleum products are also substantially taxed by way of excise when compared to alternative substitute fuels. Major competitor refineries benefit from more favourable taxation, labour, environment and planning arrangements from their host countries compared to Australia. In summary, the Australian refining industry is an internationally competitive industry that does not enjoy the active financial support of Australian governments in comparison to major overseas competitors.

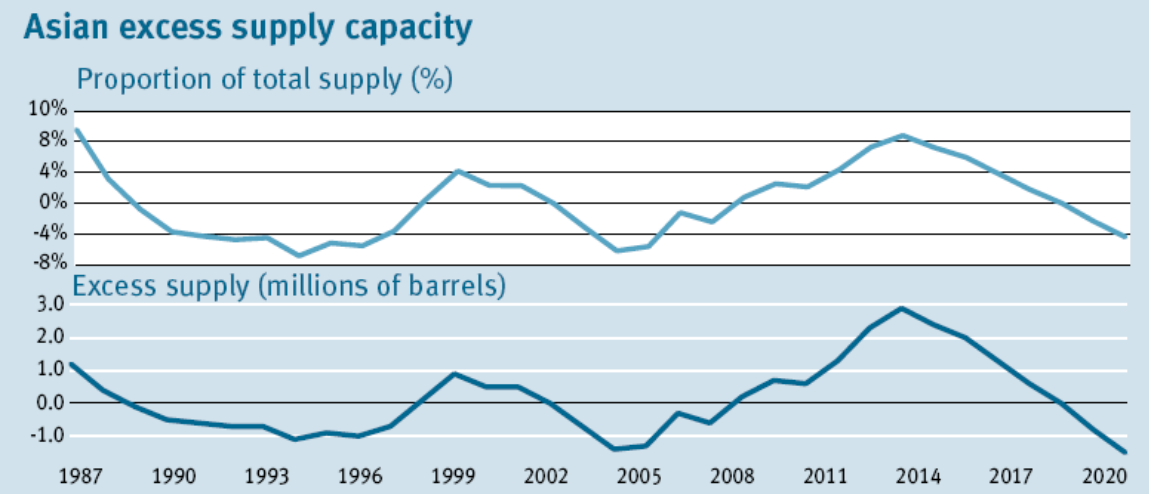
The Australian refining sector comprises eight refineries located in Sydney, Melbourne, Brisbane, Adelaide and Perth. There are seven refineries currently operating that supply, along with import terminals, local and imported petroleum products through a network of distribution depots and around 6,000 retail service stations. The Australian refineries were generally constructed in the 1950s and 60s but have been extensively modified since then. In comparison to regional competitors these refineries are quite small with an average of 100,000 barrels per day (bpd) production capacity. The main competitor refineries are located in Singapore and Taiwan (in excess of 300,000 bpd) and the new Reliance refineries at Jamnagar, India (capacity of 1.2 million bpd).

The downstream petroleum industry is highly competitive and faces open markets in Australia subject to intense international competition. The industry is highly capital intensive industry and has experienced many years of profits below the long term bond rate because of cyclical market conditions. For example in 2001, the Australian refinery industry recorded a $500 million loss that was largely caused by refinery overcapacity in the Asian region. Improved profits over recent years are a result of the refinery undercapacity in the Asian region.

The following graph shows the downstream petroleum industry profits on both a statutory and underlying basis. Underlying profits remove the valuation effects of movements in international crude prices to give a clearer picture of underlying economic performance. As can be seen from the following graph profits from the industry have been around the long term bond rate for most of the last ten years with profits since 2004 driven by supply shortfalls in the Asian region.



The following graph demonstrates the highly cyclical nature of the refining industry in the Asian region. It is expected that the supply balance in the region will be restored in 2008 and the region will experience excess supply for most of the next decade. Consequently, the Australian refining sector is expected to face increasing international competition over the next few years. However, there are many uncertainties such as burgeoning regional demand growth and rapidly increasing refinery construction costs.



As a capital intensive industry the petroleum refining sector requires a large and ongoing investment program to continue in business. In this regard, the downstream petroleum industry has invested $6.7 billion in the ten years to 2006 compared to net profits over the same period of $6.5 billion on a statutory basis and $5.8 billion on an underlying basis. Besides ongoing challenges to economic viability, the Australian refining industry was also required to undertake substantial investment of over $2 billion to meet the Australian and State governments' Cleaner Fuels Program.

3. Interaction of automotive and fuels technology

The automotive inquiry is seeking feedback on fuel quality standards and the adoption of vehicle emission abatement technologies and, in particular, whether fuel standards or Australian Design Rules inhibit imports of fuel efficient vehicles.

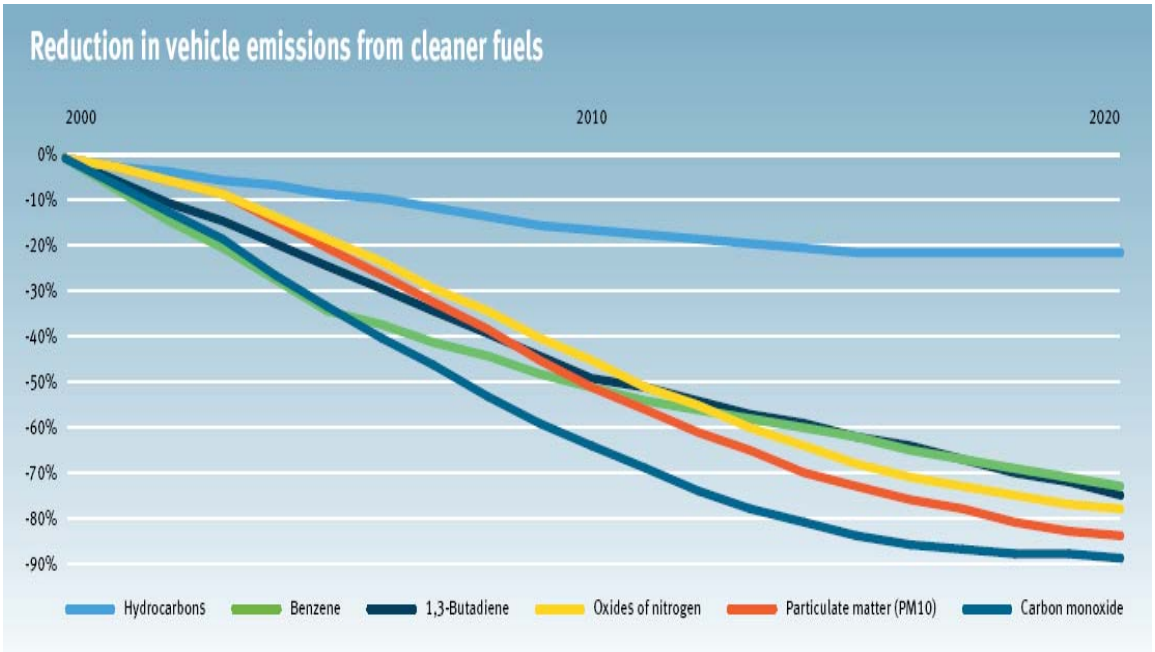
AIP members strongly supported the implementation the Australian Government's Cleaner Fuels program that has facilitated the introduction of new engine technologies that have improved fuel economy.

The key feature of the introduction of the Cleaner Fuels Program is the in depth cost benefit analysis undertaken for the introduction of each change in the fuel standard and the establishment of a clear benefit before any decision was taken to tighten fuel standards. This has involved active consultation with all industry stakeholders.
AIP strongly endorses this approach as it has allowed for the smooth implementation of new fuel standards and associated vehicle technologies.

Australian fuel quality is regulated by the *Fuel Quality Standards Act 2000* that has moved Australian fuel from being largely unregulated, to quality levels that are comparable to Europe and the US.

The Cleaner Fuels Program has two objectives:
- reduce transport emissions to address urban air quality issues; and
- facilitate the use of new engine technologies to improve fuel economy and further reduce tailpipe emissions.

The following graph is the estimated reductions in pollutants as a result of the cleaner fuel standards already implemented.



Unlike the changes to fuel standards implemented to date, any potential move to 10ppm sulfur Premium Unleaded Petrol (PULP) would be largely aimed at reductions in greenhouse gas emissions rather than improving urban air quality. Since the production of 10ppm sulfur PULP involves more severe processing of fuel, particularly for desulfurisation and recovery of the resultant loss of octane, the process is more energy intensive and therefore involves greater greenhouse gas emissions.

For a net Australian community benefit to be demonstrated, AIP considers there must be a definite reduction in greenhouse gas emissions from motor vehicles that significantly outweighs the increase in refinery emissions.

The introduction of national fuel standards involved the close consultation of relevant Government Departments, the downstream petroleum industry including independent importers, the automotive industry and environment groups. The main AIP objective was to ensure that improvements to Australian fuel standards moved in lockstep with changes to Australian Design Rules (ADRs). Since the changes involved costly and complex investments in the domestic refineries, the petroleum industry wished to ensure that tighter specification fuel was required by the motor vehicles entering the Australian fleet.

With one exception, the fuel quality standards were implemented in tandem with the introduction of new models to the Australian market. This did not occur for EuroIV Heavy Vehicle standards where the ADRs were delayed for heavy vehicles. This exception meant that Australian refineries were producing higher fuel quality than required by vehicles in the Australian market and consequently prematurely expended investment capital. AIP considers that such misalignments of policy initiatives cause large and unnecessary cost to the refining industry and hence to the Australian community through higher fuel prices.

Australian Design Rules (ADR)

When the cleaner fuels standards were set there was an expectation that a greater proportion of vehicles would utilise technologies that would only operate on PULP. Information provided by vehicle manufacturers and importers in 2000 suggested that the petrol fuelled fleet would be approaching 50% PULP by 2010. This has not proven to be the case and the expectation is that the proportion of PULP will reach about 20% of the market by 2010.

The reasons for consumers not using the expected levels of PULP is thought to be high petrol prices but a further reason is vehicle misfuelling with regular unleaded petrol (ULP). Many vehicles sold in Australia are ADR certified using PULP and PULP is the fuel recommended by the motor vehicle manufacturers. However, for some vehicles, the consumer is also advised that the vehicle can operate satisfactorily on ULP. We are also aware that some consumers ignore motor vehicle manufacturers' advice and deliberately misfuel their vehicle.

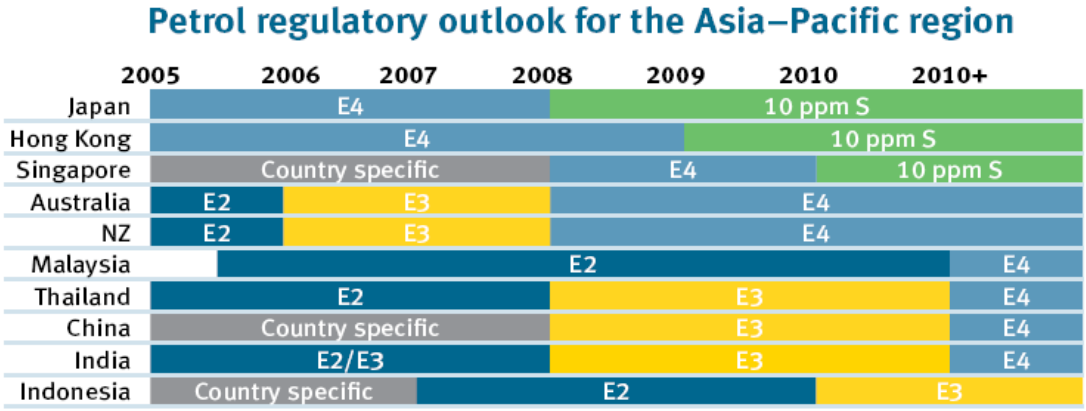
One way to reduce this problem is for government to require that when a car is certified to a particular fuel under the ADR, the motor vehicle manufacturer is required to advise the consumer to use only that fuel. In this situation, the manufacturer would not warrant any damage (such as premature catalyst deterioration) arising from incorrect fuel use.

4. 10ppm sulfur Premium Unleaded Petrol

The Australian refining sector supported the introduction of cleaner fuels standards on the basis there was demonstrated net benefit to the Australian community. In developing the cleaner fuels implementation framework, the refining industry also wanted to ensure that:

- Policy decisions were based on sound science and supported by robust economic analysis.
- There was not a disproportionate negative impact on refinery viability.
- Supply reliability was maintained - specifically, ready access to imported products at a reasonable price.
- The technical and financial challenges for the refining industry were adequately recognised by decision-makers.

As described in the previous section, a key requirement was that fuel and vehicle standards moved in tandem. In ensuring refining viability and supply reliability, it was also important that Australian fuel standards did not move too far ahead of the regional fuel standards. The following diagram shows the planned implementation of regional fuel standards and demonstrates that Australian fuel standards have moved rapidly towards cleaner fuels but are not too far ahead of the planned introduction of these standards in the region as a whole.



The next potential move for Australian fuel standards is to introduce 10ppm sulfur PULP. Japan has introduced 10ppm sulfur PULP but has virtually no petroleum product available for export. Singapore plans to introduce 10ppm sulfur PULP in 2010 for domestic consumption, however, we understand that the Singapore refining sector will only be partially switching to this grade. The reason is that the Singapore refining industry is export oriented and will continue to have export opportunities for lower grade fuel in the rest of the Asian region. The Jamnagar refinery in India will be able to produce 10ppm sulfur PULP and could supply Australia.

MMA Report Findings

The costs and benefits of the introduction of 10ppm sulfur PULP was specifically examined by the October 2005 study by McLennan Magasanik Associates (MMA) for the Australian Greenhouse Office, Costs and Benefits of Introducing 10ppm sulfur in Premium Unleaded Petrol.

The report found that:

- The main aim of introducing 10ppm PULP is to facilitate new engine technologies, specifically lean burn and direct injection engines with de-NOx catalysts.
- There are a range of engine technologies that could be produced, very few of which are sulfur sensitive.

    - For sulfur sensitive engines the fuel economy improvements are estimated at about 8% above existing technologies, however, other non sulfur sensitive technologies also deliver fuel economy improvements above existing technologies.
        - Recent indications are that “lean burn” technologies will achieve a 3% fuel economy reduction over stoichiometric technologies.
        - The rate of technology deployment to be introduced into the Australian market was assumed with no commitments from the vehicle manufacturers.
    - Sulfur sensitive engines are largely deployed in more sophisticated high end models.
- There are many uncertainties regarding the implementation of 10ppm sulfur PULP that included:
    - The volumes and types of motor vehicles planned for introduction to the Australian market requiring 10ppm sulfur PULP.
    - The available volume for import to Australia of 10ppm sulfur PULP.
    - The uncertainty surrounding the refinery constructions costs to produce 10ppm sulfur PULP.
    - The ability of the Australian fuel distribution system to adequately assure quality because of increased fuel handling requirements to avoid contamination with other grades of fuel.
- Under plausible assumptions, the introduction of 10ppm sulfur PULP could lead to net costs to the Australian community.
- Greenhouse gas emissions would increase in net terms because the increase in refinery emissions would be greater than the decrease in motor vehicle emissions.
- Given the limited supply options for 10ppm sulfur PULP in the Asian region, there is a risk of a significant price spike when 10ppm sulfur PULP is introduced in Australia.
- The refining sector would be required to spend at the very least a further $1billion to implement the changes. This includes investment to restore the octane component that is destroyed during the sulfur removal process.
- The refining sector requires significant lead times to implement 10ppm sulfur PULP because of the large and complex investment, and handling and distribution issues.
- Introduction of 10ppm sulfur PULP would significantly impact on operational flexibility at Australian refineries thereby increasing the risk of supply disruptions.

<u>MMA Report Recommendations</u>

As a result of these concerns and uncertainties, the MMA report recommended that:
- 10ppm sulfur PULP not be introduced in 2010.
- By delaying further consideration of the fuel standard, additional information will become available on the relative costs and benefits of the proposed standard.

In the sensitivity analysis of the results, the MMA report stressed that the results were highly sensitive to several of the key assumptions, specifically:
- Refinery capital costs.
- The proportion of the Australian fleet utilising sulfur sensitive technologies.
- The discount rate utilised.

Since the MMA report was produced in 2005, a number of key developments have occurred:
- Refinery construction and material costs have increased dramatically:
    - These would need to be reassessed by AIP member companies but an increase in construction costs of at least 60% is entirely plausible.
- Motor vehicle manufacturers have introduced less sulfur sensitive models to the United States which achieve only marginally less fuel economy performance than vehicles requiring 10ppm sulfur PULP.
- The cost of capital and therefore the appropriate discount rate has increased substantially since 2005.

5. AIP Position on 10ppm sulfur PULP

AIP continues to argue that the consultative and considered approach by governments to the Cleaner Fuels Program was sound and produced solid policy outcomes. The approach taken by AIP to policy is that all policies must be subject to rigorous evidence-based analysis to determine if their rationales are sound and, if so, whether intervention would deliver a net community benefit after consideration of the costs of action. Given most of the developments since 2005 have increased the costs and reduced the benefits of the introduction of 10ppm sulfur PULP, AIP and its member strongly advocate that an in depth examination of the issue is warranted.

This can be achieved by revisiting the MMA report and reworking the report in several critical areas such as motor vehicle technologies and availability to the Australian market, Australian refinery costs and lead times, and impact on petrol prices. In this respect, AIP strongly considers that:

- Significant further examination, including reworking of the cost benefit analysis, is essential to determine the desirability of 10ppm PULP fuel standard.
    - In particular, there needs to be guarantees about the numbers of vehicles and technology types that will be introduced into the Australian market.
- While five years was viewed as an acceptable lead time at the time of the 2005 MMA study, developments in labour market and construction services markets require further examination
    - This lead time issue to should be further examined in detail by AIP member companies in the context of any further consideration of 10ppm sulfur PULP.
- Refinery impacts of producing 10ppm sulfur PULP would need to be reconsidered:
    - The MMA study concluded it was likely that desulfurisation technology would decrease in cost over time.
    - AIP has argued that this is not necessarily the case as a large proportion of the refinery capital costs to introduce 10ppm PULP was related to improvements in the octane levels in the FCC gasoline. However, if newer technology catalysts destroy less octane, then there may be scope for reduced refinery capital costs but this would need to be the subject of further study.

In summary, AIP considers that any move towards the introduction of 10ppm sulfur premium unleaded petrol (PULP) needs to be approached on the basis of clear evidence because the proposed change will:

- Be technically difficult and expensive for refineries to implement.
    - Production flexibility within the refinery will be substantially reduced and as a consequence will increase the risks of supply disruption.
- Potentially impact on the viability of some Australian refineries.
    - One refinery has stated it will not be able to produce 10ppm sulfur PULP.
    - A further reduction in refinery capacity will increase imports of petrol from 20% of total Australian consumption to at least 35%.
- Increase the price of PULP by an indeterminate amount.
    - There will be very limited availability of 10ppm sulfur PULP in the Asian region until well into the next decade.
    - Japan is currently at 10ppm sulfur PULP, Singapore and Hong Kong will introduce 10ppm by 2010 but it is not clear that there will be excess volumes for export.
    - New Zealand can produce some 10ppm sulfur PULP but has an octane shortage and will also seeking imports thereby adding to the demand pressure in the region.
    - With a limited amount of 10ppm sulfur PULP available for trade in the region, the price will attract a premium and be prone to volatility.

- Result in only gradual and modest fuel efficiency improvements for the Australian vehicle fleet and there is a significant risk that, in the absence of further work to provide further evidence, the cost of moving to 10ppm sulfur PULP will outweigh the benfits:
    - Benefits above that which can be achieved using the current 50 ppm sulfur PULP will only occur as the fleet is replaced by vehicles which require 10ppm to achieve fuel economy savings.
    - Existing users of PULP will pay a higher price with no fuel economy benefits.
    - It is not clear how many new cars will be able to satisfactorily operate on 50ppm sulfur PULP even if the manufacturer's recommended fuel is 10ppm.
    - Domestic vehicle manufacturers have given no indication of when, or even if, they will produce vehicles which require 10ppm sulfur PULP.
    - Consumers may continue to misfuel vehicles on ULP.

In respect of motor vehicle technologies, AIP believes the following questions should be examined.

1. Details of vehicle technologies which cannot operate on current Australian specification fuel including the implications of misfuelling these vehicles.
2. The vehicles (make and model) which utilise these technologies.
3. The proportion of the fleet of these vehicles sold world-wide by country per annum since 2000 and the proportion of the fleet of these vehicles expected to be sold world-wide by country per annum to 2020.
4. The proportion of the fleet of these vehicles which are expected to be sold in Australia per annum by make and model from 2012 to 2020.
5. Whether similar vehicles (make and model) are available which do not use these technologies and the reasons why these similar vehicles do not employ these technologies.
6. The proportion of the fleet of the vehicles nominated in point (6) sold world-wide by country from 2005 to 2020.
7. The extent to which alternative technologies eg hybrid, E85 and drive train options could be more attractive to manufacturers and consumers to reduce greenhouse gas emissions from vehicles.

A central shortcoming of the MMA report was a lack of any detailed analysis on the likely impact on petrol prices. AIP argued in the consultation process that higher petrol prices should be included as a cost of the proposal but the consultant did not feel qualified to make this assessment and so these costs to the Australian public were largely excluded from the study. The MMA report found, based on capital and operating cost increases, that the introduction of 10ppm sulfur PULP would increase prices by 4.3 cents per litre (cpl), falling to 2.9cpl after five years and 2.1 cpl after ten years.

Fuel pricing is not based on input costs but is function of demand and supply like any other market. Consequently the differences in price between quality grades vary over time according to market circumstances. In the Asian market where there is currently no price marker for 10ppm PULP, it is difficult to judge how the price might evolve over time. However, AIP has consistently stated that when a new fuel standard is introduced that there will be an initial price increase that will come down over time as the market becomes better supplied. For example, when 50ppm sulfur diesel was introduced in 2006, the Australian diesel market saw a price premium in excess of 10cpl over 500ppm sulfur diesel. In comparison, according to Platts at the end of April 2008, the price premium of 50ppm sulfur diesel over 500ppm sulfur diesel was around 0.5 cpl.