THE GLOBAL AND LOCAL SCENE IN THE PETROLEUM INDUSTRY

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Good morning ladies and gentlemen, and thank you for the invitation to speak at your conference.

Most of you will be very familiar with AIP and our role in the petroleum industry. Our principle role is to promote effective dialogue between the oil industry, government and the community. We also aim to provide responsible and principled representation of the industry along with factual and informed discussion of downstream petroleum sector issues.

Today I am going to talk about a range of issues that are topical within industry and government, and that are likely to impact on your businesses. In many cases, the issues are likely to be raised with you by your customers who perhaps read about them in papers and magazines, or hear about them on TV or radio. These issues do not exist out there in isolation of the industry. They have implications for oil refiners, and I believe these are issues that are and will continue to be strategic issues for your businesses.

While it is not my intention to focus on fuel pricing issues today, I will make a few comments by way of background to the main issues I will discuss.

There is no doubt that fuel prices are currently high – albeit in real terms fuel prices are still below the levels reached in the oil shocks of the 1970s.

I would also like to emphasise that Australian fuel prices and taxes are amongst the lowest in the OECD.

The reason for higher fuel prices sits squarely with international oil and refined product prices which are themselves a reflection of global energy supply and demand. In 2004, demand for oil products rose at a faster rate than economic growth for the first time in decades, driven by sustained growth around the world and particularly in China.

Strong global demand for fuel has reduced the spare capacity in the industry. When demand grows more strongly than the ability of the industry to supply, prices will rise. This also increases the susceptibility of the market to short term price spikes in response to any additional problems such as civil unrest or hurricanes in oil-producing areas.

That said, the market has worked and there has been no shortage of oil. Higher prices are starting to spur greater investment in infrastructure to find, produce, refine and supply fuel to the market.

Which leads me into the first issue I want to talk about - 'reliability of future fuel supplies'. But before we look at the local aspects of this issue we need to quickly review the big picture.

A growing number of commentators around the world are raising concerns about longer term oil supplies. This has arisen from concern about the oil supply/demand balance, the implications of recent spikes in oil prices, and insecurity about the longer term stability of the Middle East. A number of these commentators are drawing attention to the 'Hubbert theory' of peak oil. This theory suggests that at some point oil will be discovered at a slower rate than it is being consumed.

Proponents of this theory argue that the rate of discovery is declining as illustrated in the slide and that a dramatic decline in production may be just around the corner.

This theory was originally based on experiences in the USA. Since global oil resources are obviously finite, it is logical to say the same situation will apply to all countries and regions. However, it is far from clear when this might occur.

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.

Nevertheless, all of the available data shows a steady increase in oil demand. Approximately 1-1.5% growth in developed countries and 4+% growth in developing countries. So the obvious question is whether available oil reserves are keeping pace with growing demand for oil.

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.

What is encouraging in this picture is that 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 existing oil fields.

But this analysis raises some interesting questions for Australia. If oil reserves are finite and production from existing developments is inevitably going to decline, does Australia face a security of supply problem?

Australia consumes a very small proportion of global oil production. But only some 40% of that is from Australian oilfields. Because Australian crudes are generally light and sweet, they attract a price premium compared to heavier crudes with higher sulfur contents. 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 60% of crude oil used in Australian refineries is imported. In 2004, these crudes were sourced from over 12 countries. This means the supply disruption risks are spread between domestic and imported crudes and crudes from a variety of different sources.

A similar situation emerges if we look at sources of imports of intermediate and refined products.

The Federal Government reviewed this situation in last year's 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.

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 and
- effective response mechanisms to mitigate the impact of short term supply disruptions.

The operation of a strong market for transport fuels, mitigation strategies by industry such as targets for stock levels, 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.

Policy instruments are also in place to help manage future challenges. Incentives are available to encourage oil production; tax measures are in place to help discourage the unnecessary use of petroleum based fuels, and incentives are available to stimulate the use of alternative fuels. The fuel excise system also provides a significant incentive for the use of fuels other than petrol and diesel.

The existence of these resources and the relevant policy framework means that Australia is well positioned to respond to any longer term changes in oil supply conditions.

Nevertheless, it is worth looking a bit closer at the shorter term supply reliability issues.

For much of the past decade, there has been a view in Australia that since there was a surplus of petroleum products in the Australian market, there was no need to worry about supply shortfalls. That situation changed in 2003 with the mothballing of the Port Stanvac refinery in South Australia.

With total demand is growing at 1-2% a year, we expect demand to have increased by 2010 to around 50,000 megalitres a year.

Current investments in Australian refineries are not expected to result in any substantial increase in Australian refining capacity. At present about 18% of petroleum product demand is being imported, comprising 13% of petrol, 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 import demand for petroleum products will rise to around 25% or more early in the next decade, and earlier for some products.

While some people might feel that this level of imports of petroleum products leaves 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 meant that import are now ‘only a few days away’, rather than weeks away. This level of supply chain reliability will increase further over the next few years as imports increase.

It should also be borne in mind that the Australian refineries are currently investing some $2 billion in upgrades to meet new fuel quality standards as well as making sure that output capabilities can be maintained.

However, supply reliability is not being left to chance. 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 set up to better manage peak demands for products in various regions. For example, efforts are being made to better forecast diesel demand during harvest periods, and major new 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. We expect the National Oil Supply Emergency Committee, NOSEC, to shortly commence implementation of the findings of the review.

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

While this outcome will not be achieved overnight, I believe AIP and APADA member companies will need to work together with governments to help consumers better understand supply reliability issues and the risks consumers might need to manage. I would expect that this process will also help individual businesses to better understand the supply chain limitations and the options to better manage the risks.

<u>What is happening with fuels in the Market</u>

I would now like to briefly review what's happening with the various transport fuels in the market in Australia. There are a number of issues I will touch on here, including

- What is happening with Australian fuel standards
- How are changes in the vehicle fleet in Australia likely to impact on fuel demand, and
- What is the likely role for alternative fuels in Australian.

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 is also taking place this year, 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. In fact, it is instructive to have a closer look at just how significant these emission reductions will be.

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.

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.

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 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.

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 now committed to investment 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.

When all of this information is pooled, we can see that

- Existing 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.

Apart from customers wanting to understand why the cleaner fuels are being introduced, we can expect to see growing levels of interest from customers and regulators in fuel quality and measures to control fuel emissions. Commercial customers are also giving increasing attention to fuel storage issues and the transition to the cleaner fuels.

<u>Demand for Fuels in the Australian Market</u>

The demand for particular fuels in Australia is likely to be subject to a variety of competing pressures. These factors are likely to play out in different ways in your businesses.

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 are:

- 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.

There are growing 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 is the case in Europe, but this will depend on perceptions about diesel prices.

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 requirement 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.

This means we would expect to see some changes at the service station with

- A progressive shift from ULP to PULP as the dominant fuel
- A potential growth in diesel demand, with customer expectations of greater availability
- More fuel efficient vehicles tempering the growth in demand for fuels.

Alternative Fuels

A further factor in this emerging fuels picture is the role to be played by alternative transport fuels such as LPG, ethanol, biodiesel, etc

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 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.

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.

LPG is showing a resurgence in the market, in light of the incentives and the current oil prices. Ethanol blend fuels are becoming more available and markets are growing, particularly here in Queensland. We are likely to see increasing use of ethanol blend fuels and biofuels as consumer confidence builds, and fuel suppliers move to meet those needs.

CONCLUDING REMARKS

There are clearly many other issues impacting on the petroleum industry in general and on your businesses specifically. I see from your conference program that you will be discussing these today and tomorrow.

The issues I have talked about will not necessarily solve your immediate operational challenges. Today I have explored some of the strategic factors you will need to consider in developing your future plans. Understanding these strategic issues will provide you with insights into questions such as

- Am I likely to face fuel supply shortages
- How can I work with others in the supply chain to keep my customers happy
- Are my customers going to be requiring a different mix of products over the next few years
- What new products are coming on the market and how will they affect my operations
- How will I be expected to contribute to improving the environmental sustainability of the transport system.

These are also issues that I believe AIP and APADA can work on together. I would certainly welcome your views on these issues and look forward to talking with you about them during the course of the conference.

Ladies and gentlemen, thank you for the opportunity to address your conference, and I wish you every success over the next two days.