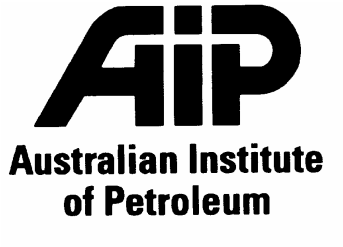

Submission to the Inquiry into Future Oil Supply and Alternative Transport Fuels

Federal Parliament
(Rural and Regional Affairs and Transport References Committee)

May 2006

BACKGROUND

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

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

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 operate and control only a limited part of the retail fuel market.

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.

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(1) INTRODUCTION AND POLICY PRINCIPLES

The key conclusion of the Australian Government's 2004 Energy White Paper is that a reliable transport fuels system is best achieved through a stable policy framework which allows the market to work effectively by encouraging efficient investment. It is AIP's strong view that this policy framework must be based on a thorough understanding of the liquid fuels market and its critical role in Australian economic prosperity.

Transport fuels policy covers a broad range of policy issues which include:

- Economic policy
  - National competitive advantage and security
  - Liquid fuels supply reliability
  - Alternative fuels
  - Taxation policy
- National security
  - Disruption to economic activity
  - Increased risk from exposure to unstable sources of production
  - Ability to diversify sources
  - The potential for major supply disruptions
- Urban air quality
  - Criteria pollutants – impact and abatement
  - Air toxics
  - Fuel quality regulation
  - Vehicle emissions regulation
- Greenhouse gas emissions
  - import and export competitiveness
- Rural and regional development
  - Structure of the retail fuel supply industry
  - Economic value of alternative fuel production.

New policy proposals must be subjected to a level of scrutiny which recognises the long lived nature of energy assets and the significant upfront investment and timetables required to bring those investments to fruition.

AIP strongly believes that the following policy principles must underpin all policy initiatives:

- policy makers should carefully define any perceived market failures jointly with all stakeholders
- policy should be based on sound science and rational economic arguments
- environmental policy and goals should be well enunciated and the rationale and effect of policy measures well understood by all stakeholders
- the taxation system needs to be neutral between fuels and more broadly with the consumption of other goods
- if within this framework government chooses to subsidise particular activities, the mechanism should be transparent and finite, and objectives clearly defined.

This submission has been developed to assist the Committee in its consideration of the range of oil supply issues identified under its current Inquiry.

The submission provides a range of information and data related to the petroleum industry, particularly the downstream petroleum sector.

In summary, this submission covers the following subject areas:

- projections of oil production and demand in Australian and globally and the implications for the availability and pricing of transport fuels in Australia
- potential of new sources and alternative transport fuels to meet a significant share of Australia's fuel demand, taking into account technological development and environmental and economic costs
- flow-on economic and social impacts in Australian from continuing rises in the price of transport fuels and the potential reduction in oil supply.

AIP has drawn on a wide range of reports, papers and analysis in the preparation of this submission. Details of the various documents and sources are set out in Attachment B.

AIP member companies may also make submissions to this Inquiry, and those submissions will address specific items on the terms-of-reference and deal with commercial and other issues related to those companies.

(2) SUMMARY OF KEY MESSAGES

- Efficient energy markets set prices subject to prevailing market conditions which influence consumption and provide important investment signals.

- Ongoing investment in efficient energy sources is vital to meet the expected demand for energy in the future.

- As the oil price has risen over the last few years, the market responded through greater investment in increased supply and an increase in the price of alternatives.

- AIP members expect policy decisions by government to be based on sound scientific and economic analysis which includes a detailed analysis of full life cycle emissions.

- Security of supply is encouraged by diversity and depth in energy markets which allows consumers greater choice and flexibility in energy decisions.

- In this context, there should be no present concern about liquid fuels supply security in Australia because of:
  - diversity of oil import sources
  - flexibility of the supply chain and an established presence of imported finished products
  - the existence of competitively priced substitutes.

- Government and fuel suppliers should continue to focus on ensuring that supply arrangements for conventional fuels are robust and diverse.

- AIP members support the development of alternative fuels where they are competitively priced, reliably supplied and acceptable to the consumer.

- Alternative fuels enjoy significant Government assistance through:
  - exemptions and concessions from the Australian Government excise system of almost $1 billion per annum
  - grant programs for various activities including capital grants for production and distribution facilities, and equipment modifications.

- Vehicle technology developments facilitated by the production of cleaner fuels will assist in addressing fuel economy, urban air quality and greenhouse gas emissions.

- The cleaner fuels program will make major contributions to reducing the levels of most vehicle pollutants by up to 60-80% by 2020.

- Government can play a role in assisting the development of technology.
  - Government reports on biofuels highlighted the importance of further technological development in biofuels to reduce production costs
  - Sound policy frameworks, such as the cleaner fuels program, facilitate the uptake of technology by creating certainty around future requirements.

- Government has a role in developing broad based strategies which can improve efficiency in transport demand.

(3) PROJECTIONS OF OIL PRODUCTION AND DEMAND IN AUSTRALIA AND GLOBALLY AND THE IMPLICATIONS FOR THE AVAILABILITY AND PRICING OF TRANSPORT FUELS IN AUSTRALIA

3.1 Global Energy Outlook

Global energy forecasts from a wide range of organisations and companies all point to a major, continuing dependence on fossil fuels for the foreseeable future. Given the available energy infrastructure and expectations for continuing economic growth in both developed and developing countries, energy forecasts and projections point to some 80% of energy demand being met by fossil fuels through to 2030 and beyond. Oil is expected to meet around 40% of this demand globally. Biomass and waste are expected to meet around 10% of energy demand through to 2030, and other renewables about 2%.

Table 1: World Primary Energy Demand in the IEA Reference Scenario (Mtoe)

	2003	**2010**	**2030**	**2003-2030**
Coal	2582	2860	3724	1.4%
Oil	3785	4431	5546	1.4%
Gas	2244	2660	3942	2.1%
Nuclear	687	779	767	0.4%
Hydro	227	278	368	1.8%
Biomass and waste	1143	1273	1653	1.4%
Other renewables	54	107	272	6.2%
TOTAL	**10723**	**12389**	**16271**	**1.6%**

IEA World Energy Outlook, 2005

The most recent work of the International Energy Agency (IEA)[1] provides further details of global oil supply and demand outlooks to 2030, for developed and developing countries by region.

Table 2: World Oil Demand in IEA Reference Scenario (million barrels per day)

	2004	**2010**	**2030**	**2004-2030**
OECD	47.6	50.5	55.1	0.6%
Transition Economies	4.4	4.9	6.2	1.3%
Developing Countries	27.0	33.9	50.9	2.5%
International Bunkers	3.1	3.1	3.3	0.3%
World Total	**82.1**	**92.5**	**115.4**	**1.3%**

IEA World Energy Outlook, 2005

The key messages from the IEA study are:

- World oil demand is expected to grow under the reference scenario by 30% over the period to 2030, with an average growth rate in developing countries over 4 times the average growth rate in OECD countries. (There are other studies and views suggesting higher growth rates, for example the ExxonMobil Energy Outlook[2] suggests growth in oil demand could be around 35-40% over this period).
- By 2030, 45% of oil demand under the reference scenario will be from developing countries.

[1] IEA World Energy Outlook, 2005

[2] ExxonMobil, *Tommorow's Energy: A Perspective on Energy Trends, Greenhouse Gas Emissions and Future Energy Options*, February 2006

Analysis by the IEA, BP[3] and ExxonMobil all highlight the growing demand for liquid fuels in developing countries – particularly India and China. For example, in 2004, oil demand growth in China accounted for some 30% of growth in global oil demand.

However, it must be emphasised that there are a range of potential energy sector scenarios that will influence this picture. For example, the IEA has analysed a scenario involving a significant reduction in global demand for energy which results in a reduction in demand for oil and gas as well as market pressures which lead to some reduction in oil prices.

It is the AIP's strong view that policy measures being considered by the Committee must be rigorously tested against a range of potential energy sector and oil and gas sector scenarios in order to fully understand the potential economic and other outcomes.

In this context, recent work by ABARE[4] for the 2006 Outlook conference concluded:
"World Oil prices are forecast to remain high in the next few years, reflecting continued growth in consumption and relatively modest increases in production. Toward the end of the Outlook period, global oil prices are projected to decline more significantly in real terms, mainly as a result of substantially higher world production and production capacity at that time."

It is expected that global refining capacity will need to increase by around 20% in order to meet expected product demand. More than two-thirds of this refinery capacity investment is expected to be in developing countries, particularly China, India and the Middle East. The growing share of light products and middle distillate in global oil consumption will strongly influence the nature of these investments, as will the progressive shift in crude oil quality towards heavy, sour crudes.

Tighter product specifications in developed and developing countries will also progressively influence the types of refinery investments. All of these factors will mean new refinery investments will become increasingly expensive. Given the time required to bring these new projects into operation (3-5 years normally) uncertainty about future investment returns (based on past experiences in the late 1990s and early 2000s where there were extended periods of negative returns) will weigh heavily on new investment decisions. The impacts of this situation on crude oil prices and on petroleum product prices is difficult to anticipate, but will be strongly influenced, in both upwards and downwards directions, by the speed with which these projects come on stream.

According to the IEA, World oil supply is projected in 2030 to be able to meet global demand, with almost all of the growth in supply coming from the OPEC region and from increasing production of non-conventional oil and gas-to-liquids projects. There are alternative views in relation to how this demand growth will be met. For example, ExxonMobil consider that while much of the growth in demand will have to be met by OPEC, there is scope for significant increased production from Russia (which is outside OPEC). ExxonMobil also consider that most of the demand growth in this period will continue to be met from 'conventional' oil resources.

While there continues to be debate about the size of proven oil reserves, available data from BP shows these are continuing to increase. Proven reserves have increased by 55% over the past 2 decades.

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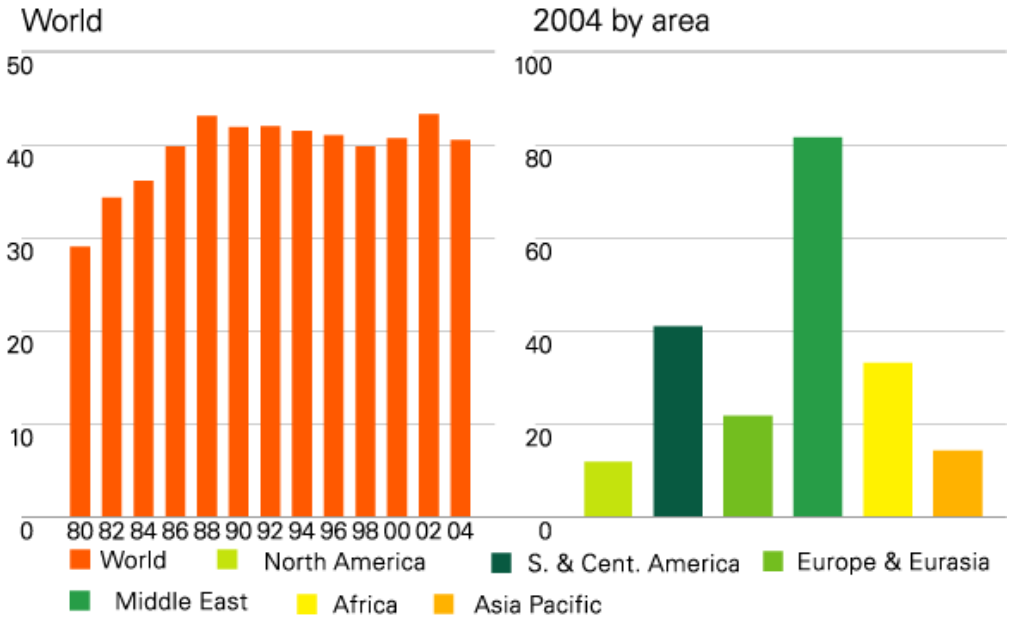
[3] BP, Statistical Review of World Energy, June 2005

[4] ABARE Australian Commodities – Outlook Conference 2006 p89

Figure 1: World Oil Reserves-to-Production Ratio



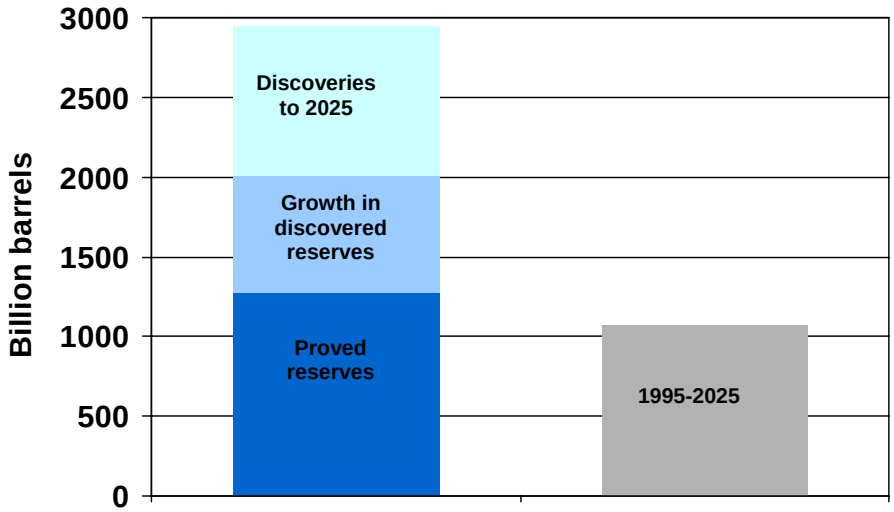
The world's oil reserves-to-production ratio fell to 40.5 years in 2004, down from 43.3 in 2002. Reserves have continued to increase and now stand 17% above the 1994 level; production is 20% higher.

Source: BP, Statistical Review of World Energy, June 2005

Global data suggests a reserves to production ratio of about 40 years. This has been the case since the mid 80s and is showing no signs of declining. So even if there were no more oil discoveries, we would have 40 years of supplies at current rates of consumption.

Analysis by the US Department of Energy provides further insight into how global oil reserves are expected to increase over the next 20 years and the expected consumption over the same period (see Figure 2).

Figure 2: World Oil Resources World Oil Consumption



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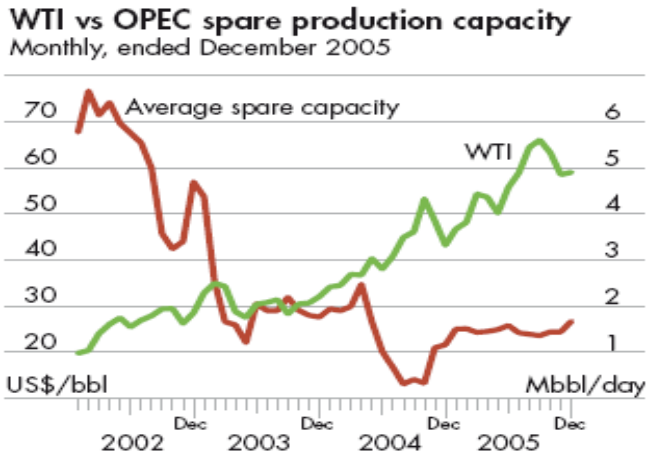
(3) Projections of Oil Production and Demand in Australia and Globally and the Implications for the Availability and Pricing of Transport Fuels in Australia

Technology developments in petroleum exploration and production are expected to continue to play very significant roles in finding more oil, in increasing reserves estimates, and in enhancing overall production from new and existing oil fields.
The recent analysis by ABARE also highlights the clear relationship between reduced spare production capacity (ie. the tightening supply-demand balance) and higher crude oil prices - see Figure 3.

Figure 3: Crude Oil Prices vs OPEC Spare Production Capacity



Source: ABARE Commodity Price Outlook 2006

3.2 Role of Oil in Australia's Energy System

Oil presently accounts for some 9 per cent of Australia's total energy production. However, its share in total energy production is projected to fall in the long term as domestic oil production declines. Condensate production is projected to rise, but production of crude oil is projected to fall, resulting in a projected fall in oil production overall.

Table 3: Oil's share in Australia's primary energy production [a]

	2003-04		2029-30 b	
	PJ	%	PJ	%
Black coal	7 614	68.2	14 720	66.1
Brown coal	658	5.9	838	3.8
Oil c	1 031	9.2	1 036	4.6
LPG d	123	1.1	182	0.8
Natural gas	1 478	13.2	5 001	22.4
Renewables	257	2.3	506	2.3
Total	11 161	100.0	22 284	100.0

a Excluding uranium. **b** Projected. **c** Crude oil and condensate. **d** Naturally occurring LPG.
Source: Akmal and Riwoe (2005).

Oil is the only major energy commodity for which Australia is a net importer. Other energy commodities such as black coal, gas (as LNG), LPG and uranium provide significant net exports, and overall, Australia is a net exporter of energy (Table 4).

Table 4: Oil's position in Australia's energy net trade [a]

	2003-04	2029-30 b
Black coal	6 208	12 627
LNG	431	3 351
LPG	55	9
Oil	- 261	- 835
Other petroleum products	- 187	- 702
Total	6 246	14 450

a In PJ. Excludes uranium. b Projected.
Source: Akmal and Riwoe (2005).

Oil currently accounts for around 34 per cent of Australia's primary energy consumption. Oil's share is projected by ABARE to remain relatively constant in the long term (to 2029-30), while primary energy consumption itself is projected to grow by over 60 per cent from 2003-04 to 2029-30 as Australia's economy and population grows (Table 5).

Table 5: Oil's share in Australia's primary energy consumption

	2003-04		2029-30 a	
	PJ	%	PJ	%
Black coal	1 570	29.4	2 248	25.8
Brown coal	679	12.7	857	9.8
Oil b	1 792	33.5	2 981	34.2
Natural gas	1 048	19.6	2 136	24.5
Renewables	256	4.8	506	5.8
Total	5 345	100.0	8 728	100.0

a Projected. **b** Including naturally occurring LPG.
Source: Akmal and Riwoe (2005).

Petroleum products are a critical part of energy consumption in Australia and supply more than 97% of Australia's total transport needs.

The most important petroleum products in the Australian context are petrol, diesel, jet fuel and LPG. These products make up around 90% of the consumption of petroleum in the Australian economy. The remaining 10% is made up of heavier products such as fuel oil and various lubricating oils and greases and other specialty products.

In 2004/05, the demand for petroleum-based transport fuels was about 43,000 ML (Megalitres) or around 747,000 barrels per day. This represents over 91% of Australia's total consumption of petroleum products (of around 47,000 ML). Within this total for petroleum-based transport fuels, the key components in 2004/05 were:

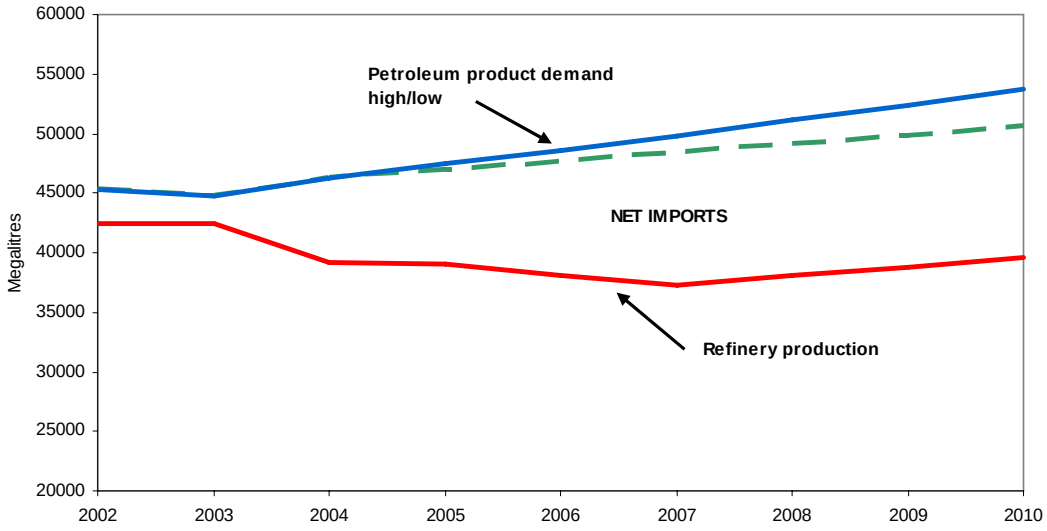
- Automotive gasoline: 46%
- Automotive diesel: 35%
- Jet fuel: 11%
- LPG – automotive use: 5%
- Others, including lubricants: 3%

Biofuels – ethanol and biodiesel – made up about one-quarter of 1% of the total but blended biofuels (E10, B5 and B20) are estimated to account for well over 1%. It is more appropriate to consider the volume of blended biofuels when assessing the performance of biofuels rather than unblended biofuels volumes. The reason is that the vehicle and fuel distribution technologies can accommodate blends and significant changes would be required to accommodate higher ethanol blends such as E85 and flexibly fuelled vehicles.

In 2004-05, imports accounted for 23% (or around 11 000 ML) of total consumption. A proportion of this imported volume is supplied to northern and north western areas of Australia where domestic refineries generally are unable to competitively supply the needs of those markets because of freight costs. Import terminals are located throughout Australia. The bulk of imported gasoline was from Singapore (around 75 %).

Total demand for finished petroleum products is growing at 1-2% a year, and by 2010 we expect demand to have increased to around 50,000 Megalitres a year (see Figure 4 below).

Figure 4: Australian Petroleum Product Demand & Supply



In the last three financial years, we have seen growth in diesel demand averaging 4.2% a year (probably reflecting growth in commercial activity), compared to much slower growth in demand for automotive gasoline - averaging around 2.1% a year.

As can be seen from the data above, the Australian passenger transport fuel market is still dominated by petrol. This is similar to US demand but unlike that of Europe, where diesel now accounts for 43% of fuel sales and where 71% of new car sales are diesel cars.

As we move forward to 2010 and beyond, we expect a number of factors to influence the rate of growth in demand for these fuels. Several key influences are outlined in Box 1.

Box 1: Trends in Transport Fuel Demand

Crude Oil and Petroleum Product Prices

Changes in international crude oil and product prices over 2004-05 have confirmed the relative price inelasticity of petroleum products demand over the short term. Despite around a 13% increase in national average petrol and diesel prices over 2004-05, total demand for these fuels actually increased as a result of economic growth. This reflects the limited opportunities in Australia to quickly shift to other modes of transport. However, during the second half of 2005, there have been significant further prices rises, largely as a result of the disruption to US refining because of Hurricanes Katrina and Rita and an export embargo in China. These recent price rises have had a more pronounced impact on demand. For example, for the month of September 2005, there was a reduction in fuel consumption in Australia of around 6.3% in comparison to the average weekly fuel consumption of August 2005.

Nevertheless, despite recent price rises, Australian petrol and diesel prices remain among the lowest in the OECD according to the International Energy Agency (see Attachment A).

The factors behind this favourable price comparison include the existence of a fiercely competitive market, the need for local fuel suppliers to compete with imports out of Asia, and consumer demand that is well-informed about fuel prices.

However, there are some signs that higher fuel prices are encouraging motorists to purchase more fuel efficient vehicles. For example, of the 5000 passenger cars sold in August 2005, 4600 cars were in the 'small car segment'.
A continuation of this trend will have implications for overall fuel demand as well as for the different fuels. For example, since diesel is a much more efficient fuel than petrol we may see diesel cars capture a much higher share of new vehicle sales, as in Europe (where diesel also tends to receive concessional tax treatment).

Vehicle Fuel Efficiency Targets

Fuel efficiency targets for passenger and commercial vehicles will also play a significant role in shaping future fuel demand. The vehicle industry is currently negotiating the fuel efficiency target framework for passenger vehicles.

As part of this drive to increase fuel efficiency, we are seeing a growing demand for higher grades of petrol – ie 95 and 98 RON petrol. Premium unleaded fuels accounted for around 15% of petrol demand in 2004-05, but as the new car fleet increasingly moves to require 95 RON petrol, this proportion is expected to rise to over 50% early in the next decade.

Cleaner Transport Fuels

The government and community drive for improved urban air quality and reduced greenhouse gas emissions has led to significant recent changes in transport fuels standards in Australia.

Reductions in vehicle emissions are being achieved through major complementary changes in engine and vehicle technologies and in the use of cleaner transport fuels. The impacts of these changes are quite dramatic and the benefits should not be underestimated.

Legislated changes in the fuel standards will progressively lead to the virtual elimination of sulfur in diesel, and to large reductions in the amount of benzene in petrol. Sulfur levels in premium unleaded petrol will also be greatly reduced. This has a number of implications: existing vehicle and fuel standards will greatly reduce air pollution; engines will be designed to operate on tightly specified fuels; and fuels will need to be produced consistent with these tight specifications.

With tighter fuel quality standards and new vehicle technologies in place, there will be relatively little difference between the emissions performance of conventional and alternative fuels in Australia. All fuels will produce very low levels of emissions.

Australian Refinery Output

To meet the new fuel standards, Australian refineries are making major investments. It is estimated that over $2 billion will be invested over the decade to 2010.

However, these investments will not result in any significant increase in Australian refining capacity. In 2004-05, about 16% of petrol demand was imported, 26% of diesel and about 21% of jet fuel.

On the basis of projected demand and refinery capacity, it is reasonable to conclude that the overall structural import demand for petroleum products will rise to around 25-30% early in the next decade.

Alternative transport fuels

This is discussed in detail in Section 4 of this submission.

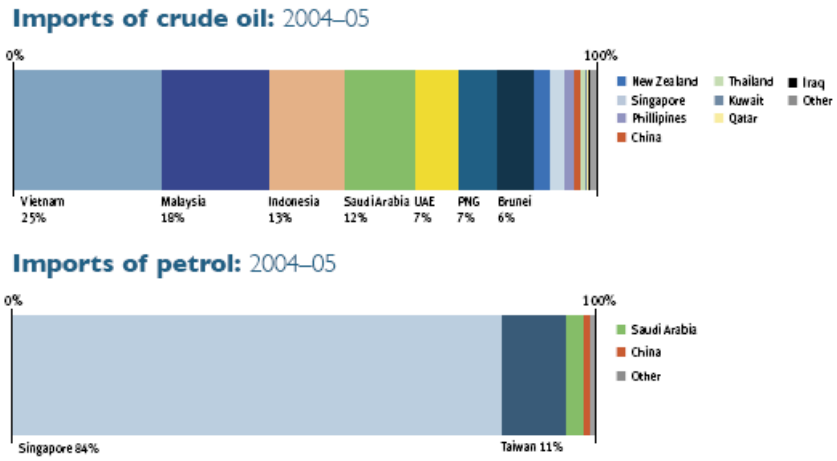
3.3 Crude Oil and Product Supply Security

Australia consumes a very small proportion of global oil production. Around 35% of our consumption is supplied from Australian oilfields.

Different crude oils have different inherent yields of products. Australian crudes, for instance, tend to be lighter (lower density) and sweeter (lower sulfur) than most crude oils. This leads to generally higher prices for our crudes and Australian refiners can find cheaper alternatives elsewhere. It also means they do not exactly match the products demanded in Australia by all industry sectors – that is, LPG (2%), petrol (44%), jet fuel (13%), diesel (32%), fuel oil (3%) and other products (6%). In addition, Australian crudes are not suitable for producing the heavier products such as bitumen, lubricating oils and greases.

In order to produce the required product slates, with the appropriate fuel qualities, at the lowest production costs, Australian refineries use a mixture of crudes from a variety of sources. Some 65% of crude oil used in Australian refineries is imported. In 2004/5, these crudes were sourced from over 15 countries mainly from Asia and the Middle East.
This means the supply disruption risks are spread between domestic and imported crudes and crudes from a variety of different sources. Product imports provide a further diversification of supply versus local refineries and their sources of crude oil.

Figure 5: Imports of Crude Oil and Petroleum Products



The Federal Government reviewed this situation in the 2004 Energy White Paper and concluded that the level of supply security in transport fuels is not currently under threat.

In reaching this conclusion, the Government noted that past disruptions have had a relatively small impact on world oil flows and have not had a major impact on the reliability of oil supplies to Australia. Australia, like other countries, has faced increases in oil prices, often with significant economic impacts, but access to oil has not been a major problem.

This has been borne out over the past 12 months. Oil prices have been rising but crude oil supplies to Australian refineries have not been a problem. There is no reason to believe this situation will change as the level of crude oil self-sufficiency declines in Australia over the next two decades. Australia will continue to be able to access crude oil and products to meet our fuel requirements as long as we pay the international market price. This means that any moves to set a different price structure locally would be counter-productive from a supply security perspective. For example, if prices in Australia were artificially set below international market prices, Australian importers would not be able to secure reliable supply.

As the Energy White Paper indicated, Australia's best path to provide for the continuity of oil supplies is through:

- multilateral efforts to ensure that world markets remain open;
- acceptance that we have to be part of the global market for oil and therefore need to pay the market price; and
- effective response mechanisms to mitigate the impact of short term supply disruptions.

Confidence in Australia's ability to provide reliable supplies and competitively priced fuels into the future is supported by:

- the operation of a strong market for transport fuels
- strong incentives for ensuring adequate commercial stock holdings to meet customer needs
- robust emergency response arrangements.

3.4 Transport Fuel Supply Reliability

This section provides an overview of the Australian liquid fuel supply chain and the structure of the fuel market, particularly at the retail level.

The Fuel Supply Chain - Overview

The Australian liquid fuel supply chain has considerable span and diversity – from crude and product shipments, refinery throughput, extensive terminal and distribution networks, and around 6650 retail outlets.

Importantly, there have been significant changes to the supply chain over the last decade or so.

The financial underperformance of the downstream petroleum sector during the 1990s led to a rationalisation of the supply chain to improve efficiency. At the same time, excess production capacity in Asia meant that spot cargoes, particularly of petrol, were readily available at low cost to importers.

This situation has changed since 2002, with growing demand for products across the Asian region and with the mothballing of the Port Stanvac refinery in South Australia in July 2003. As a consequence, the Australian liquid fuels market is now a 'structural importer' with any additional demand, such as normal growth in demand and demand spikes, being met from increased levels of imports. That is, imports are a permanent part of the fuel supply structure for Australia.

The reliability of our fuel supply system is outstanding given the unique logistical and geographic challenges in Australia.

The length of the crude oil supply lines is on average around 4 weeks for crude supplied from the Middle East, around 10 days for crude supplied from Asia and anywhere from a few days to a week for indigenous crude oil. There is additional lead time required for ordering/purchasing the crude oil and securing the ships to bring it to Australia. This raises the overall supply time to around 3 months for the longest lead time.

Refineries

Australia has eight refineries (Table 6) (only seven now operating following the mothballing of Port Stanvac) that were generally constructed in the 1950s and 1960s, although they have been extensively modified since then.

Domestic refineries supply around 77 per cent of the petroleum products required by major industries and the fuel distribution network of 6650 service stations.

These refineries are relatively small with the largest having a capacity of 8,000 ML pa (Megalitres per year), compared with the four largest Asian refineries which produce between 31,000 to 67,000 ML pa. Proposed greenfield investments in Asia have a minimum capacity of around 26,000 ML per annum.

Australian refineries price their output to be competitive with imports (ie import parity) from the Asia Pacific region (see Attachment A). Profitability of the Australian refining industry is therefore largely determined by refining margins in Asia, and by our competitiveness with Asian refiners.

Table 6 – Australian Refineries

REFINERY	**CAPACITY: Megalitres per annum**	
Bulwer Island (BP – Brisbane)	5,100	
Lytton (Caltex – Brisbane)	6,110	
Clyde (Shell – Sydney)	4,980	
Kurnell (Caltex – Sydney)	7,210	
Altona (Mobil – Melbourne)	4,640	*(recently re-rated)*
Geelong (Shell – Geelong)	6,900	
Kwinana (BP – Kwinana WA)	8,030	
TOTAL	**42,970**	
Port Stanvac (Mobil - Adelaide)	*4,520*	*(currently mothballed)*

Current investments of over $2 billion in Australian refineries for the production of cleaner fuels are not expected to result in any substantial increase in Australian refining capacity.

On the basis of projected demand and refinery capacity, it is reasonable to conclude that the overall import demand for petroleum products will rise to around 25-30% by early in the next decade, and earlier for some products.

While this level of imports of petroleum products might appear to leave Australian consumers exposed to a higher level of risk of supply disruption, experience to date suggests that this is not the case. With increasing use of term contracts for larger import volumes than in the past, there are now very regular shipments of products into most major ports in Australia. This has increased the flexibility of the supply chain by the more regular movements of shipping and potential redirection of loads to centres that might otherwise be faced with fuel shortages.

Distribution

The structure of distribution has been changing over the past few years in the search for greater efficiencies.

The major change has been the removal of intermediate steps/handling wherever possible, facilitated by improved roads and trucks.

That is, there is an increasing trend for fuel distributors to supply their customers directly from large terminals or other seaboard facilities, rather than handling product through inland depots as in the past. For example, on the eastern seaboard 80% of product is delivered directly from major refinery or import terminals to service stations or other end-consumers.

As a result of this trend, depots now tend to be restricted to some country areas where the delivery of smaller loads is required for farm use and other local needs and because of the smaller size of tankage at many rural service stations.

Given the longer supply lines, need for double-handling in a number of instances, and lower volumes in rural and regional areas, distributors in these areas typically have higher costs structures than in metropolitan areas, thus leading to higher wholesale prices in non-metropolitan areas.

Supply Chain Improvements

Over the past 2 years, AIP member companies have undertaken extensive reviews of their supply chain operations and commercial levels of stocks. Improved information flows have been established to better manage peak demands for products in various regions. For example, better forecasting systems have been developed for diesel demand during harvest periods, and enhanced systems are in place to manage jet fuel supplies.

At the same time, Federal and State governments have reviewed the policies and practices surrounding government, industry and consumer preparedness for any liquid fuel supply emergency. The Australian Government has responded to the review recommendations and the National Oil Supply Emergency Committee (NOSEC) has commenced implementation of the findings of the review.

In this context, fuel consumers will be encouraged to take a more proactive role in assessing their exposure to supply risks, and to take action to address those risks – rather than simply leaving potential supply problems to fuel producers and distributors to resolve when the problem arises.

3.5 Structure of the Retail Market

The downstream petroleum retail sector has undergone significant changes in the last ten years in almost every aspect of its operations.

Types of Ownership & Management

Ownership and management structures have changed significantly with the economic drivers of the business. The various types of commercial arrangements existing now are outlined in Box 2.

It is important to understand the differences in these operations, since they indicate the key decision maker, including in relation to pricing decisions (see Section 3.6 and Attachment A).

Box 2: Types of Service Station Operations in Australia

Outlined below is an explanation of the main types of service station operations:

- **Oil Company operated (sites may be owned or leased)**
  - Numbers restricted by the Sites Act
  - Tied fuel supplies
  - Convenience store options

- **Supermarkets**
  - No mandated restrictions on operations
  - Tied fuel supplies
  - Convenience store options controlled by supermarket

- **Franchisee and Commission Agents**
  - Franchisee operated (declining in numbers)
  - Commission Agents (limited tenure if not franchised but guaranteed returns)
  - Full marketing programme support by supplying oil company
  - Tied fuel supplies
  - Convenience store options controlled by franchisee or CA

- **AIP Company Branded Independents**
  - Branded independents (major oil company brands) – account for almost half the total number of service stations
  - May be operated by distributors or independent retailers (in some cases may be franchised by distributors or multi-site owners)
  - Subject to branding agreement with fuel supplier
  - Agreement may or may not include marketing programme support
  - Tied fuel supplies
  - Convenience store options controlled by owner/operator

- **Non AIP Company Branded and Other Independents**
  - May be operated by distributors or independent retailers (in some cases may be franchised by distributors or multi-site owners)
  - Fuel supplies not tied to single oil major
  - Convenience store options controlled by owner/operator

NOTE: Within this structure, sites may be owned by oil majors, supermarkets, franchisees/CAs acting as investors, distributors, branded or non branded independent retailers, or unrelated investors. Sites may be operated by the owners or leased to other operators.

Industry Structural Changes

A key structural change in the industry is highlighted in Table 7 below. This shows that AIP member companies now have a much more limited role in petrol retailing and there is now much less vertical integration within the industry. The Table below shows that the estimated number of Australian service stations has reduced from around 8200 in 2000 to around 6650 in June 2004 - a drop of around 19% in total service stations.

- Since 2000, the number of independently operated, branded service stations has declined by 23%.

- The number of AIP company branded service stations operated under franchise arrangements has dropped by 53% over the same period (to 958 sites in 2004). The majority of these service stations are now in the supermarket alliances.

While the general trends are evident across Australia, the changes have been most marked in Victoria, South Australia and New South Wales – with a greater impact in metropolitan rather than in rural and regional areas.

Table 7: Australian Service Station Numbers & Types

	2000	2004	Change
AIP Member Branded Service Stations:			
Company operated	296	316	20
Franchises	2019	958	-1061
Supermarket	156	872	716
Other - AIP branded independ. & other related brands	5047	3895	-1152
Total	**7518**	**6041**	-1477
Non-AIP Member Service Stations:	659	608	-51
TOTAL ALL SERVICE STATIONS	**8177**	**6649**	-1528

At the National level, as at June 2004:

- the four major oil companies directly operate (and/or set prices for) only 316 service stations around the country; this is less than 5% of the total number of service stations;

  - since the 2004 survey was conducted the number of these sites has reduced further.

- franchisees of the major oil companies account for around 958 sites or around 14% of total service stations; these sites have varying commercial arrangements with prices in most cases being set by the franchisee and in others being set by the franchisor;

- branded and unbranded independents operate and make retail pricing decisions for their sites; these sites account for around 68% of the retail sites in Australia; and

- the remaining 13% of sites are operated by major supermarket chains, which control the pricing decisions at those sites.

Box 3: Case Study: **Who Controls Pump Prices?**

An Example from Caltex

About 1800 service stations in Australia carry the Caltex or Ampol brands.

Under the *Petroleum Retail Marketing Sites Act*, Caltex can set pump prices at a maximum of 136 sites at any given time.

At Caltex contributed Caltex-Woolworths jointly branded sites, pricing is set by Australian Independent Retailers Pty Limited according to directions from Woolworths with absolutely no involvement from Caltex.

At all other Caltex and Ampol sites, the pump price is the legal responsibility of the franchisee or independent operator.

Source: Caltex Website (www.caltex.com.au)

Service Station Competitive Advantage

The changes in service station numbers noted above reflect the move toward larger, more efficient sites offering a variety of fuel, products and services.

These multi-service sites have large volumes, high exposure and multiple business activities such as convenience stores, car wash, bottled gas, fast food etc. Multi-service sites enjoy cost competitiveness and a diversified income base supported by a highly developed business plan. These sites typically set the competitive benchmark in particular geographic areas on price and service.

Traditional sites may need to overcome competitive disadvantages (eg. low volumes, limited supply chain integration, site limitations, and ageing capital) to compete with more efficient multi-service sites in their local area.

Successful operators are focusing on their unique competitive advantages to attract and retain customers by the distinct small business advantages of customer service, local knowledge and lower overheads. For example, corner store sites may have inherent competitive advantages such as a remote location or an affiliated business of value to the local community.

The convergence of fuel retailing and convenience store shopping has advanced through the supermarket alliances which have emerged since 2003 between Shell and Coles Myer and between Caltex and Woolworths.

The supermarket alliances now handle almost 50 per cent of petrol sales in metropolitan areas. Supermarket chains are purchasing billions of litres annually from oil companies, and can therefore negotiate lower wholesale prices than single service stations or small chains.

There have been very strong consumer responses to the supermarket shopper docket discounts and there are now over 200 shopper docket fuel discount schemes in place.

Conclusions about Retail Market Structure

The trends above show that the Australian petrol market is highly diverse and competitive at the retail level.

The entry of the supermarkets and other major independent chains into retail fuel markets has significantly reduced the share of these markets held by oil company branded chains.

The conclusions of reviews by ACCC on the supermarket alliances and the use of 'shopper docket' discounts point to the continuing existence of numerous strong retail competitors as opposed to claims from some sections of the industry that the supermarket alliances will lead quickly to a 'duopoly' of fuel retailers.

The changes to the structure of the fuel market, particularly at the retail level, are important context to petrol pricing and pricing cycles in Attachment A.

3.6 Fuel Pricing Summary

Attachment A provides a detailed explanation of the key international and domestic factors influencing petrol prices in Australia. A summary of some of the main points is outlined below.

AIP has long held the position that the Australian petroleum market is highly competitive at both a retail and wholesale level. However, the industry also recognises the large divergence of market structures operating across Australia and how different structures can affect competitive outcomes. As the retail petrol market continues to develop under competitive pressures, operating structures will evolve to better meet the needs of consumers.

Apart from the aggressive retail discounting noted above, the competitive pressures in the market are well demonstrated by the following facts.

- For many consumers, petrol (particularly Unleaded Petrol or ULP) is often treated as a commodity product generating little brand loyalty, meaning competition is largely based on price. These consumers are strongly price conscious. For other consumers in the market, for example users of Premium Unleaded Petrol or PULP, petrol is a differentiated product (based on a strong marketing emphasis on premium petrol brands) with more significant brand loyalty.

- Petrol prices are highly visible to consumers at the point of business entry (ie. on price boards).

- Australia consistently has among the lowest petrol and diesel prices in the OECD, on both a pre-tax and post-tax basis (according to official statistics from the International Energy Agency).

- Australian refineries are price takers competing with imports from the Asia- Pacific region. There are no barriers to entry in the Australian fuel market unlike in many Asian countries. Australian wholesale petrol prices are set by reference to Singapore ex-refinery prices.

- Petrol (excluding tax) is one of only a few staple commodities to have reduced in price in real terms over the last two decades. Almost the entire increase in nominal terms is due to increases in excise taxes.

- Despite an increase in profits in 2004 and 2005, returns to Australian refiner-marketers have largely been below the long term bond rate for the last twenty years and well below international benchmarks for the industry. Recent profits have provided cash-flow to help fund the major investments in the cleaner fuels program and refinery upgrades

- The entry of the supermarkets and other major independent chains into retail markets has reduced the degree of vertical integration in the market and the supermarkets (with their very low cost business model and “shopper docket” discounting approach) now exercise a strong influence on retail prices.

- The ACCC examined the shopper docket arrangements in late 2003 and concluded that: ‘shopper docket petrol discount arrangements were likely to result in lower petrol prices for consumers, generation of a culture of discounting & increased non-price competition.’

    - The ACCC concluded in August 2005 that ‘developments in the petrol retailing market over the last two years indicate that these results have in fact occurred’.

AIP members strongly advocate a competitive market for fuel.

3.7 Conclusions about Supply Security and Fuel Pricing

There are extremely well developed and highly competitive global markets for crude oil and petroleum products. These markets have a strong regional focus with prices reflecting regional availability (or scarcity) and quality. All the way along the crude oil and products supply chains there are numerous large (integrated) and smaller (selective) market participants constantly driving market competition.

In the case of crude oil, these market mechanisms play a critical role in ensuring competitive pricing and least cost operations. By comparison with other OECD countries, Australia has some of the lowest prices for petrol and diesel. In addition, the dynamic market enables supply disruption risks to be minimised through multiple sources of supply involving well developed commercial relationships. This effectiveness of the oil market in dealing with supply disruptions has most recently been recognised by the International Energy Agency in its assessment of the global recovery from the impacts of Hurricanes Katrina and Rita.

In these circumstances, international events that impact on the oil and product markets will be felt by all countries, so Australia is not likely to be placed at a relative disadvantage. With the diversity of supply chain options around the country, Australia is well placed to manage any national supply disruption.

Recent events have highlighted how crude oil and petroleum product price increases can impact on economic activities and on individual lifestyles. As one would expect, market forces have led to a reduction in demand for petroleum products, and some changes in business and individual spending decisions. It is important in considering the issue of threats to the Australian economy to distinguish between these sorts of outcomes which may, over time, lead to changes in the significance of activities within the national economy and catastrophic disruptions to the economy resulting from a complete loss of oil supplies.

For the longer term, the critical issue is to ensure that the market framework provides the right signals for ongoing investment in oil resource identification, extraction and processing. These signals will also be the drivers for the development of alternative liquid fuel supplies and for changes in consumer choices about how liquid fuels are used.

In considering the issue of threats to the Australian economy, there are several questions to be addressed:

- Are we likely to face fuel supply shortages in the short to medium term?
- Is the supply chain robust?
- Are consumers getting market signals that will guide them to outcomes that fit well with realistic assessments of the longer term energy outlook?
- Are fuel and consumer options for the future technically/commercially viable?
- Are strategies for managing fuel supply risks well understood across the range of activities in the Australian economy?

(4) POTENTIAL OF NEW SOURCES AND ALTERNATIVE TRANSPORT FUELS TO MEET A SIGNIFICANT SHARE OF AUSTRALIA'S FUEL DEMANDS, TAKING INTO ACCOUNT TECHNOLOGICAL DEVELOPMENT AND ENVIRONMENTAL AND ECONOMIC COSTS

4.1 Introduction

The potential of alternative transport fuels to meet a significant share of the Australia's fuel demands will be influenced by the international oil and product markets, the cost of alternative fuels and the overall government policy framework.

In the previous chapter, the general conclusion regarding the international oil market is that demand will continue to grow fairly rapidly driven by non-OECD demand (particularly China and India). Supply, while encouraged by higher prices, will remain susceptible to any unplanned supply disruptions such as natural disasters.

While this appears to be a generally accepted conclusion in international markets, the IEA made the further point that "mid term demand projections are sensitive to alternative paths of economic growth. It is notoriously difficult to project economic cycles and, given past history, it is unlikely that global economic growth will follow a smooth path….It is clear that the potential for slower growth outweighs the probability of demand growth exceeding expectations" (Provisional Mid-term Demand Projections, 13 December 2005). Part of the reason for higher oil prices since 2004 was the failure of the world economy to anticipate the rapid growth of China, especially the particularly rapid increase in oil demand.

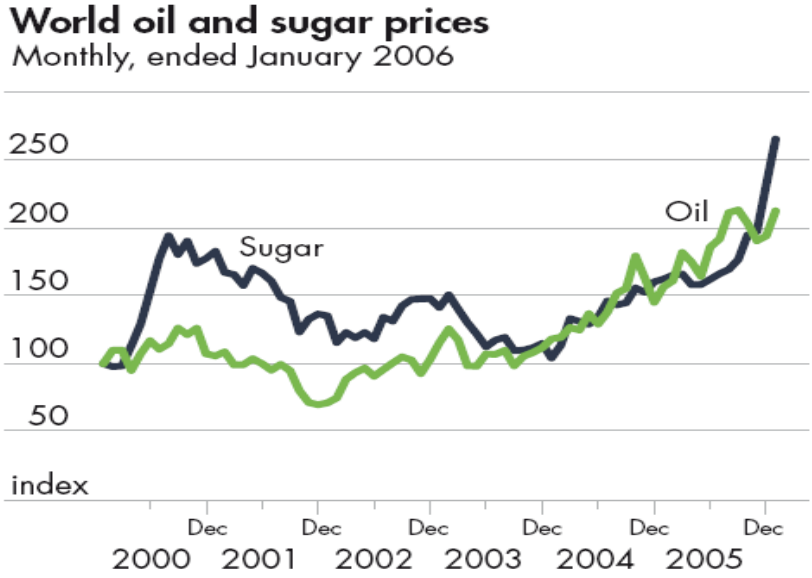
The price of alternative fuels is driven by the cost of inputs and the price of substitutes such as petroleum products. In the case of LPG, international prices have increased from US$320 per tonne in January 2004 to $580 per tonne in January 2006 (an 81% increase). Over the same period the price of TAPIS crude oil benchmark went from US$34 to US$71 (a 110% increase).

Similarly over the last five months the futures price of ethanol on the Chicago exchange has increased by almost 35% since trading commenced in November 2005.

Feedstock costs are also influenced by the price of oil. Over the last three years, sugar prices have moved strongly with the price of oil as shown in Figure 6. Given the flexibility of the Brazilian production between sugar and ethanol, it is to be expected that the sugar price would follow developments in oil prices. It is clear from this example that any large scale substitution towards alternative fuels from conventional fuels would have brought fairly limited price relief for energy consumers.

A recent analysis of the relationship between the Brazilian ethanol market and the world sugar demand is contained in the ABARE Commodity Price Outlook 2006, p56.

Figure 6:



Source: ABARE Commodity Price Outlook 2006

While AIP has not undertaken any detailed analysis of previous oil price spikes, this result is generally unsurprising and underlines the interrelated nature of energy markets. The limited nature of the alternative fuels market and the substitution effect raising alternative fuels prices in an environment of increasing oil prices suggest that there is a limited role for alternative fuels in meeting overall demand. It would also appear that the ability of alternative fuels to ameliorate any price increases in the future is limited.

Anecdotal evidence also suggests that the link between oil prices and alternative fuels prices is more direct in some cases in Australia. It is expected that ethanol contracts (for E10 blends) will be formula-linked to oil prices and pricing of E10 at retail will be closely related to petrol.

In addition, the character of demand for particular fuels in Australia is likely to be subject to a variety of competing pressures. Chapter 3.2 provides an overview of transport fuel demand and the key factors likely to influence that demand. Taken together, we would expect to see some changes in basic fuel demand with:

- a progressive shift from ULP to PULP as the dominant fuel
- the moves to cleaner conventional fuels substantially reducing the environmental advantages of alternative fuels
- a potential growth in diesel demand, with customer expectations of greater availability
- more fuel efficient vehicles tempering the growth in demand for fuels.

The Australian Government has put in place policy instruments to help manage future fuel supply challenges.

4.2 Alternative Supplies of Transport Fuels

In looking at the medium and longer term alternative sources of supply of transport fuels, the Energy White Paper noted that Australia has access to potentially large sources of alternative fuels: technology exists to convert coal and gas to liquid fuels; Australia has enormous shale resources; Australia has significant resources of naturally occurring LPG, and can use CNG in transport applications. These resources are all in addition to the potential sources of biofuels.

The existence of these resources means that Australia is well positioned to respond to longer term changes in oil supply conditions. The Energy White Paper also set out a relevant policy framework to encourage the development of these alternative fuels. Market signals will indicate when it is commercially viable to do so.

The Federal Government has established a variety of incentives to encourage the use of alternative fuels. Various excise and other concessions have been made available to recognise benefits to be gained from the use of these fuels, and to facilitate the development of new industries.

The current policy framework provides significant subsidies for the production and use of alternative fuels. Excise concessions, production grants and research grants are currently assisting the development of alternative fuels. The level of subsidisation is approaching $1 billion per annum. Despite this significant assistance, alternative fuels account for a relatively small portion of Australian liquid fuel demand (less than 10%). This situation is unlikely to change significantly and therefore alternative fuels can only make a very marginal contribution to security of supply.

The level of support for these fuels is set to phase down after 2011, as part of the Government's medium to longer term policy framework for transport fuels in which the role of each fuel – conventional and alternative - will be determined by its cost competitiveness and market forces over the longer term. Therefore, the role that alternative fuels will play will largely depend on their competitiveness as fuels and on consumer demand. However, particularly in the medium term, the favourable excise treatment of alternative fuels bestows a significant price advantage on such fuels and a substantial implicit subsidy for their producers. This represents a loss of economic efficiency and, as alternative fuels displace conventional excisable fuels, it also causes a loss of revenue to government.

It is AIP's view that there should be no guaranteed role for any particular fuel in the market, whether conventional or alternative fuels. Each fuel must establish and maintain itself in the market by being:

- cost competitive
- readily available on a reliable basis
- of consistent high quality and complying with fuel quality and other environmental standards
- acceptable to the customer.

When judged against these factors, AIP member companies can see a role for alternative fuels replacing some fuel imports and helping to meet the growth in overall fuel demand.

However, the two government biofuels reports in 2003 and 2005 suggest that biofuels will probably require an ongoing substantial government subsidy by way of excise concessions to remain viable in the long term. Technological improvements, such as lignocellulosic applications have the potential to significantly reduce the costs of ethanol production and may reduce the need for or magnitude of government subsidies in the future.

4.3 LPG

LPG is generally used as a mixture of propane and butane. It accounts for approximately 9% of total fuel demand by volume but has an energy content of 60-65% of conventional petrol which reduces its contribution to the overall transport task.

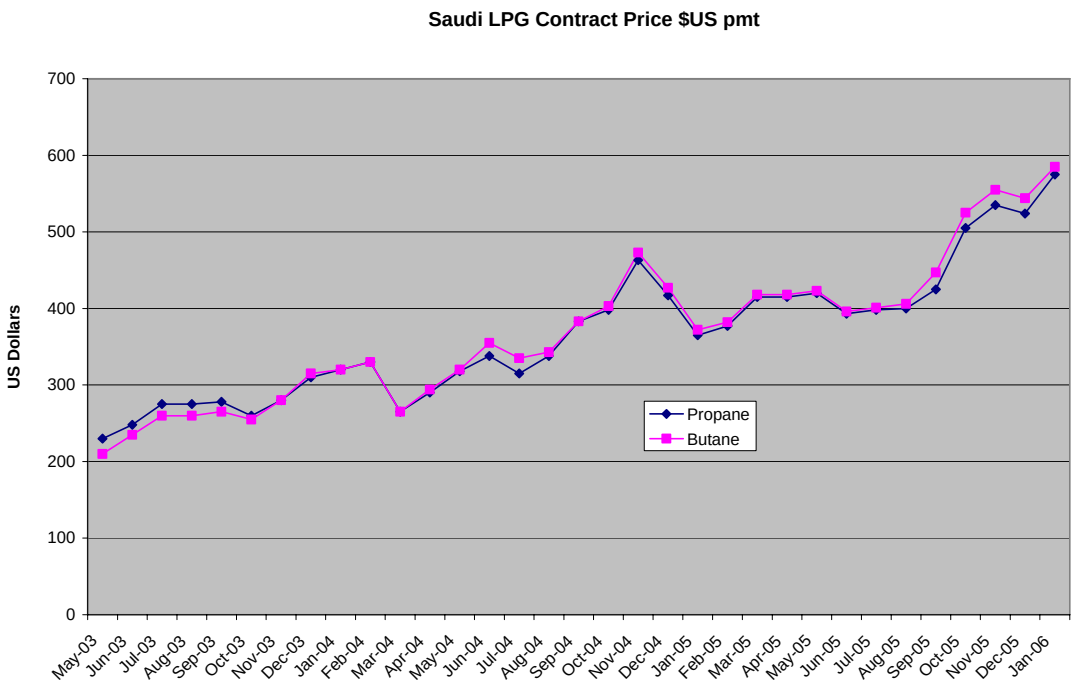
LPG enjoys an excise exemption until 2011 which makes it a significant fuel in high kilometre applications such as taxis. Consumption in the private passenger vehicle market is assisted by State subsidies for LPG conversions. There are also a number of dedicated LPG vehicle models or factory fitted conversions available from Australian manufacturers which are assisted by grant measures announced in the Energy White Paper. LPG, unlike other gas-based fuel such as CNG, has a well established and extensive supply chain throughout Australia and enjoys the confidence of consumers.

Australia is a significant producer of LPG from naturally occurring sources and from Australian refineries. According to the Australian Petroleum Statistics published by DITR, in 2004-05 Australia produced from natural sources about 4600 ML, exported about 2800 ML, imported about 540 ML, and consumed about 3400ML.

Naturally occurring sources were Gippsland, North West Shelf and Cooper Basin with the majority of exports occurring from the North West Shelf. The production from domestic refineries dropped from 1600 ML in 2002-03 to just under 1000 ML in 2004-05 and this reduction is partially explained by the reduction in overall refining capacity. The share of refinery production has dropped from 43% of total consumption to 29%.

LPG is priced in US dollars at the Saudi LPG contract price which in Figure 7 shows a pattern similar to the price increase of crude oil. As discussed in the previous section, as a close substitute to conventional fuels, LPG prices could be expected to move in tandem with price movements in conventional fuels. Links between gas prices and oil prices in supply contracts are still prevalent in the gas supply industry.

Figure 7: Saudi LPG Contract Price



4.4 Biofuels

AIP member companies:

- **believe that biofuels can play a role in the Australian transport fuel market**
- **submitted individual action plans to the Australian Government to assist in meeting the target for the use of 350 megalitres of biofuels a year by 2010**
- **currently market (or propose to market) ethanol blends and are also considering other biofuels opportunities that will assist in meeting the Government's biofuels goal.**

AIP members are working with the Government to build the biofuels market on a sustainable commercial basis. In this regard, AIP welcomes the announcement in 2005 by the Australian Government of a package of initiatives to help address market barriers and build consumer confidence. Estimates developed by the Government, based on individual AIP member company action plans, indicate that we could see between 400 and 530 ML of biofuels being used in blended transport fuels by 2010. This translates into biofuel blend fuels which could provide about 15% of the petrol/diesel market in Australia.

As noted above, it is AIP's view that there should be no guaranteed role for any particular fuel in the market, whether conventional or alternative fuels. Each fuel must establish and maintain itself in the market by being: cost competitive; readily available on a reliable basis; of consistent high quality and complying with fuel quality and other environmental standards; and acceptable to the customer.

AIP member companies believe biofuels can meet these requirements.

- With the excise concessions and other fiscal support now in place, biofuels can be cost competitive, although significant R,D & D is still needed to bring the production costs down, particularly for ethanol, so as to remain competitive when the concessions are reduced from 2011.
- Increasing volumes of biofuels are expected to become available as new plants, assisted by government grants, come on stream; while current high oil prices may make these ventures more attractive, key factors will be perceptions of longer term oil prices and biofuels feedstock costs. Seasonal aspects of biofuels production still remain to be addressed so as to ensure consistency and reliability of supply.
- Potential fuel quality and handling concerns are being addressed through government determined fuel quality standards for ethanol, and possibly diesohol, and AIP's comprehensive fuel handling guidelines.

When judged against these factors, AIP member companies can see a role for biofuels replacing some fuel imports. Due to its high octane, AIP member companies can also see a potential role for ethanol as one of the options for some refiners to meet the growing demand for higher octane fuels.

Clearly a critical factor remains the acceptability of biofuels to customers.

AIP member companies believe it is essential that all biofuels policy should be strongly based on sound science and commercial business practice, to ensure that the development of the biofuels industry is sustainable well into the future.

Detailed information on the air quality impacts of the introduction of biofuels is contained in the relevant chapter from AIP's submission to the *Australian Government Biofuels Taskforce.* These impacts have been reviewed extensively by the Biofuels Taskforce and the latest evaluation is contained in the Taskforce's final report (see Chapter 5).

AIP also welcomes the further analysis and testing which is being undertaken by the Australian Government to clarify these impacts, particularly in an Australian context.

Supply Chain Costs for Fuel Distributors and Retailers

There are significant costs to the petroleum industry in reliably and safely blending and distributing ethanol blend fuels. In addition, there are also significant costs associated with providing appropriate storage and safe handling facilities at retail sites.

Special attention is required throughout the supply and distribution chain to ensure that the quality of the ethanol blend fuel is maintained. The costs associated with the introduction of ethanol blend fuels will be company and site specific.

Ethanol suppliers should expect that refiners and fuel distributors will wish to recover these additional costs to their operations.

Octane Demand and Ethanol

The potential role of ethanol as an octane enhancer in petrol is frequently raised as a basis for projecting a significant demand for ethanol. This issue needs to be assessed in terms of the impacts of legislated and potential future vehicle and fuel standards on demand for particular fuels at particular qualities, as well as the economics of current and future refinery operations. Since each refinery in Australia has a different configuration, the timing of the need for and economics of options to build octane in petrols is complex and difficult to estimate.

The technical options for refineries for octane enhancement that comply with Australian fuel standards are: refinery capital investment, primarily in isomerisation; ethanol; ETBE; MTBE and ferrocene. For practical reasons, ETBE (similar problems to MTBE) and MMT and Ferrocene are not serious options.

The only two currently identified and potentially viable options for octane enhancement in Australian refineries are capital investment in additional refinery processing and/or the import of selected crude oils or high octane blendstocks and ethanol.

- Refinery solutions are a technical option. The usual route is investment in isomerisation capacity. However each refinery has different configurations and octane capabilities, and so each refinery will have a different technical and commercial solution. Imports of high octane blendstocks such as reformate also present an option.

- Ethanol is an octane enhancer and may well be an attractive option for some refiners.

A key issue is the economics and availability of ethanol. If a refiner locks into ethanol as its primary route to enhance octane, its cost to produce petrol will depend partly on the ethanol economics. For example, if the cost of ethanol rises above the cost of other blendstocks, the resulting blend will be that much less competitive against other petrols. RVP regulation relating to ethanol blends also affects refinery economics.

In this context, possible outcomes could be the general level of petrol prices rising higher than would be justified by normal market conditions or losses being suffered by an ethanol blender.

Similarly, if the ethanol supply is lower than planned, refiners relying on ethanol to produce the required octane enhancement would be constrained in their ability to supply fuel complying with Australian standards.

Ethanol and Volatility

Fuel volatility is a key environmental parameter which influences the levels of evaporative emissions from petrol. Emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NOX) are important smog pre-cursors. The environmental impact of evaporative emissions is strongly influenced by airshed and climatic characteristics and consequently the fuel volatility standards are regulated on a State basis.

Ethanol increases the volatility of petrol above State regulated limits and ethanol blends in NSW and Queensland are sold under a waiver from these State regulations. The health and environmental studies being conducted following the Prime Minister's ethanol taskforce are further examining the practical implications of fuel volatility waivers for ethanol blends.

Customer Demand for Biofuels

A key factor in assessing the potential demand for biofuels is the likely level of consumer demand. Apart from vehicle fleet use, where management decisions can effectively impose a required or preferred fuel option, retail fuel demand is very dependent on customer preference and personal views of motorists about the suitability of the fuel for use in their vehicle.

At present, biodiesel and diesel blends are being used by fleet operators and agricultural users. Biodiesel and diesel blends are not generally available for retail sale.

Most recent data indicates that E10 blends are available at around 300 service station sites across Queensland, NSW, ACT and South Australia. In terms of AIP members:

- Caltex and BP are currently marketing E10 blends in Queensland and in Northern NSW;
- BP are marketing E10 blends in the ACT region; and
- Shell has released a new 100 Octane fuel containing 5% ethanol and this fuel is available in Sydney, Melbourne, Brisbane and Canberra.

Despite increased penetration, there still appears to be significant consumer resistance to using E10. Understanding the reasons for this will be critical to understanding the possible future demand for E10. Such reasons are illustrated in Box 4.

Box 4: Survey of E10 Use

An ANOP survey of motorists in February 2005, conducted for the Australian Automobile Association, indicated:

- 25% were happy to buy petrol containing ethanol
- 21% have reservations about buying petrol with ethanol in it
- 35% were unhappy to buy petrol containing ethanol
- 19% were unsure about buying petrol with ethanol in it.

In the ANOP survey, over 50% of motorists who were happy to buy E10 saw it as no different to regular petrol (ULP). Only some 20% of E10 buyers would choose E10 because of its perceived environmental benefits, although this proportion has grown over the past two years and is somewhat higher in Queensland where the issue has been emphasised in promotional material.

On the other hand, of the motorists who were not happy or have reservations about buying E10:

- over half continued to be concerned about damage to their vehicle engine or the safety of using E10 in their vehicle, but only about 10% were concerned about the impact of E10 on vehicle performance or knew that it is unsuitable for their vehicle
- some 25% of the group believed they don't know enough and wanted more information and facts, even in Queensland where a significantly higher proportion of motorists were happy to buy E10.

The proportion of motorists who were unsure about the ethanol issue was relatively consistent across the country.

These results are consistent with the results of separate market research undertaken by Caltex and BP on the views of fuel purchasers. Both companies are trying to get a better understanding of these attitudes, particularly why some 40% of motorists are unsure or have doubts about whether E10 is good or bad for their cars, and what information or action will change their purchasing intentions.

Responding to these issues, the Australian Government announced on 22 September 2005 a package of measures to help address market barriers and restore consumer confidence in the biofuels industry.

The Australian Government has committed to:

- demonstrate its confidence in ethanol blended fuel by encouraging users of Commonwealth vehicles to purchase E10 where possible;
- undertake vehicle testing of vehicles in the Australian market to validate their operation with E5 and E10 ethanol blends and work with the Federal Chamber of Automotive Industries to ensure that consumers receive accurate and up-to-date information;
- increase fuel quality compliance inspections to ensure ethanol blends meet fuel quality standards;
- simplify the E10 label, which inadvertently acts as a warning to consumers against using ethanol;
- subject to the results of vehicle testing, allow E5 blends to be sold without a label, as in Europe, giving fuel companies greater commercial flexibility to increase supply;
- work with Australian fuels and transport industries to establish standard forms of biodiesel to provide certainty to the market; and
- work with the States and Territories to adopt fuel volatility standards (an existing market barrier) that are transparent, nationally consistent and take full account of the latest information on the impacts of ethanol blends on air quality.

The Australian Government has also recently secured agreement from vehicle manufacturers to develop a label stating the suitability of Australian-made vehicles to use ethanol-blended fuels.

AIP considers that these initiatives will help improve consumer confidence. AIP member companies are also working closely with Australian Government officials to improve market uptake of ethanol blends, including through business action plans.

Energy Security and the Role for Biofuels

There are a number of dimensions of the energy security issue that need to be assessed when considering whether there are energy security reasons for advancing the role of biofuels.

Some of these dimensions are considered in recent Australian studies, including the Energy White Paper, the Report of the Biofuels Taskforce to the Prime Minister, and the Review of the Liquid Fuels Emergency (LFE) Legislation. The findings of these studies are outlined below.

The Energy White Paper

Energy security issues were considered in detail in the preparation of the Australian Government's Energy White Paper in which the Australian Government concluded that the level of supply security in transport fuels is not currently under threat.

The political instability of some countries in the Middle East has been a major factor behind concerns about transport fuel security. In the longer term concerns also exist about the longevity of oil supplies. These concerns need to be placed into context. Past disruptions have had a relatively small impact on world oil flows and have not had a major impact on the reliability of oil supplies to Australia.

Australia, like other countries, has had to face increases in oil prices, often with significant economic impacts. There is no reason to believe this situation will change as the level of crude oil self-sufficiency declines in Australia over the next two decades.

As the Energy White Paper indicated, multilateral efforts to ensure that world markets remain open, and effective response mechanisms to mitigate the impact of short term supply disruptions, remain Australia's best path to provide for the continuity of oil supplies. The operation of a strong market for transport fuels, robust mitigation strategies by industry, and emergency response arrangements provide confidence in Australia's ability to provide reliable supplies and competitively priced fuels into the future.

In looking at longer term alternative sources of supply of transport fuels, the Energy White paper noted that Australia has access to potentially large sources of alternative fuels: technology exists to convert coal and gas to liquid fuels; Australia has enormous shale resources; Australia has significant resources of naturally occurring LPG, and can use CNG in transport applications.

These resources are all in addition to the potential sources of biofuels. The existence of these resources provides comfort that Australia is well positioned to respond to any longer term changes in oil supply conditions, particularly the outlook for crude oil production in Australia.

As the Energy White Paper concluded, 'there is currently no case for the Government to accelerate the uptake of these fuels on energy security grounds. To do so would involve additional costs to consumers, with few energy security benefits.'

Report of the Biofuels Taskforce to the Prime Minister

The recent *Report of the Biofuels Taskforce to the Prime Minister* (August 2005) concluded 'there are no valid arguments to suggest the Australian Government's position on energy security (as outlined in the Energy White Paper) is not appropriate'.

Review of the Liquid Fuels Emergency (LFE) Legislation

These issues were also considered in further detail in the recent review of the LFE legislation by ACIL Tasman. There is a clear recognition in the review recommendations that shorter term supply disruptions can be managed through the current fuel supply chain management arrangements in Australia. Multilateral arrangements are in place to provide a strong level of support for Australia in the event of a more substantial supply disruption.

Decisions by Other Countries to Support Biofuels in the Transport Fuel Market

Many countries have adopted policies to assist the production and use of biofuels. Extensive information is available from the governments of these countries that explains the policy rationale for decisions to support the introduction of biofuels, by way of financial incentives and subsidies, as well as market mandates for these fuels.

The most recent assessment and overview of the main policy drivers in other countries is set out in Chapter 4 of the *'Report of the Biofuels Taskforce to the Prime Minister'* (August 2005).

In summary, the final Report of the Biofuels Taskforce made the following conclusions.

- The Taskforce notes that many countries have adopted policies to assist the production and use of biofuels. While national circumstances vary widely, in every case biofuel production has required significant government assistance. The reasons given by governments for adopting these policies are essentially the same as the possible benefits for Australia: air quality and greenhouse benefits; economic benefit through import replacement; energy security, and regional, particularly agricultural, support.
- In the assessment of the Taskforce it is regional, particularly agricultural, support that emerges as the primary driver of biofuel assistance in all cases except in countries with a very limited capacity to increase agricultural production.
- For some European countries, the Taskforce gained the impression that their biofuel policies are driven by EU decisions that they do not see as being in their immediate national interest. This tends to explain differentiated uptake of biofuels within the EU.

Regional Economic Impacts

Several studies have analysed the regional economic impacts of the development of a biofuels industry in Australia. The conclusions of these studies suggest substantially different outcomes in regional economies from an expansion of the biofuels industry in Australia.

- In reviewing the various economic analyses (particularly regional economic analyses), AIP believes it is important to ensure that any comparisons of the cost of production of ethanol and biodiesel with current or projected petrol and diesel prices are based on the full costs of the biofuels production (ie fixed and variable costs). The reason for this is that petrol and diesel fuel prices implicitly include a component for capital cost recovery.

AIP notes that the most recent and comprehensive study of regional economic impacts in an Australian context, is contained in the *'Report of the Biofuels Taskforce to the Prime Minister'* (August 2005). In summary, the final Report of the Biofuels Taskforce (including analysis conducted by ABARE) made the following conclusions in relation to regional development.

- Biofuel production has the potential to affect regional economies by stimulating commodity prices (where these are not set by the world market) and investment in production facilities. Even if increased biofuels production is uneconomic in the absence of government assistance, submissions have argued that increased biofuels production is desirable from a regional development perspective.

- To the extent that this production is stimulated artificially by government assistance, there will be other possibly unforeseen regional impacts. For example, an assisted biofuels industry may increase grain prices at a cost to some domestic livestock industries, which are heavily dependent on these feedstocks. This may be especially so around times of shortage due to drought, given the difficulty or cost of importing grain under strict quarantine requirements.

- Under current policy settings, the high rates of return that can be obtained by the subsidised fuel-ethanol industry in the short term would allow it to bid strongly against the livestock industry for grain feedstock where necessary.

- The Taskforce considers that, on current policy settings, there is real potential for subsidised grain ethanol plants to have a local impact on feedgrain prices in the short to medium term. In the longer term, fuel ethanol rates of return are likely to drop as the policy settings reduce the subsidies—and as ethanol import competition is allowed in 2011. The fuel ethanol industry will then be placed on a more even footing in its ability to bid for grain against the livestock industry.

- Even assuming that the distributional benefits to regions of biofuel production outweigh the effect on other industries, there is still the question of whether assistance to biofuels represents the most cost-effective and best-targeted option for assisting regional development.

- ABARE estimated that reaching the 350 ML target could result in 216 direct jobs. A multiplier of two was used to calculate indirect jobs. This multiplier is supported by independent advice from ACIL Tasman. The total number of jobs (direct and indirect) potentially created by current biofuels policy settings to reach the 350 ML target by 2010 is therefore 648.

    - The cost of each job (in 2004–05 dollars) would be $182,000 p.a. in government expenditure in 2009–10, or $139,000 p.a. in economic costs. These costs appear high, but could be offset by other benefits such as emission reductions. In 2015-16, the cost of each job (2004–05 dollars) would fall to $68,000 p.a. for government expenditure or around $111,000 p.a. loss to GDP.

    - The Taskforce recognises that a multiplier of two is conservative, but notes that this may be offset by the fact that jobs may in fact be transferred from other areas and industries in net terms, particularly in a time of near full employment.

- The Taskforce notes that an ethanol industry based on sugarcane is unlikely to assist the more marginal areas of sugar production. It would centre on areas of high productivity such as the Burdekin district in north Queensland. In addition, the degree to which a developing ethanol industry would deliver higher returns to cane growers (that is, significantly higher than world parity prices) would depend wholly on income splitting arrangements between millers, ethanol producers and cane growers.

4.5 Environmental Performance of Fuels

Numerous claims are made about the relative environmental performance of alternative fuels. It is important to ensure that such claims are assessed on the basis of comparison with conventional fuels that meet the current and legislated future Australian fuel standards. It is also important that comparisons are made using comparable vehicle engine designs, and that comparisons take account of the likely market penetration of each fuel.

For example, detailed information on the air quality impacts of the introduction of biofuels is contained in the relevant chapter from AIP's submission to the *Australian Government Biofuels Taskforce.* These impacts have been reviewed extensively by the Biofuels Taskforce and the latest evaluation is contained in the Taskforce's final report (see Chapter 5).

Impacts of Changes in Australian Fuel and Vehicle Standards on Air Quality

The most significant change in the Australian fuels market is flowing from the decision in 1999 by the Federal Government that Australia would move to cleaner fuels to assist in reducing vehicle emissions and hence improve urban air quality. The Federal and State governments decided that there would be a national approach taken to introduction of cleaner fuels, reflecting fuel quality developments in Europe.

The first tranche of the fuel standards have been aimed at achieving fuel qualities similar to Euro 4 for diesel and Euro 3 for petrol by 2006. Investment by AIP member companies to achieve these standards is nearing completion. A second tranche of standards is also in place to achieve a limit of 10ppm sulfur in diesel from 2009 and 50 ppm of sulfur in premium grade petrol from 2008. Much of the investment to achieve these standards has already taken place, with capital investment by refineries at the highest level for over a decade.

These new fuel standards will facilitate the introduction of advanced vehicle engine technologies that will help to reduce vehicle emissions. The cleaner fuels will also help to reduce emissions from existing vehicles. These outcomes will lead to significant improvements in urban air quality.

The key air quality issue for Australia is the reduction of photochemical smog in urban areas.

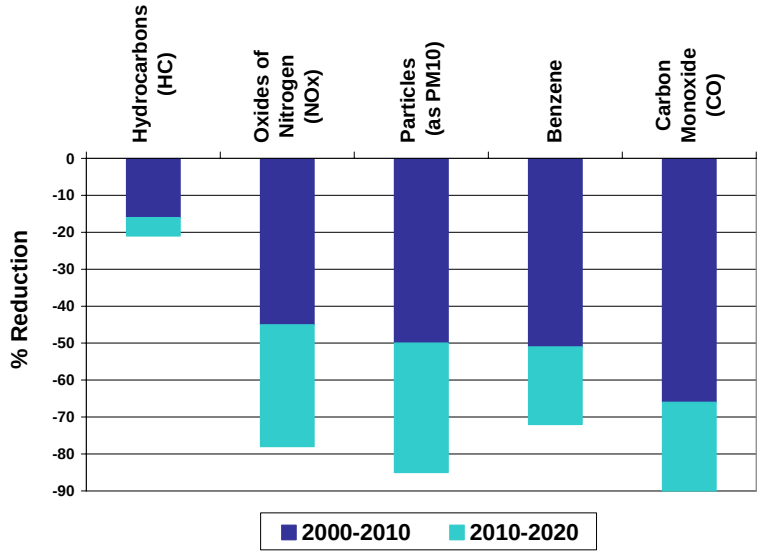
Photochemical smog is the result of a chemical reaction of oxides of nitrogen (NOx) and reactive Volatile Organic Compounds (VOC) in the presence of sunlight. Carbon monoxide (CO) can also be a smog precursor, but has a much lower effect than VOCs. Given the low and declining levels of CO in Australian air quality, CO is not considered to be a significant factor in ozone formation in Australian airsheds.

Major programs are in place, at Commonwealth level and in most States, to achieve reductions in smog levels. These include:

- reductions in emissions of NOx from motor vehicles and from stationary sources such as power stations and other industry
- reductions in emissions of VOCs from motor vehicles and from woodfires, the other major source.

The cleaner fuels program will make major contributions to reducing the levels of most pollutants by up to 60-80% by 2020.

Figure 8: Reductions in Vehicle Emissions from Cleaner Fuels

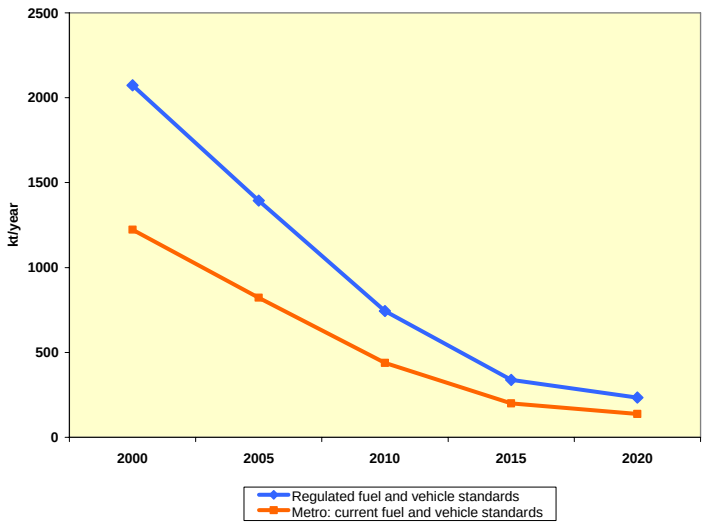


It is clear that:

- legislated vehicle and fuel standards will greatly reduce air pollution, particularly in urban areas
- Engines will be increasingly designed to operate on tightly specified fuels, and
- Fuels available at retail and commercial outlets will need to be consistent with these tight specifications.

Carbon Monoxide

Figure 9: Reduction in Vehicle Emissions of CO



Carbon monoxide is one of the criteria air pollutants, and a CO standard is prescribed under the Ambient Air Quality NEPM. Under the cleaner fuels program, carbon monoxide emissions from vehicles are projected to decline significantly by 2020. In urban areas, carbon monoxide emissions are expected to reduce by some 65% on average by 2010. The results will mean that carbon monoxide levels in urban areas will remain well within the NEPM standard.

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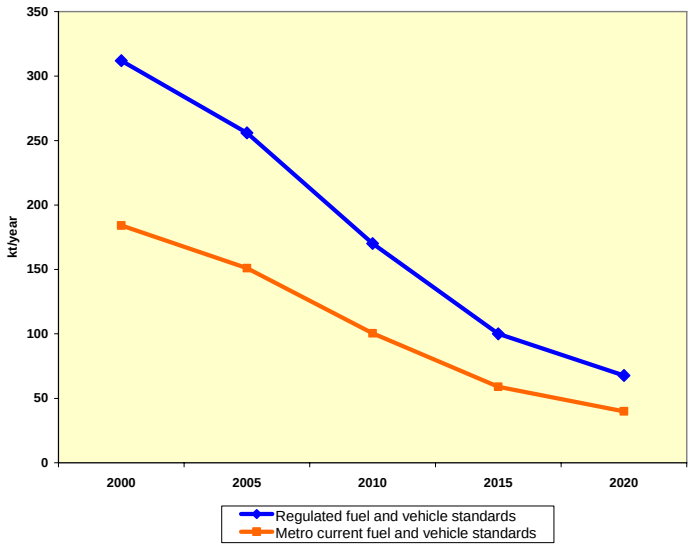
(4) Potential of New Sources and Alternative Transport Fuels to meet a Significant Share of Australia's Fuel Demands, taking into Account Technological Development and Environmental and Economic Costs

Oxides of Nitrogen, NOx

Oxides of Nitrogen, NOx, are another of the criteria air pollutants. Accordingly, there are ambient air standards for NOx. NOx is one of the key precursors for photochemical smog, with motor vehicles accounting for the majority of NOx emissions in urban areas – typically around 70%.

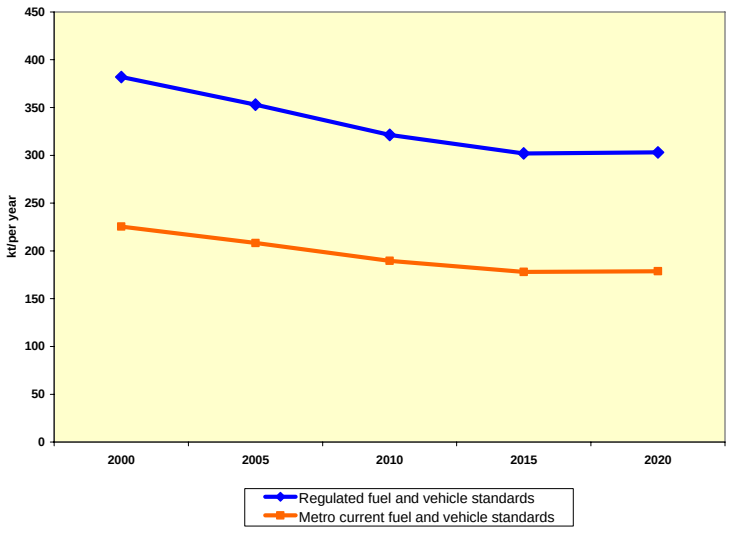
The combined effect of the changes in the vehicle design rules and fuel quality means that NOx emissions from motor vehicles, will decline by 45% by the year 2010, and by nearly 80% by the year 2020.

Figure 10: Reduction in Vehicle Emissions of NOx



Volatile Organic Compounds

Figure 11: Reduction in Vehicle Emissions of VOCs



There are no ambient air quality standards for hydrocarbon emissions. However, volatile organic compounds are another of the key precursors of photochemical smog.

Motor vehicles are a major source of VOC emissions, primarily petrol vehicles. For example, in Sydney, motor vehicles account for 39% of anthropogenic VOC emissions, and about 20% of total VOC emissions. Similar proportions have been recorded in other major Australian urban areas.

There are two sources of motor vehicle emissions of VOCs: exhaust tailpipe emissions; and evaporative emissions. In 2000, exhaust emissions accounted for about 56% of vehicle VOC emissions.

There are standards under the vehicle design rules for exhaust tailpipe emissions of hydrocarbons and these will result in a significant reduction in allowable emissions.

Evaporative emissions from vehicles are a function of vehicle fuel system design and fuel vapour pressure. Measures in this area will continue to have a major impact on fuel supply/distribution operations. The primary management focus has been on fuel vapour pressure in the warmer summer months when the risk of photochemical smog is highest, and on vapour recovery.

Most States have established maximum summer petrol vapour pressure standards, set at levels consistent with particular urban airshed requirements. In addition, vapour recovery systems for tanker discharge (ie Stage 1 Vapour Recovery) are now required in most States, and are becoming general practice in almost all areas.

Stage 2 Vapour Recovery systems at the bowser continue to be considered in some states. AIP has argued that this costly step for service stations requires more detailed assessment in the context of other emission sources and the most cost effective form of emission abatement to reduce smog formation.

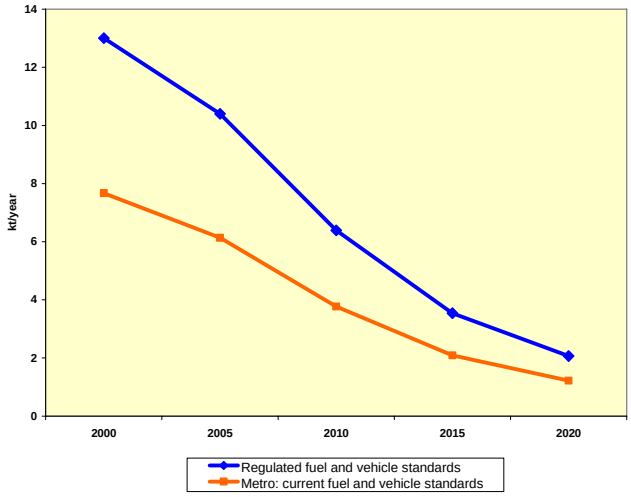
Current fuel and vehicle emissions standards are projected to result in a reduction in hydrocarbon emissions of 15% in 2010, and just over 20% by 2020. This reduction does not take into account the reductions in evaporative emissions due to petrol vapour pressure controls and vapour recovery systems. Thus the overall reduction in hydrocarbon emissions will be greater.

Particulate Matter

Particulate matter is another criteria air pollutant, and a PM10 standard is prescribed under the Ambient Air Quality NEPM. There is no standard for PM2.5, though one is under consideration.

Current fuels and vehicle standards are projected to result in a 50% reduction in particulate emissions from 2000 to 2010.

Figure 12: Reduction in Vehicle Emissions of PM_{10}



Air Toxics

As of 1 January 2006, Australian fuel quality standards also impose a maximum of 1% benzene in petrol, in line with best practice standards internationally. All refineries have invested in equipment and processes to achieve this standard.

This reduction in the quantities of benzene in petrol, combined with the new vehicle emission standards technology, is expected to result in a reduction in vehicle emissions of benzene by 52% in 2010 and by 73% in 2020, compared to emissions in 2000.

(5) FLOW-ON ECONOMIC AND SOCIAL IMPACTS IN AUSTRALIAN FROM CONTINUING RISES IN THE PRICE OF TRANSPORT FUELS AND THE POTENTIAL REDUCTION IN OIL SUPPLY

The premise underlying this term of reference appears to be that there will be a continuing increase in the price of crude oil. The medium term outlook from the IEA while highlighting potential supply vulnerability also suggests that both supply and demand will move in tandem over the next few years. As AIP has stressed elsewhere in this submission, crude oil is traded in complex international markets and forecasting prices is notoriously difficult. However, the recent volatility in crude oil prices does not necessarily mean that prices will continue to increase ad infinitum.

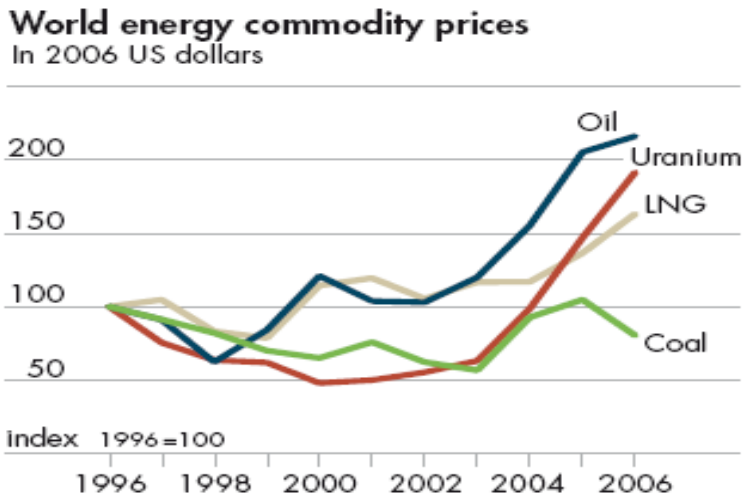
AIP does not feel qualified to comment on peak oil theory but would note that there have been strong objections to the substance of the theory in many quarters. In particular, peak oil describes a technical outcome on the management of oil fields and does not really consider the dynamics of the market and the substitutability of energy sources.

If oil prices were to experience a sustained rise, the reaction of the market and the broader community would be dependant on the circumstances surrounding the price increase. However, the recent ABARE and IEA studies conclude that sustained price rises would likely lead to further investment in refining capacity. This would subsequently lead to reduced price pressures. It would appear from the experience over the last two to three years that there are potentially long and variable lags in demand and supply response to price increases. A key factor is whether the price increase is perceived as temporary or permanent.

On the demand side, consumers have considerable capital (vehicles) aimed at a particular fuel choice and it will take time for choices towards fuel efficient vehicles to become a feature of vehicle purchases. There is also a complicated relationship between the income elasticity of fuel versus the effects of price elasticity. The demand for fuel is inelastic, meaning that large increases in price will be met with only small reductions in consumption. At the same time, fuel is generally income elastic - with increasing incomes consumers tend to spend a greater portion of their budget on fuel. Where there are rapidly growing incomes there is the strong possibility that the income effect of fuel consumption will outweigh the negative price effect. The IEA is undertaking an in depth study of price and income elasticities of the petroleum products and crude oil, which is expected to be released later in 2006.

At a national level this is particularly relevant for Australia because increasing oil prices will also tend to increase the price of substitute energy sources. As a net energy exporter, Australia will enjoy increased income when energy prices rise as they have recently (see Figure 13). There are significant distributional issues associated with energy price increases. This is because the community as a whole will experience increased energy charges as a direct cost to them, while the benefits will be less obvious and more broadly based (such as increased taxation revenue, increased employment and increased returns to shareholders).

Figure 13:



Source: ABARE Commodity Price Outlook 2006

Attachment A

INTERNATIONAL & DOMESTIC FACTORS INFLUENCING OUR FUEL PRICES

This section provides an overview of prices and petrol pricing cycles. Petrol pricing is a complex interaction of international crude oil and petroleum product prices, the structure and dynamics of the domestic wholesale and retail markets, and Government taxation policies.

International Impacts & Benchmarks

Crude oil and refined petroleum products are traded on international markets.

There are separate, but related, markets for both crude oil (the crude oil market) and for refined petroleum products like petrol and diesel (the product market).

Australia, like other countries, can be affected by movements in either or both of these markets.

- While prices in these markets have been trending upwards for some time, it is also clear that unanticipated events (like natural disasters and civil unrest) can have a substantial short term impact on world oil and product prices and, thereby, on the prices we pay in Australia.

- For example, in the second half of 2005, international shortages of petrol due to the export embargo in China and the US refinery closures as a result of Hurricanes Katrina and Rita drove up petrol prices across the globe – in the US, Europe, Asia and Australia.

For refined petroleum products like petrol and diesel, Australian prices are closely related to price movements in the petroleum market in the Asia-Pacific region.

- For example, in recent times strong demand for petrol and diesel in China has put pressures on refinery supply in China and Asia as a whole, resulting in higher prices.

- These supply pressures have come on top of high crude oil prices in 2005 and 2006.

For crude oil, the relevant regional benchmark is Tapis Crude Oil (produced in Malaysia). The Platts Tapis quote is a representative regional crude oil price marker and is based on the expected price of cargoes loading 15 to 45 days in the future.

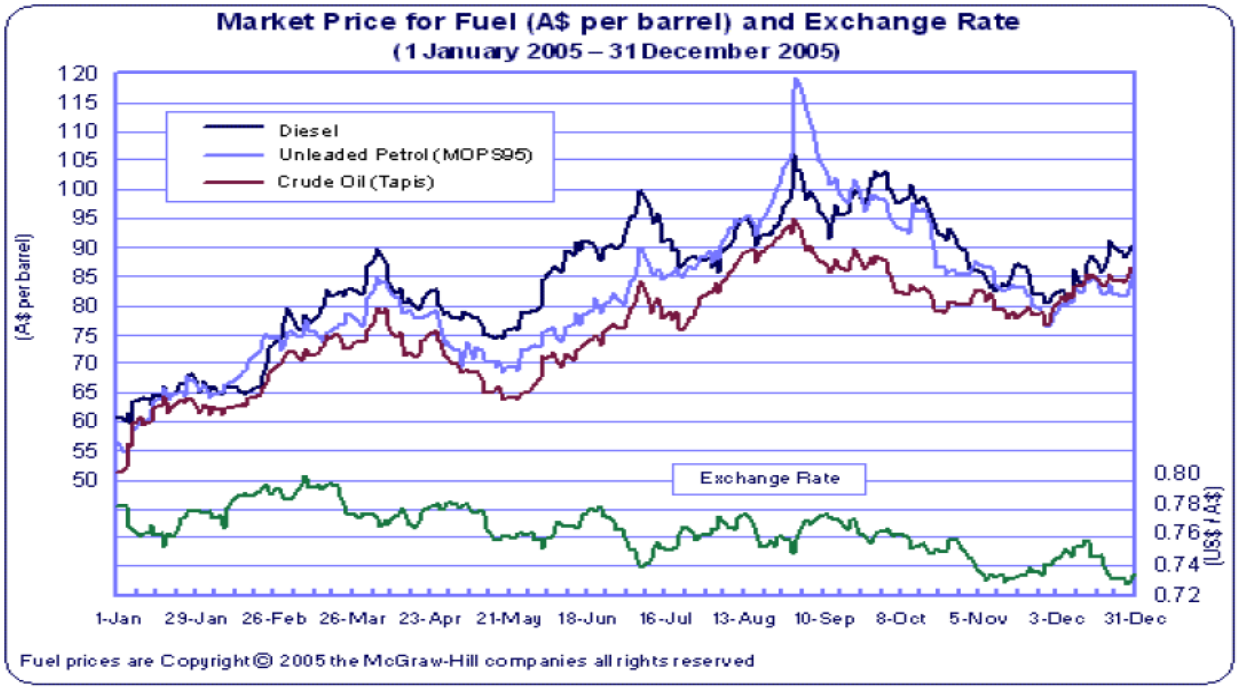
Singapore is a regional refining centre - an exchange point for refined petroleum products - and the benchmark for unleaded petrol is the spot price of petrol in Singapore.

- "MOPS95" (technically, the mean of Platts Singapore price quote for Premium Unleaded – 95 Octane) is a common benchmark for commercially traded Australian-grade unleaded petrol, because this benchmark more closely reflects Australian standards.

The prices for Tapis and MOPS95 are charted daily on the AIP website.

The Chart below shows that following the US hurricanes in September 2005, prices (particularly for petrol) have shown a marked fall from the record high levels.

Figure A1 – Market Watch Chart from AIP Website



The Unleaded Petrol, Diesel and Crude Oil prices are provided by Platts (McGraw-Hill Inc) and represent the end of day assessment for the price of Mogas 95 Octane Unleaded, Gasoil and Tapis.

Terminal Gate Prices (Wholesale Prices)

Australian Terminal Gate Prices (TGP) – the wholesale price of petrol including tax at Australian terminals – are largely determined by the wholesale petrol price in Singapore.

Australian petrol prices follow Singapore petrol prices because Australian refiners compete against petrol imports (Australia imported around 20% of the total petrol and diesel consumed in 2004-05) and Singapore is the major source of our imports. There is a short lag between Singapore prices and TGP.

- For example, in the month of January 2006, Australia imported around 26% of the petrol sold in Australia, and Singapore was the source of around 67% of those imports.

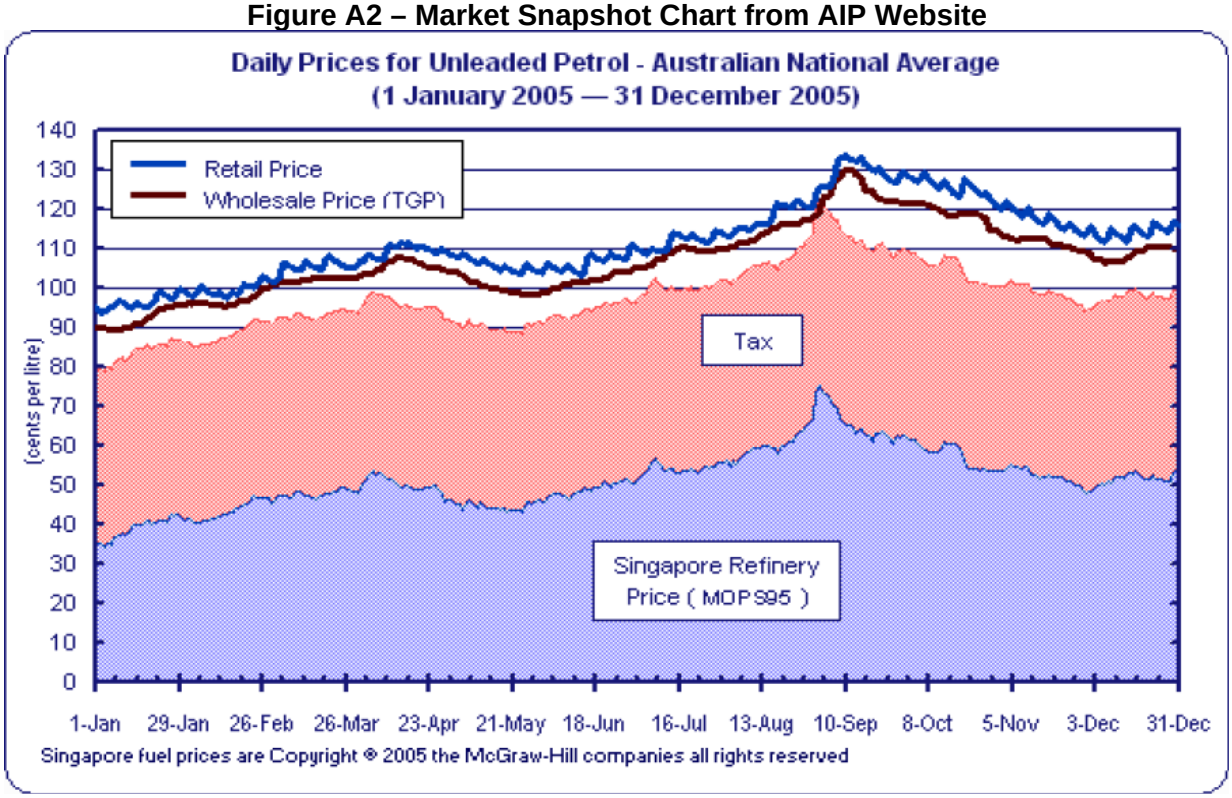
- If petrol prices in Australia were below international benchmarks, there would be no commercial incentive to import petroleum products (since sales of this petrol would be at a loss), and Australian refiners would have an incentive to export their production.

TGP prices are calculated on the basis of what it would cost to import products into Australia including freight and insurance, exchange rate adjustments, terminal costs, net tax (excise and GST less any state subsidy) and, to the extent possible competitively, allow for a small wholesale marketing margin.

TGP data is therefore a good guide to how changes in international crude oil and product prices flow through to wholesale prices (ex-terminal) in Australia.

The Chart below shows that movements in TGP in 2005 show that Australian petrol TGP peaked on 9 September, following Hurricane Katrina in the US.

Figure A2 – Market Snapshot Chart from AIP Website



TGP data is also published daily on the AIP website (see below).

Table A1: Average Terminal Gate Prices: Unleaded Petrol (Cents per Litre)

(Wholesale price for bulk purchase at the terminal)

	Monday 20 March 2006	Tuesday 21 March 2006	Wednesday 22 March 2006	Thursday 23 March 2006	Friday 24 March 2006
Sydney	116.80	117.40	117.35	116.89	117.49
Melbourne	116.53	117.08	117.21	116.91	117.10
Brisbane	118.25	118.87	118.87	118.30	118.96
Adelaide	118.26	118.86	118.86	118.30	118.94
Perth	118.65	119.19	119.32	119.32	119.63
Darwin	122.11	122.65	122.65	122.65	122.91
Hobart	118.85	119.34	119.34	119.34	119.55

All values are in cents per litre and are inclusive of GST

From an operational perspective, TGP is the price at which any person with the necessary safety clearances can purchase fuel from fuel supply terminals by the tanker load. While TGPs are a requirement of Western Australian and Victorian legislation, TGPs are also published voluntarily for most products available from fuel supply terminals across Australia including Queensland. The Australian Government's proposed Oil Code regulations provide for a TGP to be published by all petrol resellers.

Movement in Prices

In understanding movements in petrol prices, it is important to distinguish between the factors that contribute to the overall price level and the factors that drive pump or retail price volatility.

- The overall price level is largely determined by the international factors noted above and the domestic on-costs of supplying fuel to consumers. In contrast, retail price volatility is caused by the structure of the retail market and by variations in local area factors and cycles (see below).

- These factors can have different impacts. For example, there are often times when there are increasing or decreasing crude oil prices (reflecting international factors), but domestic petrol prices are moving in the opposite direction (reflecting domestic factors and cycles).

As a general rule, it may take up to 1 to 2 weeks for changes in Singapore petrol prices to be reflected in Australian pump prices, and this time lag occurs whether prices are going up or down.

As is the case with many commodities which are traded openly, the global/regional price of oil and petroleum products may rise quickly over a short period in response to market dynamics, and then fall more slowly as suppliers and consumers adjust to changed circumstances and/or conditions. Australian wholesale or ex-refinery prices mirror these trends. This is a sign of an efficient market at work rather than an indication of deliberate "skewing" by market participants.

- The share market is another obvious example, where individual share prices can rise quickly over a couple of days, but as the market adjusts to the changed circumstances, prices will generally start to fall as the change is factored in or becomes less important. This may take place over days or weeks.

Pump Prices (Retail)

Apart from TGP, the overall retail or pump price in Australia also reflects all the costs of getting the fuel from the refinery to the consumer. This includes transport costs, administration and marketing costs, and the costs of running service stations like wages, rent, utilities etc.

In addition, retail prices in metropolitan areas also follow a discounting cycle (ie. *a sawtooth pattern*) which historically has ranged up to 10 cents from peak to trough. In areas where there is very strong retail competition, petrol prices steadily fall as service station owners/operators aggressively discount to capture market share. However, large discounts can only be sustained for a limited period and when they are withdrawn prices can increase sharply.

- Customers in capital cities will be familiar with these discounting cycles which often occur on a weekly basis. Highly visible petrol pricing boards allow both customers and competitors to observe these price changes.

The ACCC has found ('*Reducing fuel price variability*' Report, December 2001) that these discount cycles favour the consumer with over 60% of petrol sales below the average price of the price cycle.

In addition, the benefits of the discounting cycle are highlighted by the number of websites (including the ACCC's) providing information on these cycles to help consumers determine when to buy petrol.

AIP encourages motorists to take advantage of the discounting cycle and buy at the bottom of the cycle when prices are low.

This retail pricing framework in Australia reflects the diverse and competitive nature of this market. As noted under market structure:

- the four major oil companies are able to directly operate and/or set prices at less than 5% of the 6500 or so service stations in Australia;

- for major oil company franchisees (around 960 or 14% of Australia's service stations) varying commercial arrangements exist – in most cases prices are set by the franchisee and in others they are set by the franchisor;

- branded and unbranded independents control retail pricing decisions for their sites – these account for around 68% of the retail sites across Australia, with the majority in rural and regional areas; and

- the remaining 13% of sites are operated by major supermarket chains, which control pricing decisions at those sites.

The supermarket alliances now handle almost 50% of petrol sales in metropolitan areas and exercise a strong influence on retail prices. Supermarket chains are purchasing billions of litres annually from oil companies, and can therefore negotiate lower wholesale prices than single service stations or small chains.

Government Taxation

Almost half the final price of petrol at the pump is made up of tax.

- For example, over 2005 the tax component of the final price of petrol has been between 40% to 50%. Excise is 38.14 cents per litre and GST is paid on the total price of fuel including excise.

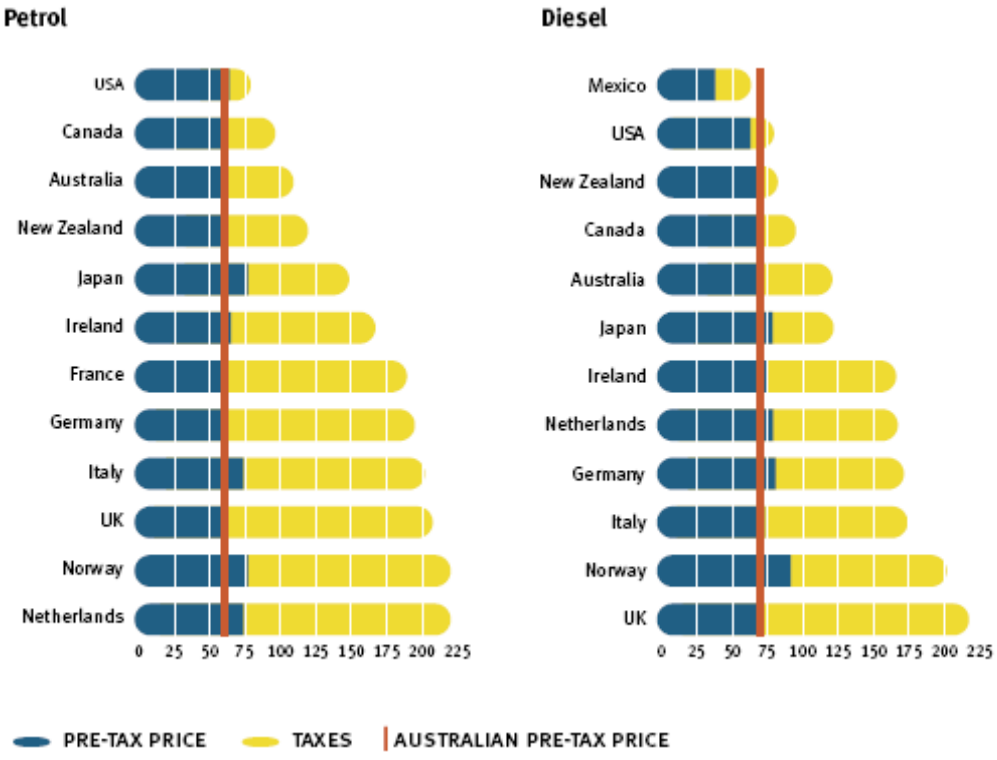
In Queensland, there is a Government subsidy of 8.354 cents per litre (for both petrol and on-road diesel), which reduces the pump price by 9.2 cents per litre including GST for fuel purchasers in Queensland. Lesser subsidies apply in some other states.

Despite this taxation share, and the price of petrol and diesel increasing recently, Australian customers continue to enjoy very competitive petrol and diesel prices by international standards – see below.

International Price Competitiveness

Despite international price pressures affecting recent retail price movements here, Australia continues to have among the lowest petrol and diesel prices of all OECD countries – both on a pre and post tax basis (according to official statistics from the International Energy Agency).

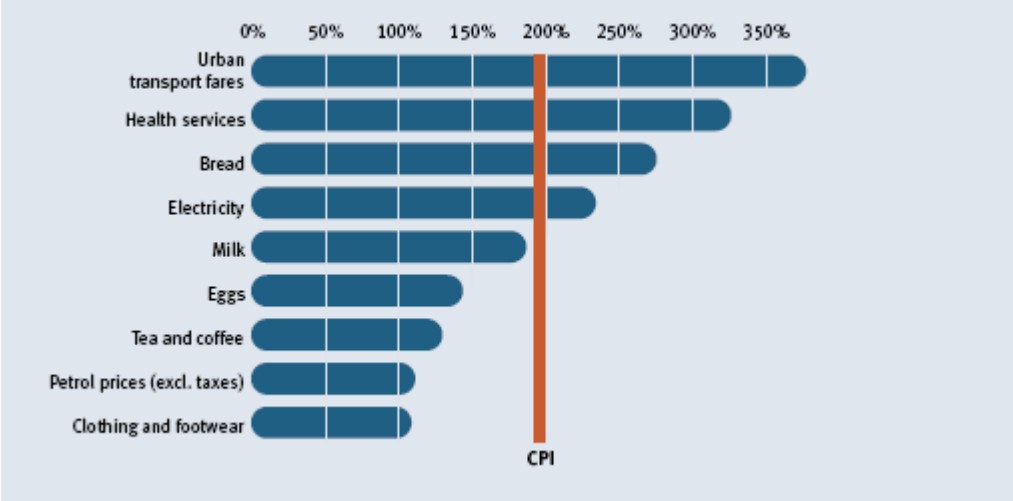
Figure A3: Petrol & Diesel Prices & Taxes in OECD Countries: June Quarter 2005



Changes in Retail Petrol Prices over Time

Petrol (excluding tax) is one of only a few staple commodities to have reduced in price in real terms over the last two decades.

Figure A4: Percentage change in prices: 1980-2005



Source: ABS Data

Figure A5: Changes in Petrol Prices: cents per litre (constant $2004)

City versus Country Pricing

AIP's four core member companies (BP, Caltex, Mobil and Shell) 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, by law, AIP member companies directly operate only a relatively limited part of the retail market. As noted above, AIP member companies directly operate and set prices at less than 5% of service stations across Australia.

AIP members strongly advocate a competitive market for fuel. To support this, AIP publishes weekly data on country and city petrol prices (see: www.aip.com.au). AIP member companies also publish daily pricing information and data. There are a number of other organisations (eg. state motorists' bodies) who also publish this price data.

No other retail product has such obvious price transparency (ie. price-boards) and this reinforces the public's price sensitivity to petrol price changes.

The difference between City and Country prices is due to a number of factors in addition to market structure (noted above).

- Retail margins are typically higher in the country compared with major capital cities, due to lower fuel volumes and shop sales over which to spread service station operating costs.

- The general absence of discounting to attract incremental volume in country areas also means that country prices appear to be higher than fully discounted or average city prices.

- Freight is typically 1.5 cents to 3 cents per litre greater for country than city delivery.

- Distribution costs may be significant for some country areas where fuel must be stored in depots and double-handled, rather than being delivered directly from coastal terminals. Most service stations in country areas are operated by distributors and dealers (branded and unbranded independents).

- Competitive forces and costs also vary greatly between country towns, so that pump prices do not just reflect freight and handling differences.

This explanation is supported in the Report of the NT Pricing Inquiry. For example, the Report identified that in the case of the Northern Territory:

- 'pump price *discounting is limited by the inherent diseconomies of fuel supply to a small market';*

- *'the relatively low volume of fuel sold by most Territory service stations is the most* important factor *explaining the relatively higher price for fuel in the Territory'*; and

- *'the* transport *costs of distribution to remote areas adds to the higher costs and price* structure *in the Territory'*.

These factors have an impact on returns to individual service station owners and operators.

Intense competition in metropolitan areas may mean that retail margins on fuels could be generally insufficient to earn a reasonable rate of return on capital invested in the business by the service station owner/operator. In regional areas, however, returns to individual service station owners and operators may be more reasonable. This is because, among other things, discounting in regional areas is less common and land values are lower - for both service stations and wholesalers. Regional consumers therefore do not subsidise city motorists, as is often claimed. City retail prices are often discounted below what they should be to provide a fair return to site operators.

In addition, an important factor explaining price differences across state boundaries is that most state governments provide different levels of subsidies to reduce petrol prices. For example, subsidies are either statewide (Queensland, Victoria, Tasmania, Northern Territory) or in some country areas (NSW and South Australia).

Price Projections

Crude oil and petroleum product price projections are problematic. While AIP member companies monitor price movements very closely, they do not make any projections or public comment about potential price movements.

One of the most authoritative assessments of factors influencing crude oil and petroleum product prices is the IEA Oil Market Report. This report is published monthly and is available to all IEA member country governments. The IEA Oil Market experts are also planning to publish later in 2006 a 'medium term outlook' on factors likely to influence prices.

ATTACHMENT B

REFERENCE MATERIAL

AIP has drawn on a wide range of reports, papers and analysis in the preparation of this submission. Details of the various documents and resources are set out below.

Pricing Information

This submission draws from pricing and other material presented on the following websites:
www.aip.com.au
www.bp.com.au
www.caltex.com.au
www.exxonmobil.com.au
www.shell.com.au
www.industry.gov.au
www.accc.gov.au
www.fuelwatch.wa.gov.au

Data – Supply & Demand, Pricing & Service Stations

In addition to the pricing information/data contained on the websites above, other primary sources are:
(1) IEA World Energy Outlook, 2005
(2) BP, Statistical Review of World Energy, June 2005
(3) ExxonMobil, *Tommorow's Energy: A Perspective on Energy Trends, Greenhouse Gas Emissions and Future Energy Options*, February 2006
(4) IEA Oil Market Report
(5) ABARE Outlook Conference 2006, March Quarter 2006.
(6) *Australian Petroleum Statistics*, Department of Industry, Tourism & Resources, Australian Government.
(7) Platts (McGraw-Hill Inc) crude oil and product quotes which AIP publishes on its website (under Copyright © 2005 the McGraw-Hill companies);
(8) Petrol pricing information prepared by ORIMA Research Pty Ltd (on behalf of AIP);
(9) TGP data based on information provided by AIP members and Trafigura Fuels Australia; and
(10) AIP Service Station Survey, June 2004

Previous Inquiries, Submissions & Pricing Reports

NT Government, 'Inquiry into Fuel Prices in the Northern Territory', May 2005
ACCC, 'Reducing fuel price variability' Report, December 2001
AIP, 'Submission to the Australian Government Biofuels Taskforce', 24 June 2005
ACCC, 'Understanding petrol pricing in Australia', August 2005
AIP, 'Submission to the Inquiry into Petrol Pricing in Queensland', December 2005

Economic & Energy Security References

Australian Government, *Energy White Paper – Securing Australia's Energy Future*, June 2004
ACIL Tasman *Review of the Liquid Fuel Emergency Act 1984*, December 2004
BTRE, *Is Australia Running Out of Oil?,* DoTARS website, 2005

Biofuels References

AIP, Submission to Australian Government Biofuels Taskforce Inquiry, 2005.
Australian Government Biofuels Taskforce, 'Report of the Biofuels Taskforce to the Prime Minister', August 2005.
Coffey Geosciences Pty Ltd, *Fuel Quality and Vehicle Emissions Standards Cost Benefit Analysis*, October 2003
IEA, *Biofuels for Transport: An International Perspective*, 2005
IPIECA *, Various Presentations at Buenos Aires Workshop on Biofuels,* April 2005
BTRE, *Urban Pollutant Emissions from Motor Vehicles; Australian Trends to 2020,* June 2003
CSIRO, BTRE, ABARE, *The Appropriateness of a 350 million litre Biofuels Target, December* 2003
ABARE, *Revised Assessment of Biofuels industry Viability*, April 2004
MathPro for API, *Effects of an RFS on U.S. Energy Savings, National Costs of Gasoline Production, and the Regional Pattern of Ethanol Use*, May 2005
LECG *Economics of a Queensland Ethanol Industry* 8 May 2005
Global Insight for API, *Winners and Losers of Ethanol Mandates*, 2005