ETHANOL IN THE TRANSPORT FUEL MARKET

Dr John Tilley,

Executive Director, Australian Institute of Petroleum

Thank you for the invitation to speak at this conference.

I am speaking today on behalf of the members of the Australian Institute of Petroleum. The four core members of AIP are BP Australia, Caltex Australia, ExxonMobil Australia and The Shell Company of Australia.

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 but certainly not all of the wholesale fuel market. However, AIP member companies directly operate and control only a relatively limited part of the retail market.

From the outset, I want to emphasise that the AIP member companies believe that ethanol fuels can play a role in the Australian transport fuel market. AIP member companies acknowledge that the Government has identified a target for the use of 350 megalitres of biofuels a year by 2010, and are taking positive steps to achieve this goal.

We note that the Australian Government has established a 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 ethanol and other alternative fuels including biofuels will play will largely depend on their competitiveness as fuels and on consumer demand. The future of ethanol and other alternative fuels will however also be affected by the prospective changes in the transport fuel market itself.

The Australian Transport Task

The downstream petroleum industry is an important part of the Australian economy through its direct contribution to economic growth as well as through support for the development of fuel intensive industries such as farming, mining, construction and transport. It also provides other benefits through the reliable supply of high quality petroleum products that underpin the lifestyle of Australian communities, significant employment across the nation, and technical expertise to the Australian community generally.

To put some perspective on the influence of the petroleum industry in the general economy:

- Australians drive an estimated 192 billion kilometres each year.
- There are almost 13 million vehicles on the Australian roads. Cars account for just over 10 million of these, and for about 75% of vehicle kilometres.
- Transport specific businesses accounted for 5% of GDP in 2002/3, and the transport sector accounted for 4.5% of total employment;
- About 2.3 billion tonnes of freight are transported around Australia each year. Of this almost 1.7 billion tonnes were carried by road.

The Transport Fuel Market

In 2003/04, the demand for petroleum based transport fuels was about 42,500 megalitres (730,000 barrels per day). Total demand is growing at 1-2% a year, and by 2010 we expect demand to have increased to around 50,000 megalitres a year. Within this total, the key components in 2003/4 were

- Automotive gasoline: 47%
- Automotive diesel: 34%
- Jet fuel: 10%
- LPG – automotive use: 6%
- Others, incl lubes: 3%

Biofuels – ethanol and biodiesel – made up about one-quarter of 1% of the total.

In recent years we have seen diesel demand growing at around 3% a year (probably reflecting growth in commercial activity) and a much slower growth in demand for automotive gasoline and other products at around 1.2% a year.

As can be seen, 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.

Trends in Transport Fuel Demand

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.

a Crude Oil and Petroleum Product Prices

Changes in international crude oil and product prices over the past 12 months have confirmed the relative price inelasticity of petroleum products demand over the short term. Despite a 13% increase in national average petrol and diesel prices since June 2004, demand has actually increased as a result of economic growth. This reflects the limited opportunities in Australia to quickly shift to other modes of transport.

Nevertheless, Australian petrol and diesel prices remain close to the lowest among OECD countries according to the International Energy Agency.

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 a consumer demand that is well-informed on fuel prices.

Nevertheless, there are some signs that higher fuel prices are encouraging motorists to purchase more fuel efficient vehicles. A continuation of this trend will have implications for overall fuel demand as well as for the different fuels. For example

- Fuel efficient hybrid vehicles are already making an impact, and could capture significant market share over time
- 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.

b 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 13% of petrol demand in 2003/04, 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.

However, we note that the use of ethanol in fuels will work against the achievement of improved vehicle fuel efficiency.

c 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. Sulphur 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.

Once these fuel quality standards and new vehicle technologies are 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.

d Australian Refinery Output

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

However, these investments will not result in any increase in Australian refining capacity. At present about 13% of petrol demand is being imported, 17% of diesel and about 3% 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% or more early in the next decade, and earlier for some products.

The Role for Ethanol

It is AIP's view that there is no guaranteed role for any 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 standards
- Acceptable to the customer.

AIP member companies believe ethanol can meet these requirements:

- With the excise concessions and other fiscal support now in place, E10 can be cost competitive, although significant R,D & D is still needed to bring the ethanol costs down before the concessions are reduced
- Increasing volumes of ethanol 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, a key factor will be perceptions of longer term oil prices
- Potential fuel quality and handling concerns are addressed through government determined fuel quality standards for ethanol, and possibly diesohol, and AIP's comprehensive fuel handling guidelines.

Other speakers are addressing the environmental credentials of ethanol, so I will not try to duplicate their work. It is however our firm view that the relative air quality performances of

conventional and alternative fuels become rather irrelevant when tough vehicle emission standards must be met by all fuels.

When judged against these factors, we can see a role for ethanol as a fuel extender, replacing some fuel imports and helping to meet the growth in overall fuel demand.

Due to its ability to increase fuel octane, we can also see a potential role for ethanol as one of the options to meet the rapidly growing demand for higher octane fuels.

The key challenge at the moment for ethanol is customer demand.

Caltex and BP are currently trialling and marketing E10 blends in Queensland and in Northern NSW. Most recent data indicates that E10 accounts for between 10-25% of ULP sales at some 70 service stations, although the figures have been somewhat higher in cases where ethanol producers, fuel distributors and retailers have engaged in high profile promotions. Despite strong promotion of E10 blends in Queensland, there still appears to be significant consumer resistance to using E10.

Understanding the reasons for this will be critical to expanding the demand for E10.

A recent ANOP survey of motorists 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

It is interesting in the ANOP survey that over 50% of motorists who are happy to buy E10 see it as no different to regular petrol (ULP), and these are predominantly younger men and women. 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 are not happy or have reservations about buying E10

- over half continue to be concerned about damage to their vehicle engine or the safety of using E10 in <u>their</u> vehicle, but only about 10% are concerned about the impact of E10 on vehicle performance or know that it is unsuitable for their vehicle.
- significantly more men and women in the 35-54 year age group are not happy to buy E10.
- some 25% of the group believe they don't know enough and want more information and facts, even in Queensland where a significantly higher proportion of motorists are happy to buy E10.

The proportion of motorists who are unsure about the ethanol issue is relatively consistent across the country, with women in all age groups much more unsure about the issue than men.

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.

The results of the market research suggest that E10 uptake could improve if general awareness about the facts of E10 increases. There is some evidence that this is the case in sugarcane growing areas and in regions where there has been some promotion through sporting events such as the North Queensland Cowboys. Fuel quality standards and vehicle manufacturers' advice on suitability of E10 are the starting points for increased consumer confidence. However, a positive marketing campaign will be needed to capture the motorists who are potentially willing to use E10 but see it as bad or unsafe to use in their cars.

Proposals to move away from a fuel market based on consumer choice, to one where E10 is mandated, have support from less than 20% of motorists and would undoubtedly meet with strong

consumer resistance, particularly from motorists whose cars are not suited to use of E10. The controversy would harm confidence in E10. It is also unclear how domestically produced and imported ethanol would fit into a mandated market.

Alternatively, proposals to require all service stations to offer E10 would most likely fail to capture much market share. A practical complication in this case is that no service station can offer more than three grades of petrol due to limits on tanks and pumps. In fact, about third of metropolitan sites and two thirds of country sites can only offer two grades of petrol. This therefore limits the scope for E10 as a compulsory fuel option.

The other main factor influencing the use of E10 is the structure of the fuel retailing industry. Over half the service stations that carry an AIP member company brand are independently operated and owned. While these operators have fuel supply and branding agreements with AIP member companies, these operators cannot be compelled by AIP member companies to sell particular fuels. Consequently these independent operators, and not just the 'oil majors', will need to be satisfied that there is a strong, sustainable demand for E10 before they will stock the fuel. Given the high level of competition in fuel retailing, such a decision can mean the difference between a sound commercial business and a financially struggling operation.

More sophisticated communications strategies will be needed to target repeat messages to each fuel market demographic to

- strengthen the view that E10 is a normal fuel that meets national fuel standards
- demonstrate that extended use of E10 has no impact on durability or operability of engines in all makes and models of vehicles capable of using E10
- increase awareness of information that resonates with that market segment
- improve access to basic facts about E10 in ways that have been demonstrated to most effectively reach each demographic.

This will require a strong level of consultation and co-operation on communications and promotion involving oil companies, fuel suppliers, ethanol producers, vehicle manufacturers and repairers, motoring organisations and governments at all levels. Governments also need to look more closely at strengthening their role in consumer education and their support for promotional activities at this initial stage of industry development. We are starting to see some more targeted communications strategies and programs in Queensland, and these could provide models for broader campaigns in other parts of the country.

We have confidence that the ethanol industry will be able to work effectively with other stakeholders in the fuels market to meet these challenges. AIP and its member companies will continue to play their part to assist the development of this industry.