

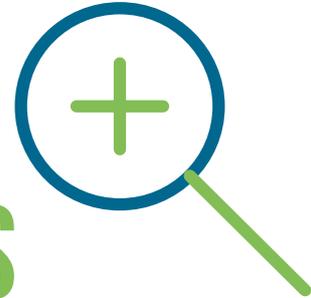
DOWNSTREAM PETROLEUM



CONTENTS

- ▶ AIP mission and objectives
- ▶ Message from the AIP Chairman
- ▶ Australian liquid fuel supply and demand
- ▶ International and Asian refining
- ▶ Financial performance of AIP Members
- ▶ Economic contribution of the Industry
- ▶ Australian refinery competitiveness
- ▶ National fuel quality standards
- ▶ Biofuels and alternative fuel
- ▶ Reducing greenhouse gas emissions
- ▶ Maintaining supply security and reliability
- ▶ The international crude oil and product markets
- ▶ The Australian wholesale fuels market and prices
- ▶ The Australian retail fuels market
- ▶ Environment health and safety

AIP MISSION AND OBJECTIVES



AIP was formed in 1976 to promote effective dialogue between the oil industry, government and the community. It replaced a number of other organisations such as the Petroleum Information Bureau that had been operating in Australia since the early 1950s. AIP has gained national and worldwide recognition as the key representative body of Australia's downstream petroleum industry.

AIP's mission is to promote and assist in the development of a strong, internationally competitive Australian downstream petroleum industry, operating safely, efficiently, economically, and in harmony with the environment and community expectations.

Through the active involvement of its member companies, AIP provides responsible and principled representation of the industry along with factual and informed discussion of downstream petroleum sector issues. This includes through AIP representation on key government advisory bodies and statutory committees. AIP and member companies advocate government policies that are harmonised across all Australian jurisdictions, apply equally to all industry participants and are based on sound science supported by comprehensive economic analysis.

As well as its policy development and advocacy role, AIP also runs the Australian Marine Oil Spill Centre (AMOSC) in Geelong and Perth to support oil spill preparedness and response by the broader petroleum industry. AIP also manages or sponsors important industry environmental and health programs, including CRC CARE and Health Watch. The Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) undertakes innovative, cutting edge research aimed at preventing, assessing and remediating contamination of soil, water and air. For over 35 years, AIP has also sponsored the independent Health Watch study which tracks the health of over 20,000 past and present employees of the Australian petroleum industry.

MEMBERS

- BP AUSTRALIA PTY LTD
- CALTEX AUSTRALIA LIMITED
- MOBIL OIL AUSTRALIA PTY LTD
- VIVA ENERGY AUSTRALIA PTY LTD

ASSOCIATE MEMBERS

- AFTON CHEMICAL ASIA PACIFIC LLC
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MESSAGE FROM THE AIP CHAIRMAN

Downstream Petroleum outlines the key facts on Australia's downstream petroleum industry and the key issues faced by this highly competitive sector.

The Australian petroleum industry plays a key role in the economy, providing major direct and indirect economic benefits from its own activities and underpinning the performance and competitiveness of the transport, mining and agriculture sectors. As a technologically advanced industry, the refining industry employs and trains many highly skilled staff and international expertise flows into the Australian economy and workforce.

The industry has a proud and longstanding record of safely and reliably manufacturing and supplying high quality, competitively priced fuels to industry and consumers. However, for much of the recent decade, the Australian industry has faced considerable international and domestic challenges.

Major structural changes in the global petroleum markets continue to be driven by intense competition and trade in oil markets, new cost competitive sources of refinery feedstocks and liquid hydrocarbons, and the continued construction of mega refineries in Asia and the Middle East to service both the major source of global demand growth from this region and import markets globally, including Australia.

These mega refineries have significant scale and technology advantages, supported by substantial cost advantages and, often,

financial incentives provided by governments. Additionally, ongoing global surplus capacity has depressed the margins available to refineries over the last decade, challenging the commercial viability of many existing refineries in Europe, North America and Japan. In Australia, three refineries have closed since 2008.





The Australian refining industry is responding to these market pressures through stringent cost control, enhanced operational efficiencies, and by fully integrating into the rapidly expanding Asian fuels market. This is necessary to meet the challenges of more recent issues such as rapidly escalating domestic energy prices. Alongside these initiatives, industry has more recently committed to very significant investment programs across their supply chains, in particular in their refineries, to maintain safe and reliable operations, remain competitive, and to strengthen the reliability and flexibility of operations and commercial supply chains.

MAJOR INDUSTRY INVESTMENT, OF \$2 BILLION OVER THE LAST FIVE YEARS, SHOWS A COMMITMENT TO CONTINUE REFINING PETROLEUM IN AUSTRALIA

This is important for Australia's supply security, as refineries provide a key source of liquid fuel supply for the economy, add diversity to the mix of fuel supply and provide a convenient market for the processing of some local crude and condensate production.

Over many years, government and independent reviews of Australia's energy security have endorsed the efficiency, diversity and resilience of our liquid fuel supply chains and the key role of our refineries. These reviews also confirm Australia's effective integration into the Asian fuels market - the global refining and trade centre.

Australian consumers are benefiting from the direct link between domestic fuel prices and competitively priced fuels from the Asian market where there is ready and diverse access to Australian grade fuels.

CONSEQUENTLY, PETROL AND DIESEL PRICES IN AUSTRALIA CONTINUE TO BE AMONGST THE LOWEST IN OECD COUNTRIES



Australian consumers also enjoy access to a diverse range of high quality fuels in the domestic market. Consumer choice and vehicle technologies are driving higher use of premium grade petrol, despite declining overall petrol use and government programs and incentives intended to favour alternative fuels like ethanol blended petrol. Official government assessments confirm that petrol, diesel and jet fuel will remain the major liquid fuels in Australia in the foreseeable future. But we know the market is evolving, including with strong community interest in new technologies such as electric vehicles.

The industry is confident in meeting global market challenges and consumer fuel needs even though the cost of doing business in Australia (including labour and construction costs and tighter regulatory requirements) remains substantially higher than for our Asian competitors.

Further escalation of government and regulatory requirements will have a significant impact on the commercial viability of fuel supply operations, in particular local refineries so government policy has a critical role to play.

The refining industry faces a complex and expensive investment to produce 10ppm sulfur petrol which has the potential to threaten the viability of the industry. While the refining industry recognises the government imperatives, it is absolutely critical that sufficient time is provided to make these investments and that government consider positive incentives. To this end, the industry has proposed 1 July 2027 as an appropriate start date for compliance with this new fuel standard.

The industry already faces a highly complex policy environment regulated by federal, state and local governments, where new unjustified cost imposts on refineries or the broader fuels industry remain a key pressure on ongoing competitiveness and viability. In this regard, the industry is engaged in a number of key policy areas creating potential business cost pressures, including fuel quality regulations, vehicle emission standards, alternative fuels, climate change and retail regulation.

The key role for governments is to ensure a competitive open market and a level playing field for local market operators, whilst ensuring that the local industry is not competitively disadvantaged to our regional counterparts and that innovation continues to be fostered.

To achieve these goals, a clear and stable longer term policy framework based on sound market principles provides the best environment for a competitive Australian refining industry and for the significant ongoing investments needed in refineries and liquid fuels infrastructure. Policy stability and a strong market based approach requires that any new policies or market interventions are based on a demonstrated net community benefit or market failure, are harmonised across jurisdictions, apply equally to all industry participants and are well integrated with other policies applying to industry.

The Australian petroleum industry remains fully committed to ensuring ongoing reliable supply of affordable and quality fuels to the Australian market, through continued investments and tough decisions to improve productivity and economic viability.

There is an equally strong commitment to ongoing safe industry operations meeting community and environmental standards, supported by significant investment in leading health, safety and environmental AIP programs.

Scott Wyatt
Chairman, AIP



AUSTRALIAN LIQUID FUEL SUPPLY AND DEMAND



KEY MESSAGES

- The Australian refining industry is a price taker in the Asian region, and there is a direct relationship between Australian and Asian fuel prices.
- Industry profitability is largely determined by supply and demand in the Asian refining market.
- There is currently significant surplus of supply of petroleum products in the Asian region.
- Demand for petroleum products has not been strong enough to absorb the output from new refinery capacity installed in Asia each year for the last decade.
- Asian excess supply capacity has provided a ready source for fuel imports to Australia, including growing petrol imports by independent fuel suppliers.
- Growth in imports reflects the gap between fuel demand and production from Australia's four oil refineries which must compete with imports from Asian refineries.
- Australian refineries typically meet around 65% of petrol demand in Australia and 45% of overall fuels demand.
- In recent years, there have been large investments in maintenance cycles (called 'turnarounds') at Australian refineries, involving the shutdown of some production units for major upgrades and maintenance. Reduced refinery production and a greater reliance on imports is typical during turnarounds, which occur every 4-6 years.
- With a diverse source of supply from both domestic production and imports, the Australian downstream petroleum industry will continue to provide reliable supplies to consumers at competitive market prices.



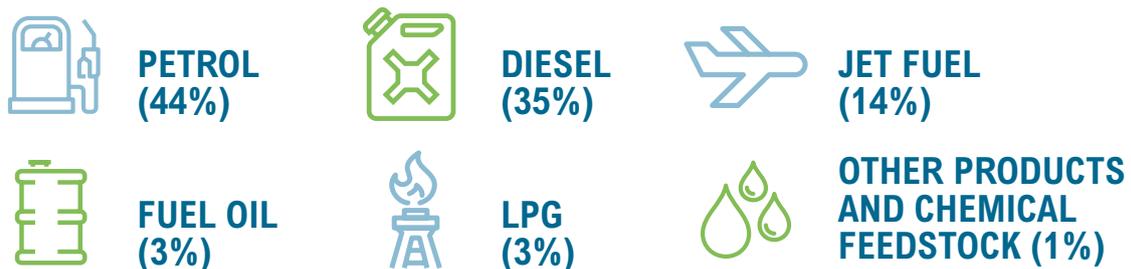
In 2016–17, Australia’s domestic refineries supplied around 43 percent of total petroleum products required by Australia’s major industries and the fuel distribution network of around 7,000 service stations. The reliability of the fuel supply chain is robust given the unique logistic and geographic challenges in Australia.

Australian petroleum refineries are highly capital intensive, technically sophisticated facilities that employ a wide range of highly skilled personnel and provide significant economic and other benefits to key Australian industries.

It also produces a substantial volume of chemical feedstock.

In 2016–17, Australia consumed 58,400 ML (mega litres) of petroleum products - or around 160 ML per day - a 9.1% increase since 2010-11. Australian refineries produced 25,000 ML of petroleum products, of which around 4.7% was exported (excluding LPG).

The Australian oil refining industry produces a range of petroleum products comprising:



Net imports from over 20 countries accounted for 57 percent (or 33,400ML) of total consumption, as highlighted in the following chart. A proportion of this imported volume was supplied to northern and north western areas of Australia where it is more economic to supply directly from Asia due to domestic refinery locations and local terminal configuration.

Numerous import terminals are located around Australia providing ready access to the Australian market. The bulk of imported fuel came from refiners and regional suppliers in South Korea, Singapore and Japan, and imports from India are increasing.

While Australia has its own indigenous crude oil production, this has been declining and around 79 percent was exported in 2016–17. These crudes are largely unsuitable for Australian refineries to manage their product slate, while the locations of Australian refineries also contribute to the quantity of exports. Crude oils required to meet the product demand mix in Australian refineries were imported from over 16 countries, but mainly from the Asia-Pacific region (64 % percent) including New Zealand and PNG. The remaining third of crude oil imports was sourced from Africa (18%), the Middle East (16 %) and others (2%).

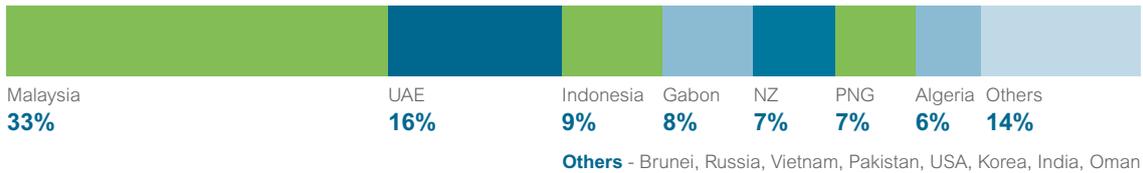
REFINERIES AND MAJOR FUEL IMPORT TERMINALS



IMPORTS OF PETROLEUM PRODUCTS 2016-17



IMPORTS OF CRUDE OIL 2016-17



Source: Australian Petroleum Statistics

AUSTRALIAN FUEL PRICES **Since 2000-01:**

Australian refineries operate in a global market and compete directly with imports coming into Australia. Locally produced petroleum products must therefore be priced to be competitive with imports (i.e. import parity pricing) from the Asian region.

There is no tariff protection and all seaboard capitals have terminal facilities through which around 45 per cent of domestic fuel demand is typically imported.

Profitability of the Australian refining industry is therefore largely determined by product prices in Asia, and its viability depends on our competitiveness against imports from refiners in Asia. While there have been recent and planned increases in Australian refinery capacity, future growth in Asian imports is still expected to meet demand growth, providing additional supply diversity.

CHANGING AUSTRALIAN DEMAND FOR PETROLEUM PRODUCTS

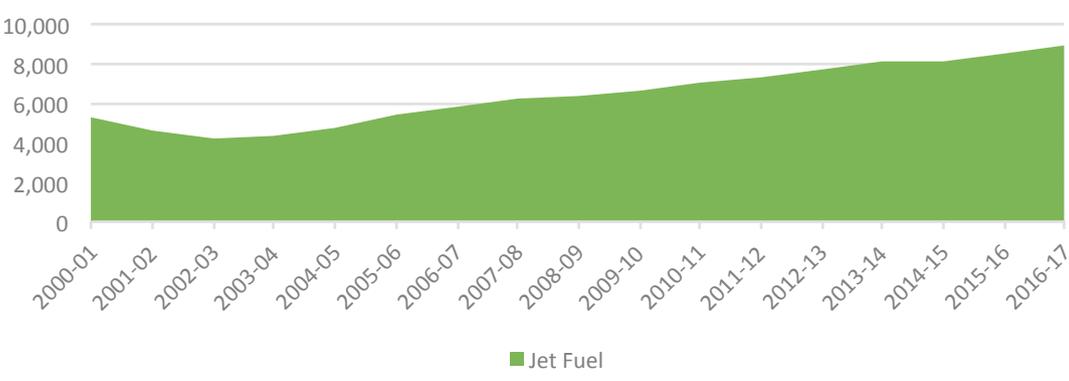
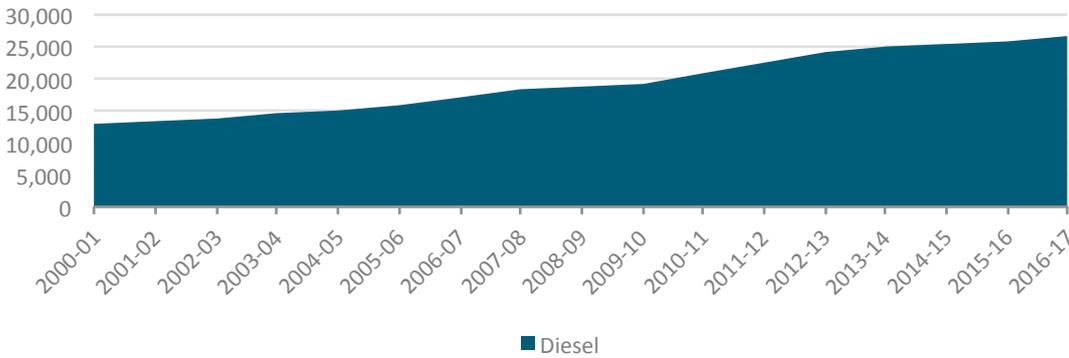
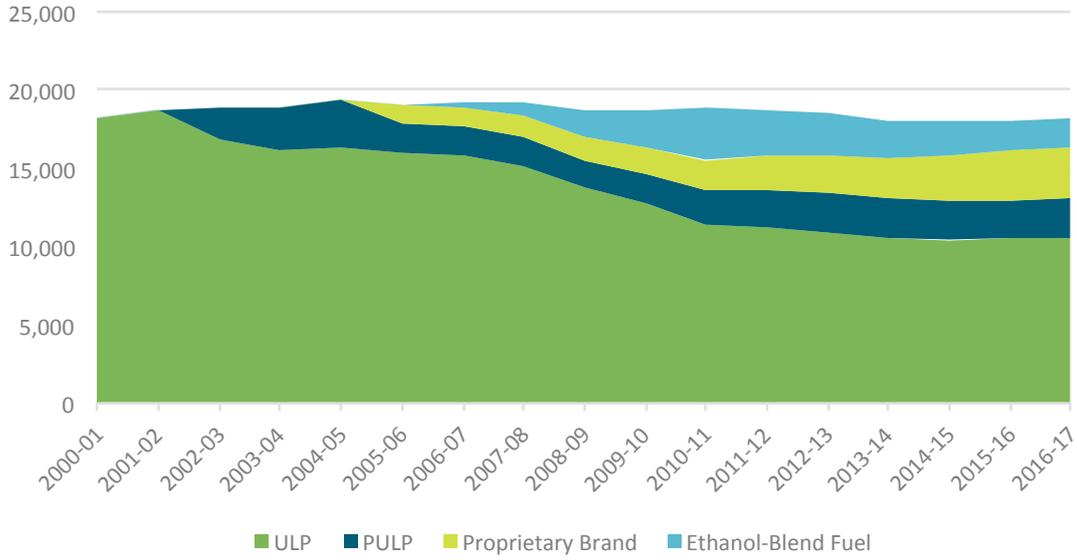
Over the past decade, Australian use of petroleum products has increased by around 2 percent per year.

Petrol, diesel and jet fuel use now comprise 92 percent of the total petroleum product demand.

- Diesel use has increased by around 105 percent due largely to growth in mining industry activities in Australia and growth in sales of vehicles with new generation diesel technology engines.
- Jet fuel use has increased by around 68% due to growth in air travel for business and leisure.
- Petrol use remained flat as vehicle fuel efficiency has continued to improve. Use of regular unleaded petrol (ULP) has declined by more than 40 percent as consumers chose new vehicles that recommend the use of higher octane fuels. The demand for ethanol blend petrol peaked at 18% of petrol use in 2010-11, largely as a consumer preference response to the ethanol fuel mandate in NSW, but has subsequently declined to less than 11% of total petrol use.

Petroleum product use varies across the Australian states and territories, reflecting a range of factors. This includes the main economic activities and resources in jurisdictions, their population base and dispersion, the age and structure of vehicle fleets, and their infrastructure capacity and performance (eg. airports). For example, there is higher diesel use in the mining States of WA, NT and QLD, higher jet fuel use in major airport centres, and higher use of premium gasoline in NSW as a result of consumer preferences and the government's ethanol mandate policy.

AUSTRALIAN USE OF MAIN PETROLEUM PRODUCTS: 2000-01 to 2016-17, ML



Source: Australian Petroleum Statistics

CHANGING AUSTRALIAN TRENDS IN PASSENGER TRANSPORT

The Passenger Transport Task

Passenger transport in Australia is changing with population growth and developments in public transport and city planning. Consumer preferences and new vehicle technologies are also playing a role in these trends and will continue to do so.

In Australia's metropolitan centres, total travel has increased vastly over time, reflecting the significant underlying population growth in capital cities. Australia's major cities continue to sprawl outwards leading to longer average trip times. This has resulted in a major increase in the total annual transport task in vehicle kilometers travelled (vkt).



The servicing of this passenger transport task is dominated by private motor vehicles, which account for around 90 per cent of the motorised vkm task within our capital cities. Over the last decade or so, however, there has been a rise in passenger numbers across many Australian urban public transport systems, particularly as a result of expansions to transport infrastructure and services.

In terms of passenger vehicles, consumer preferences and utility remains the strong driver of private transport trends.

AUSTRALIAN CONSUMERS CONTINUE TO HAVE A VERY STRONG PREFERENCE FOR SPORTS UTILITY VEHICLES (SUVS), WHICH ACCOUNT FOR AROUND 40% OF TOTAL NEW PASSENGER VEHICLE SALES

There also continues to be steady growth in sales of new diesel passenger vehicles, albeit off a low base.

Electric Vehicles

A more recent development in passenger transport has been the interest and growth in Electric Vehicles (EVs), particularly Hybrid vehicles, which have grown rapidly from a very low base in recent years.

Ambitious targets, government policy and very significant subsidies including purchase incentives, have lowered vehicle costs and reduced consumer barriers. Lower battery costs and improvements in battery density over recent years have also played a role, together with growth in the EV portfolios of OEMs.

While the sector has developed at a rapid pace, the impact on the total vehicle population is still hardly noticeable in most countries.

In 2016, it has been estimated that the worldwide number of EVs on the road passed the 2 million mark (61% of them are battery electric vehicles or BEVs and 39% plug-in hybrids electric vehicles or PHEVs).

This represents a market share of less than 1% compared with the total number of passenger vehicles on the road worldwide of around 1 billion. However, in some markets the market share is significantly higher (Norway 24%), and in recent years China has passed the United States as the main market for EVs worldwide.

In Australia, of the 1 million new vehicles typically sold each year, EV sales have been around a thousand vehicles a year in recent years (0.1% of total vehicle sales) and EV sales slowed dramatically in 2016 (around 220 new vehicles). As a result, EVs represent a very small share of the 14 million passenger vehicle fleet in Australia with an average vehicle age of 10 years. Australian motorists have also typically favoured hybrids over pure electric vehicles (BEVs) due to range anxiety.

The extent of the future EV contribution to the passenger transit task, in Australia and globally, is not clear. There are wide ranging forecasts of future EV uptake, but all research and modelling suggests they will be more common globally by 2040.

Future EV uptake is complex and critically dependant on a wide range of factors.

For example, including:

- **Vehicles** – vehicle mix, technology, performance, production, costs and existing fleet turnover,
- **Batteries** - production capacity, storage/density, reliability, cost and disposal,
- **Key input markets and pricing** – lithium and electricity market developments and pricing,
- **Distribution Network** – availability of recharge infrastructure and network and related costs, and
- **Consumer demand and preferences** – demand, convenience, vehicle/transport preferences.

A competitive free market with a predictable regulatory framework that does not pick winners will best serve consumers, suppliers, investors, and local communities in developing economic prosperity, energy security, and environmental protection.

A key fact that needs to be understood is the emissions profile for EVs from non renewable power which is considerably greater than for conventional vehicles.

Accelerating the EV uptake, beyond current market and technical constraints, needs to be carefully considered and managed,

particularly given linkages and dependences to other energy sectors (electricity) and to key input markets (batteries/lithium).

AIP believes that alternative energy sources and vehicles will have a place in a diversified Australian passenger transport market, as long as they are available at a competitive price, reliably supplied, acceptable to consumers, and produced sustainably.



A market based policy framework will best facilitate the uptake of electrified passenger vehicles on reliable, sustainable and competitive market terms. It will also encourage a lower emissions energy supply and use that avoids market distortions, increased energy prices and lower transport fuel security.

The development of robust, efficient and commercial markets for all transport fuels and vehicles will be best supported by:

- policy and investment stability,
- a level playing field for competing transport fuels/vehicles and market participants, and
- the minimum level of efficient and well-targeted government regulation.

AIP believes that government policy in support of a higher uptake of electric vehicles (eg. for purported environmental benefits) needs to be:

- based on a demonstrated market failure,
- based on sound science,
- cognisant of other policy settings, and
- transparent, with clear and credible objectives.

This policy framework reflects fundamental industry drivers, including the long lead times required for industry investment and the significant capital employed by the fuels and passenger vehicle industries.

INTERNATIONAL AND ASIAN REFINING

The global refining industry is fundamentally changing as emerging and maturing trends re-shape the global supply and demand patterns for crude oil and petroleum products.



Although crude oil and petroleum products are traded globally, major regional markets have developed around the main demand centres of North America, Europe and Asia, with each market having its own characteristics. Refineries play an integral role in these regional markets, with the financial viability of individual refineries heavily influenced by supply and demand in the markets.

Prior to the Global Financial Crisis (GFC) in 2008, there was a significant surge in investment in refinery upgrades and in new refinery construction commitments, largely in response to growing demand for petroleum products and the associated strong refiner margins. This was particularly apparent in Asia.

However, the GFC resulted in a substantial reduction in global petroleum product demand, with only modest prospect of a recovery of lost demand over the short to medium term. As a consequence, refiner margins dropped substantially, in some cases falling into negative territory. The refining industry, particularly in Europe and OECD Asia, reacted to this financial challenge by terminating or deferring investment plans, reducing the utilisation rates for refineries, and progressively closing less viable refineries.

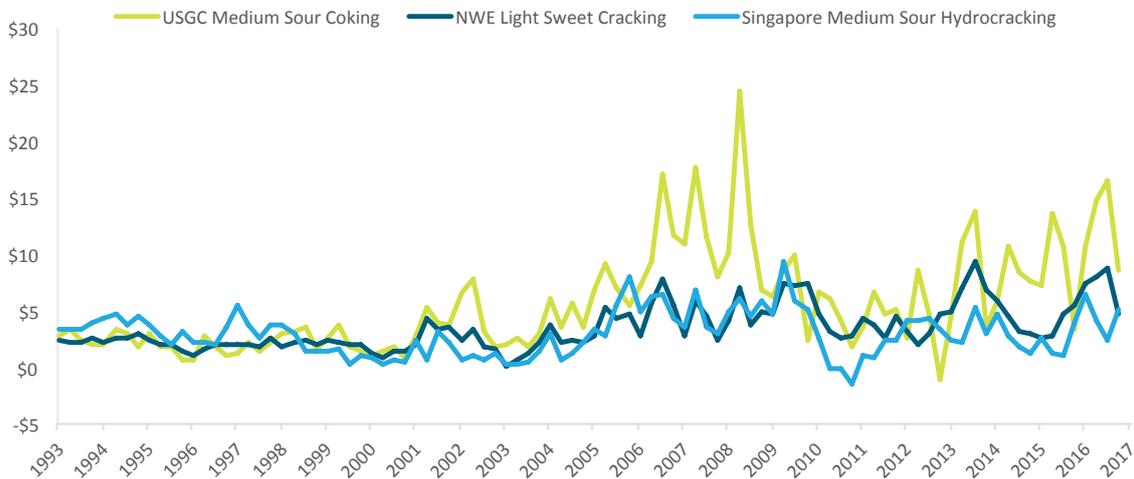
There is still currently an oversupply of petroleum products globally that will be addressed over time by growth in demand.



The three key regional benchmarks are highlighted in the chart below. The benchmark for Australian refineries is the Singapore margin.

REGIONAL REFINING MARGINS 1992 - 2017

US\$ per barrel



Source: BP Statistical Review of World Energy

Notwithstanding these developments, a number of countries, particularly China and India, continued to press ahead with major refinery construction programs as part of national development goals.

Although petroleum product demand has slowly recovered from the GFC, these trends have continued to play out across Europe, North America and Asia, with older refineries closing, continuing refinery construction across Asia and the Middle East, and lower than usual refinery utilisation rates at many refineries.

FOR EXAMPLE, CHINA HAS ADDED, ON AVERAGE, ALMOST 1 MILLION BARRELS PER DAY OF REFINING CAPACITY EVERY YEAR FROM 2010 TO 2015

This construction and expansion program continued in China in 2015 with the addition of about 2 million barrels per day in new capacity. By comparison, since 2008 some 4 million barrels per day of older refining capacity has been closed in North America, Europe, Japan and Australia.

While demand for petroleum products in China has been strong it has not been sufficient to absorb all the output from new capacity additions. This has created significant surplus supplies in the Asian region which continue to depress refiner margins despite many refineries operating at below average utilisation rates.

However the rates of surplus are slowing, with the regional product balance likely to move back into balance in the middle of the next decade.

Equally important, this surplus capacity creates a significant potential for China to increase utilisation rates at existing refineries to meet increases in Asian demand, particularly if refiner margins improve.

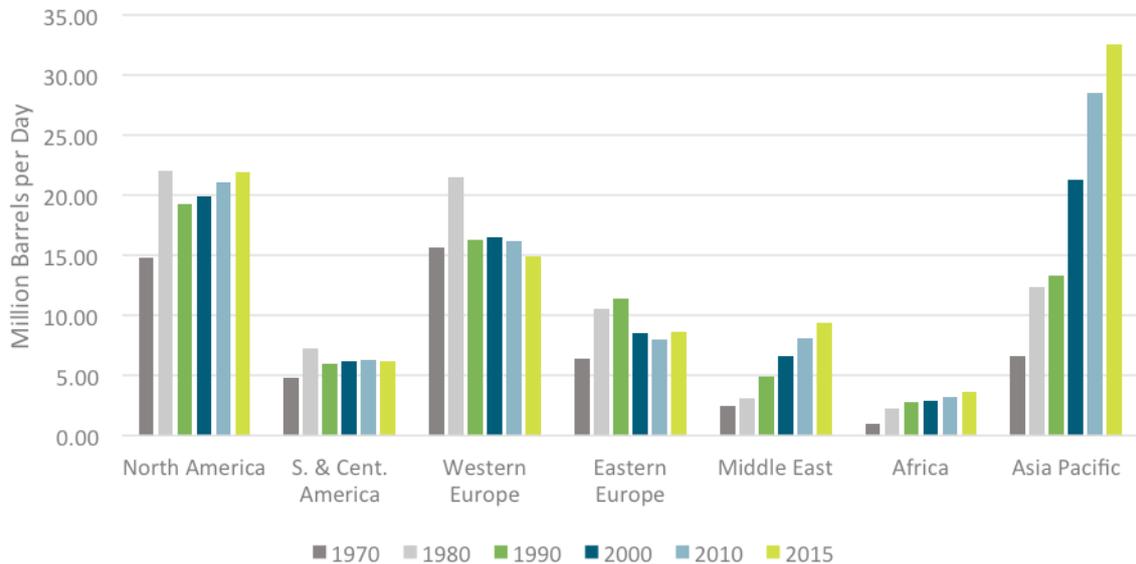
At the same time, global refining activities have been fundamentally affected by changes in the availability of domestically produced crude oil and condensate in North America.



The ready and rapidly increasing availability of 'light tight' crude oils from deposits such as Bakken and Eagle Ford, combined with the increasing supply of heavier crude oil from Canadian oil sands, has resulted in a very well-supplied crude oil market in the US. These substantial supplies have led to discounted crude oil prices for US refiners.

These factors now underpin the competitiveness of the US refining sector, enabling it to operate at high utilisation rates and to displace imports of diesel from Europe. Since 2008, US imports of crude oil have dropped by over 2 million barrels per day, and petroleum industry analysts, including the IEA, BP and ExxonMobil, are forecasting a continuing high level of crude oil production in North America over the next decade.

WORLD REFINING CAPACITY



Source: BP Statistical Review of World Energy

This development in North America has compounded the effects of the other global trends in the refining industry, particularly in Europe, such that there is an ongoing global surplus refining capacity and depressed refiner margins in other markets.

HOWEVER, WITH SUBSTANTIAL NEW REFINING CAPACITY, THE MIDDLE EAST AND ASIA IS MOVING TO BECOME THE GLOBAL HUB FOR FUTURE PETROLEUM PRODUCT REFINING AND TRADE

In its World Energy Outlook, the IEA concluded that in looking forward ‘the new geography of demand and supply means a re-ordering of global oil trade flows towards Asian markets’ with the prospect that ‘Asia becomes the unrivalled centre of global oil trade’.

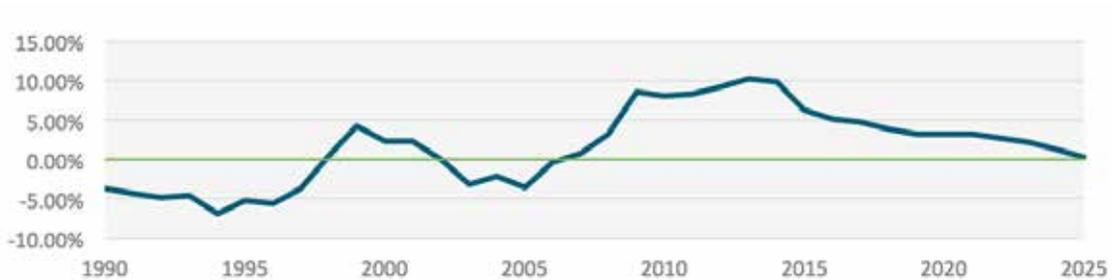
A surplus refining capacity is forecast for the Asian region through to around 2025, notwithstanding the refinery rationalisation that is occurring across Asia, particularly with less viable refineries in Japan.

Nonetheless, the extent of the oversupply is significantly below the scale that was observed from 2008 to 2015 when Australian refineries experienced substantially depressed profitability.

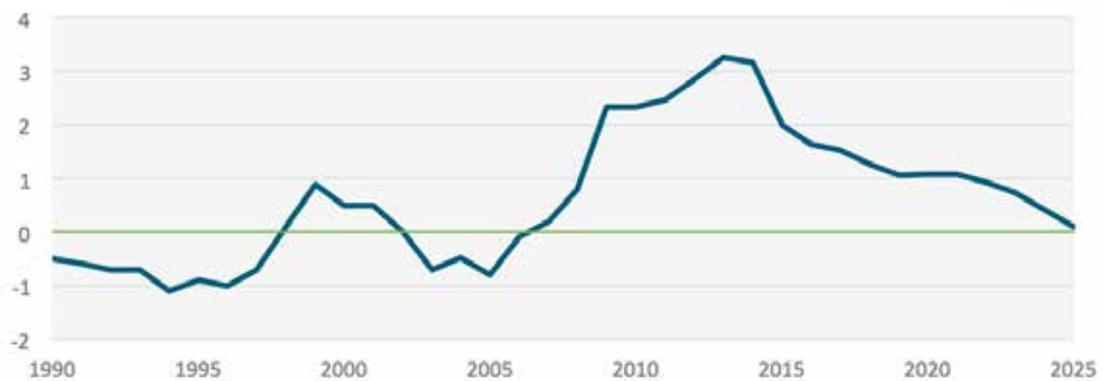
The change in the Asian regional supply balance points to a slowly improving outlook for Australian refineries and underpins investments being made to drive a sustainable ongoing future. However, history has shown that periods of improving margins lead to further investment in the refinery sector in Asia which then again suppress margins. The capital investment fluctuations generally follow the cyclical nature of the refining business.

ASIAN EXCESS SUPPLY CAPACITY

Proportion of total Supply (%)



Excess Supply (millions of barrels)



Source: FACTS GLOBAL ENERGY and Caltex Australia

FINANCIAL PERFORMANCE OF AIP MEMBERS



KEY MESSAGES

- Refining is a highly cyclical business.
- There is a direct correlation between Australian refining industry profitability and international refiner margins.
- The depressed refiner margins since the start of the GFC have meant largely negative refining profits over the following six years.
- Combined with a strong Australian dollar this led to the closure of three Australian refineries, Clyde and Kurnell in Sydney and Bulwer Island in Brisbane.
- ACCC data highlights the different net profitability performance of the domestic refining sector over a decade where the average ranged from around 2.5 cents per litre (cpl) in the early part of the last decade, with average losses through to 2014 of around 0.5 cpl.
- While improved financial performance is expected due to an upturn in the cycle, excess supply in the Asian region will continue to present a challenging environment for the Australian refining industry
- The profitability in the wholesale and retail sectors of the industry have largely been constant given the strong competitive nature of the industry.
- Despite this overall poor financial performance within the industry, there has been continued investment in refineries of over \$2 billion over the last 5 years.
- Any significant investment required in coming years, over and above operating and maintenance investment, will be tested against the potential for a return.
- Australian refiners are expected to continue to seek ways to remain competitive through productivity improvements, technological innovation and a strong focus on cost containment.

ACCC FINANCIAL REPORTING ON THE PETROLEUM INDUSTRY

The Australian Competition and Consumer Commission (ACCC) formally monitors and reports on the prices, costs and profits relating to the supply of fuel in the petroleum industry in Australia. The ACCC's monitoring role is by Ministerial direction under the Competition and Consumer Act 2010.

The ACCC financial reporting has covered the three major sectors of the downstream petroleum industry: total supply (refining and importing), wholesaling and retailing across all major market operators. For each sector, ACCC reporting presents detailed cost, revenue and profitability data.

The extensive industry data required for these ACCC Reports is supplied under legal requirement each year by AIP member companies and other major fuel suppliers operating in the Australian market.

The ACCC has not published financial performance data for the petroleum industry since the December 2014 ACCC Monitoring Report.

[Click here to see the report](#)



This means 2013-14 is the latest industry financial data available. The ACCC intends to publish financial performance data for subsequent years next year. As soon as it is available, AIP will publish the ACCC's financial performance data in Downstream Petroleum.

AUSTRALIAN REFINERY PROFITABILITY

Refinery sector real unit net profit, all products: 2002-03 to 2013-14



Source: ACCC Annual Price Monitoring Report, Dec 2014

ECONOMIC CONTRIBUTION OF THE INDUSTRY



KEY MESSAGES

- Australian refineries have been very long standing participants in the local market as the major transport fuel suppliers, with all current refineries being operational for over 50 years.
- The four Australian refineries typically supply around 45% of Australia's total liquid fuel needs, and around 65% of petrol consumed in our market.
- Other Australian industries are positively supported by refineries which provide key inputs to their own activities. Approximately 65% of the total value of Australian liquid fuel consumption is in the transport, mining, construction, agriculture and manufacturing industries.
- Total new capital investment in the refining industry was \$2 billion over the last 5 years.
- As a high-tech industry, the refining sector has highly skilled workforces with an even mix between direct employees and contractors whose numbers can double during major maintenance turnaround work.
- The Australian refineries also spend hundreds of millions each year purchasing goods and services in their local area and State, contributing to significant jobs and business opportunities.
- The refineries also make a very significant contribution to government revenue, including collecting over \$15 billion in fuel excise for the Federal Government from fuel sales.
- Independent economic modelling has found that a refinery contributes around \$1 billion in economic activity on average to the local economy each year
- This industry also provides significant additional indirect benefits, including reliability and security of fuel supply, sharing inputs with other industries, and innovation, technology and knowledge spillovers.
- Australian refineries are also active investors and participants in numerous community development activities to enhance the education, environment and health outcomes of the local communities where they operate.



DIRECT CONTRIBUTION OF REFINERIES

Each refinery provides significant economic benefits to the local and State economy where it is located, and also contributes to fuel supply security for Australia as a whole through supply diversity and flexibility.

The economic impact of each refinery includes:

- the economic benefit of value adding (i.e. refining petroleum products)
- the impact on industries that source inputs from the refinery or that provide products/ services to it
- financial impacts (new capital investment and profits)
- taxes that the refinery collects and pays to the Commonwealth and State Governments as well as local council rates
- the economic benefit of employment - demand for qualified personnel and providing apprenticeships and other forms of on the job training.

AUSTRALIAN REFINERIES: KEY DIRECT ECONOMIC BENEFITS

	2015	2016
Refinery Production (Value Add)		
Total Petroleum Products (million litres)	24,194	25,722
Total Petrol products (million litres)	10,818	11,653
New Capital Investment		
Refinery Investment (\$million)	\$308	\$389
Total for the Last 5 Years (\$million)	n/a	\$2,050
Direct Employment		
Refinery Employees (FTE)	2,048	1,966
Australia – Total Employment (FTE)	10,669	10,282
Direct Wages & Salaries		
Refinery Employees (\$million)	\$323	\$303



Financial Benefits

Due to the capital intensive nature of petroleum refining, the industry routinely requires large and ongoing capital investment in plant and equipment to continue safe and reliable operations. Over the last 5 years, the total new capital investment in Australian refineries was over \$2 billion. This represents an average annual investment of \$400 million across the four refineries, which is consistent with the total refinery investment of \$389 million in 2016. In simple terms, the average annual investment per refinery is in the range of \$50-\$150 million.

Employment Benefits

IN 2016, 2,000 WORKERS WERE DIRECTLY EMPLOYED BY THE AUSTRALIAN REFINERIES

This compares with total direct employment for AIP member companies across all their Australian operations was more than 10,000 persons in 2016.

Actual labour use in the refineries is substantially larger than this direct employment, because the refining sector also employs a significant number of contractors on a non-permanent basis and which varies throughout the year, and also year-to-year depending on major maintenance cycles.

During normal periods of operation, refineries employ almost as many contractors as direct permanent employees. During these periods, the main tasks of contractors include maintenance, engineering, inspection, water treatment and security. However, the number of contractors can double during periods when some production units are shut down to allow for major upgrade and maintenance programs (called “turnarounds”, which occur every 4-6 years).

The Australian refineries paid wages and salaries to their direct refinery employees totaling \$303 million in 2016, similar to the previous year. Total wages and salaries paid are significantly higher when including contractor wages.

Contribution to government revenue

AIP member companies recognise that the taxes they pay and collect form a significant part of their economic contribution to Australia and to the States where they operate.

The refining companies in Australia:

- pay corporate income taxes, royalties and stamp duties,
- collect and pay employee taxes, GST and fuel excise tax, and
- pay land tax and local council rates, licenses and charges.

In 2016, the Australian refining companies collected and paid around \$15 billion in fuel excise. On average, around \$290 million a week in fuel excise is collected and paid to the Australian Government by all the refining companies, making them amongst the largest corporate tax collectors in Australia.

The bulk fuel terminals (refinery, import and marketing terminals) of AIP member companies constitute the bonded warehouses at which fuel excise is collected. The current fuel excise on petrol and diesel is 40.3 cents per litre, aviation fuel 3.6 cents per litre, LPG 13.2 cents per litre and ethanol 5.3 cents per litre.

AROUND \$5-6 MILLION PER ANNUM IS PAID IN LOCAL GOVERNMENT RATES AND CHARGES FOR REFINERY AND TERMINAL RELATED ACTIVITIES

INTRINSIC INDUSTRY LINKAGES

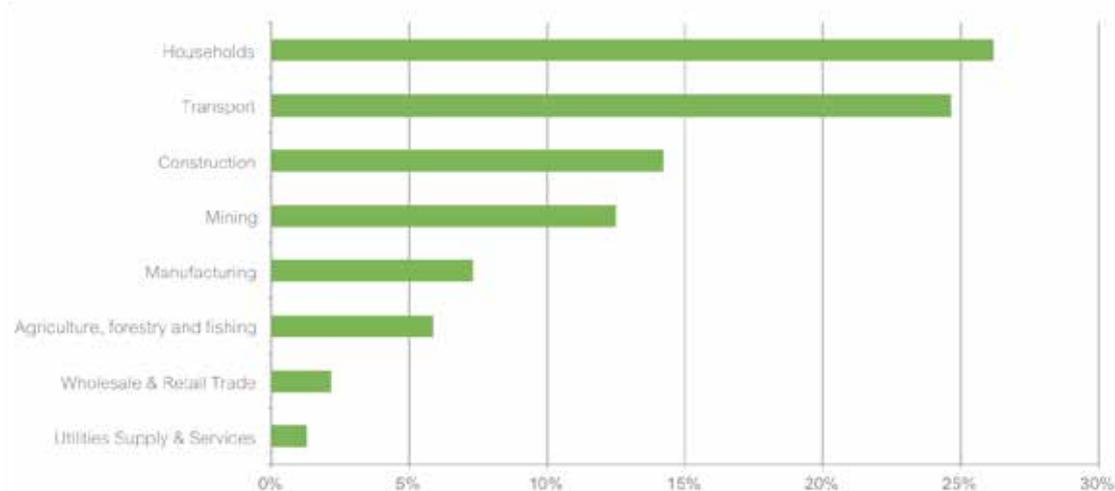
Many industries use petroleum products, and for some industries they make up a large share of intermediate input costs. This means that the petroleum refining industry's products have intrinsic links with the rest of the Australian economy.

The chart below shows the use of petroleum products in industries where refinery products are particularly important inputs. Use in each industry is reported as a share of total use of petroleum products in Australia. Based on the latest available ABS data, all industries account for 74 percent of domestic petroleum product use and households account for 26 percent – making households the largest fuel user group in Australia.

The five major industrial users of petroleum products are the transport, construction, mining, manufacturing and agriculture industries, which make up 64 percent of petroleum product use in Australia. Transport is the largest industry user of petroleum products, making up around 25 percent of total Australian use.

Some outputs from these industries are, in turn, important inputs for other Australian industries. Therefore, any shocks (such as the closure of a refinery) to the petroleum refining sector will flow through all sectors of the economy via links with the agriculture, manufacturing, mining and transport industries.

USE OF REFINERY PRODUCTS AS A SHARE OF TOTAL AUSTRALIAN USE: 2013-14



Source: ABS, Australian National Accounts: Input-Output Tables Cat No 5209.0.55.001 (latest edition).

NOTE: Manufacturing use excludes that used by the petroleum industry itself.



INDIRECT BENEFITS

Refining also provides for a range of indirect benefits including:

- **Reliability and security of supply:** The domestic refining capacity contributes to the overall health of the Australian economy through its contributions to the level of fuel supply reliability and flexibility. This is important for efficient production and mobility of labour and other products. Supply security is enhanced in Australia through the availability of both domestically refined and imported fuels from a wide diversity of supply sources.
- **Input sharing:** The refining industry benefits other sectors through increasing demand for certain inputs shared with other industries (e.g. engineering services, chemicals, electronic equipment and mechanical components); this assists these sectors achieve economies of scale and benefit from lower costs in their supply chains (e.g. petrochemicals, plastics and heavy industry/manufacturing sectors).
- **Innovation and spillovers:** As a high-tech industry, the refining industry benefits the economy through innovation, technology and knowledge spillovers to other sectors (inc. through the mobile contractor workforce). Major technological investments made by the refining industry include improvements in safety, environmental management, new product development, and production improvements and de-bottlenecking. This stimulates innovation and technological improvements in other sectors, without them having to bear the full costs.
- **Community development and investment:** Australian refineries actively participate in numerous community development activities and groups to enhance the education, environment and health outcomes of the local area (including grants, donations, volunteer work, and sponsorship). These can be expected to have wider economic benefits like higher GDP and consumer living standards.



QUICK FACTS: AUSTRALIAN REFINERIES



TOTAL TRANSPORT FUEL PRODUCED BY AUSTRALIA'S FOUR REFINERIES

50%

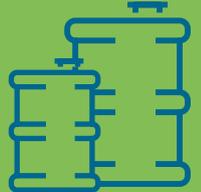


TOTAL PETROL PRODUCED BY AUSTRALIA'S FOUR REFINERIES

65%

27 BILLION LITRES

TOTAL CRUDE OIL REFINED LAST YEAR



AIP MEMBER COMPANY DIRECT EMPLOYEES: AT REFINERIES

2,000



ACROSS AUSTRALIA 10,000+

TYPICALLY, AS MANY CONTRACTORS ARE EMPLOYED AS DIRECT (PERMANENT) EMPLOYEES TWICE THE NUMBER OF CONTRACTORS DURING MAJOR REFINERY MAINTENANCE



X2



TOTAL INVESTMENT IN AUSTRALIAN REFINERIES OVER THE LAST FIVE YEARS

\$2.0 BILLION



DIRECT WAGES AND SALARIES PAID EACH YEAR TO REFINERY EMPLOYEES (EXCLUDING CONTRACTORS)

\$300+ MILLION



AVERAGE INDUSTRY ANNUAL PROFIT FOR ALL FUEL SOLD

2 CENTS PER LITRE



AVERAGE ANNUAL FUEL TAX (EXCISE) COLLECTED AND PAID TO GOVERNMENT

\$15 BILLION



AVERAGE ANNUAL CONTRIBUTION TO THE LOCAL ECONOMY BY A REFINERY

\$1 BILLION

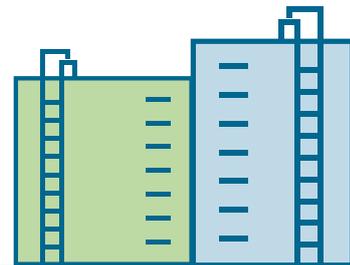


HUNDREDS

OF COMMUNITY GROUPS, PROGRAMS, SCHOOLS AND LOCAL ENVIRONMENT INITIATIVES SUPPORTED EACH YEAR BY REFINERIES



AUSTRALIAN REFINERY COMPETITIVENESS



KEY MESSAGES

- Over the past decade, the industry has been through a period of significant restructure.
- The Australian refining industry is part of a highly competitive global oil market.
- Profitability and ongoing viability will be determined largely by supply and demand in the Asian refining industry.
- Australian refineries see a long term viable future as long as productivity can be improved, costs can be controlled and new costs are not borne by industry as a result of unnecessary regulation.
- Australian refineries are smaller than regional competitors, but do have their own competitive advantages including market access and integration, reliability, and speciality products production.
- Australian refineries continue to be challenged by:
 - higher operating costs including recent increases in energy costs,
 - excess refinery capacity in Asia,
 - increased competition from mega-refineries in Asia,
 - commercial pressures for increased business efficiencies and avoidance of new costs,
 - general tightening of regulatory requirements,
 - implementation of climate change policies, and
 - competing demand and high cost for maintenance and construction services, and skilled labour.
- Continued viability of Australian refineries will require a stable policy and investment environment and energy policy based on open, efficient and competitive market principles.

Over the past decade, Australia’s refining industry has been through a period of substantial restructure. As a result, Australia now has four refineries, each with its own discrete competitive advantages that have ensured its current viability. Although the refineries were generally constructed in the 1950s and 1960s, they have been extensively upgraded since then, notably during 2005 and 2006 in order to meet tighter fuel standards. These refineries are relatively small by world standards, with the largest having a capacity of 8 650 ml pa (megalitres per year), compared with the four largest Asian refineries which produce between 30 ,000ml pa and 70 ,000ml pa. Australian refineries offer none of the economies of scale benefits that are available from these larger refineries.

AUSTRALIAN REFINERIES 2017

Refinery	Capacity (ml pa)
Kwinana (BP - Kwinana)	8650
Geelong (Viva Energy - Geelong)	7470
Lytton (Caltex - Brisbane)	6500
Altona (Mobil - Melbourne)	5222
Total	27 842

REFINERY COMPETITIVENESS

Economies of scale provide a key competitive advantage in refining, with larger refineries having lower unit costs of production and the ability to purchase inputs (e.g. crude oil) in larger parcels hence at lower unit costs.

Economies of scale arise from larger production runs, lower capital and labour costs per unit of production, and lower purchasing costs for larger volumes of inputs, such as crude oil and energy. Newer refineries also benefit from the latest technology with efficiencies realised from greater flexibility in the crude oil inputs and product slates produced.

Refiners seek to run the optimal mix of crude oils through their refineries, depending on the relative price of available crudes, the specific refinery equipment, and the desired output mix to meet the demand and quality standards of their target markets.

Each Australian refinery will seek to maintain an individual competitive advantage through concentrating on areas where a significant cost or efficiency advantage is evident. For example, the use of advantageously priced domestic feedstock, high utilisation rates, establishing niche markets and access to key markets all underpin competitive advantage.

While the cost of crude oil is the major input cost for refineries (around 90 per cent according to the ACCC), other key expenses for refineries include:

- crude oil shipment and storage,
- utilities and energy charges,
- additives, catalysts and chemicals,
- capital costs, financing and depreciation,
- wages and salaries,
- plant maintenance,
- site security and systems,
- regulatory measures,
- product shipment and storage, and
- government taxes and charges.

Refineries seek to manage the challenges they face by improving the efficiency of their operations through enhanced refinery yields, reliability and cost containment. Continued availability of highly trained technical staff and contractors contribute to high levels of refinery efficiency.

Compared to refineries across Asia, Australian refineries suffer from substantial disadvantages in operating and capital costs that virtually preclude Australia from consideration for major new refinery projects. Australian labour and construction costs for new and expanded refinery investments remain high compared to costs in most countries in Asia.

AS AN INDUSTRIALISED NATION, AUSTRALIA OFFERS NONE OF THE CAPITAL OR OPERATING COST BENEFITS AVAILABLE IN MANY DEVELOPING COUNTRIES

The taxation and investment regimes applying in Asia are also highly attractive for new facility construction and for substantial refinery upgrades, through the provision of taxation holidays, substantial investment allowances and investment facilitation.

These competitive disadvantages for Australian refineries compared to Asia can impact adversely on the decisions that must be taken locally on investments in major refinery upgrades and overhauls. The closure of the Clyde refinery in 2012 was a direct result of these disadvantages that included:

- not regionally competitive because of the small scale,
- did not generate sufficient cash to justify further investments, and
- alternative supplies could be sourced from the Asian region.

More complex and costly environmental and other regulatory measures also pose significant constraints on new investment in Australia and provide ongoing challenges for existing Australian refineries. Overlapping federal, state and local government regulations also increase the complexity of operations and raise the costs of doing business in Australia.

THE ROLE OF GOVERNMENT

AIP considers that the key role for governments is to provide a clear, stable long term policy framework, underpinned by a strong market-based approach.

Government policy should:

- ensure a competitive and open market is maintained in Australia,
- ensure that the local refining industry is not competitively disadvantaged in the Asian region, and
- maintain a strong commitment to technical skills development in the Australian education system.

Government policies will impact on the ability of Australian refiners and fuel importers to attract further investment funds for refinery and import terminal upgrades, and ultimately for major maintenance programs.

Key policy influences on the competitiveness of the Australian downstream petroleum industry are:

- fuel quality regulation,
- energy policy,
- liquid fuel supply reliability and security policies,
- alternative fuels policies and mandates,
- fuel and corporate taxation,
- industrial relations frameworks, skilled labour availability and training,
- climate change policy,
- environmental and WHS regulation,
- competition regulation, and
- fuel retailing regulation.

In each of these areas, AIP and member companies advocate policies that are harmonised across all Australian jurisdictions, apply equally to all industry participants and are based on sound science supported by comprehensive economic analysis.

Proposals for changes to current market-based policy settings need to clearly demonstrate that:

- a real market failure or vulnerability exists within the industry,
- new policy measures will produce a net benefit to the community and will not impact adversely on the competitiveness of the industry or liquid fuel supply security and reliability, and
- continued reliance on domestic and international markets is unable to deliver a similar outcome.

Any proposals for governments to intervene in the operation of the fuels markets should be on the basis of a demonstrated market failure which the market or consumers cannot, or cannot efficiently, resolve.

NATIONAL FUEL QUALITY STANDARDS



KEY MESSAGES

- Government regulated fuel quality standards facilitate the introduction of advanced engine technologies. Benefits include improved urban air quality (reduced smog and particulates), reduced greenhouse gas emissions, and improved fuel efficiency.
- Better fuels require major refinery investment, cost more to produce and lead to higher CO₂ emissions from refineries.
- Benefits of further tightening fuel standards for petrol do not outweigh the costs of such action.





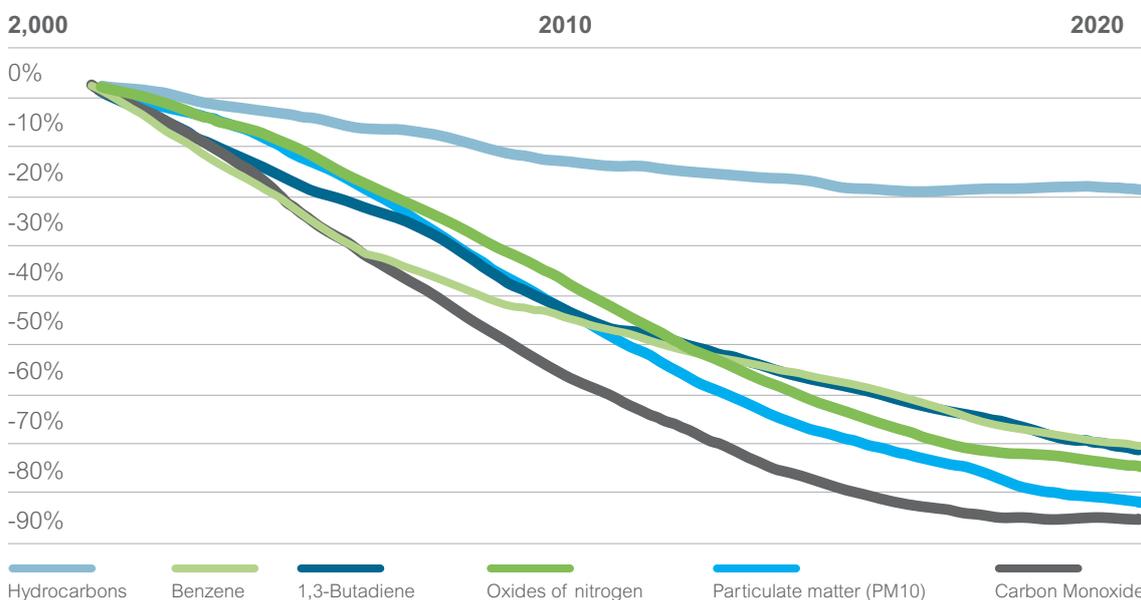
AIP supports appropriate national fuel quality standards to facilitate the introduction of advanced engine technologies and so help reduce scientifically established urban air quality impacts.

The Fuel Quality Standards Act 2000 provides the regulatory framework for fuel quality standards in Australia. AIP continues to work closely with governments and the motor vehicle industry to ensure that fuel quality standards are consistent across Australia, and predictable, so that participants in the market have sufficient time to implement and adjust to any new standards.

Over the past decade the Australian refining sector has invested well over \$3 billion to implement the Australian Government’s Cleaner Fuels Program.

This program was designed to help significantly improve urban air quality, including an 80 per cent reduction in nitrogen oxides by 2020. New vehicle technologies, particularly high compression, direct injection petrol engines and high compression, common rail diesel engines will enable further improvements in fuel economy and lower emissions to be achieved.

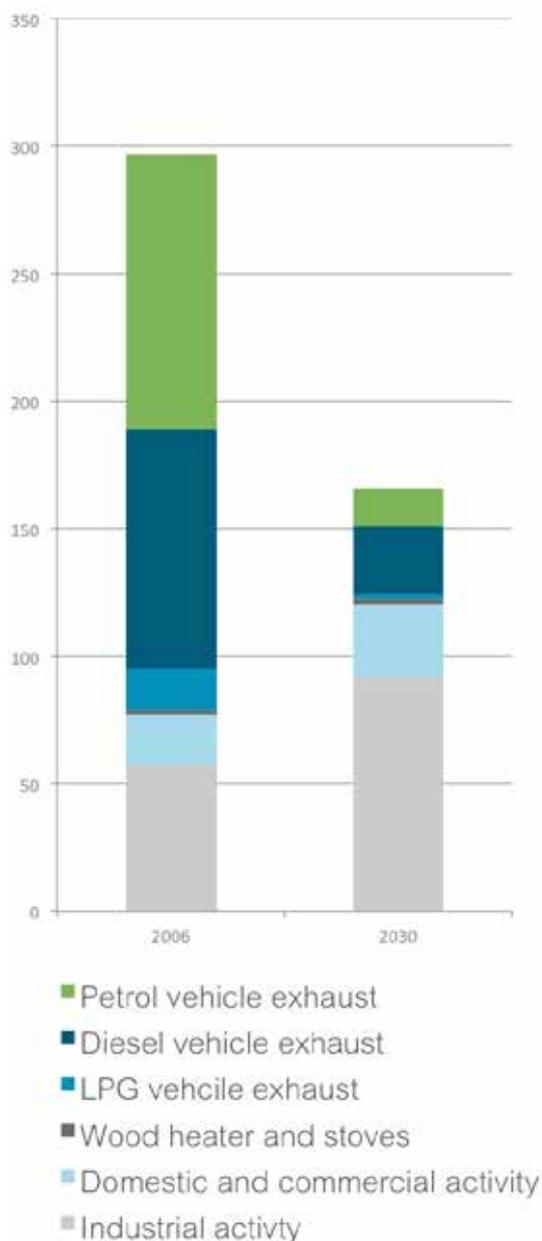
REDUCTION IN VEHICLE EMISSIONS FROM CLEANER FUELS



Modelling of Victorian air quality by CSIRO confirms these reductions in motor vehicle emissions and projects that by 2030 emissions from motor vehicles will become a relatively small source of nitrogen oxide emissions compared to other domestic and industrial sources.

AVERAGE DAILY NO_x EMISSIONS:

Tonnes per day



Source: CSIRO

The current petrol and diesel standards when combined with complementary engine technologies will address all national air quality issues that can be controlled by regulating fuel quality.

ALL PROSPECTIVE MAJOR PETROL VEHICLE TECHNOLOGIES, EXCEPT FOR LEAN BURN GASOLINE DIRECT INJECTION (GDI), CAN OPERATE ON FUELS ALREADY AVAILABLE IN THE AUSTRALIAN MARKET

Some lean burn GDI engines require 10 ppm sulfur (Euro 5) PULP to operate.

However, this technology is only used in the very small, high performance, luxury segment of the vehicle market, so production and distribution of a boutique fuel for such a small market segment is not commercially viable. Lean burn technologies are no longer produced in Japan and are largely phased out in Europe.

No further major adjustments to Australian fuel quality standards are required to meet identified technology facilitation, urban air quality or climate change emission reduction objectives.

Given the absence of vehicle operability issues and the limited environmental benefits from further changes to Australian fuel standards for petrol and diesel, any proposals for changes to these fuel standards must:

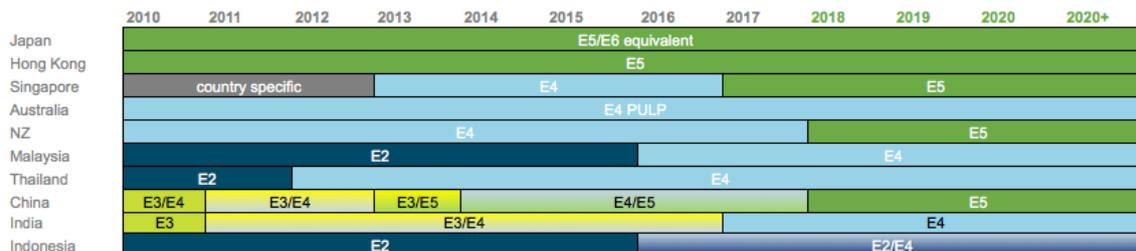
- be based on a sound and thorough evaluation of the scientific and economic basis for such change, and
- account for the long lead times (which are getting longer due to resource and labour constraints) required to make the necessary engineering changes to refineries.

ASIAN FUEL STANDARDS

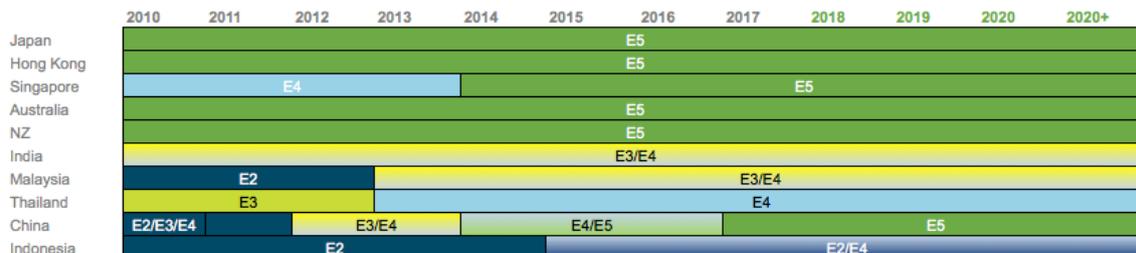
Countries in the Asia–Pacific region are mandating cleaner fuels on different timelines. A key driver in a number of cases, particularly China, has been a desire by governments to begin to address extreme urban air quality problems.

As demand for higher quality fuels has increased, refineries in the region are now producing these fuels as standard products rather than as boutique fuels for specific markets. This has resulted in increased availability of these fuels.

PETROL REGULATORY OUTLOOK IN THE ASIA-PACIFIC REGION



DIESEL REGULATORY OUTLOOK IN THE ASIA-PACIFIC REGION



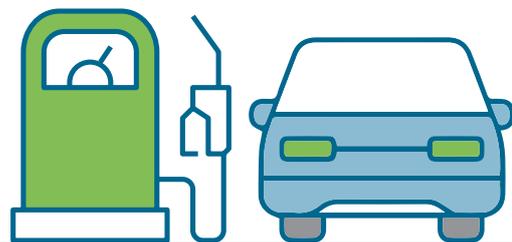
MINISTERIAL FORUM ON MOTOR VEHICLE EMISSIONS

- AIP supports orderly transitions to cleaner fuel standards where a community benefit has been demonstrated.
- AIP has been unable to support the introduction of 10ppm sulfur petrol because of the lack of operability benefits, limited environmental benefits and significant cost impacts.
- The current petrol average sulfur levels in the Australian market are already well below the regulated maximum limits.
- The refining industry would have to invest approximately \$979 million which could threaten their economic viability
- In responding to the Government’s imperatives, it is possible to introduce 10ppm sulfur across all petrol grades by 1 July 2027.
- The transition to 10 ppm sulfur could be supported by an interim reporting mechanism to safeguard the current petrol sulfur levels.
- This position does not guarantee that each Australian refinery will continue to operate into the future but rather allows careful consideration of the most cost effective solution.

Further detail is available at:
[Click here to see the report](#)



BIOFUELS AND ALTERNATIVE FUEL



KEY MESSAGES

- AIP member companies supply most of the blended biofuels and alternative fuels used in Australia.
- AIP strongly supports market-based approaches to the supply of any fuels in Australia.
- Biofuels and alternative fuels will have a place in a diversified Australian fuels market as long as they are:
 - available at a competitive price,
 - reliably supplied,
 - acceptable to consumers, and
 - produced sustainably.
- There are a range of Government policies that support production and use of renewable and alternative fuels in Australia, including fuel excise concessions, direct production subsidies, technology facilitation grants, ethanol mandates and market facilitation support.
- In AIP's view, government policies in support of biofuels and alternative fuels must be:
 - transparent, with clear, credible and tested objectives,
 - applied equitably to all industry participants,
 - stable, with clear timeframes for withdrawal of support,
 - based on sound science, and
 - cognisant of other policy settings and commercial practice.
- AIP believes that fuel mandates can lead to higher costs for consumers, reduce market price transparency for fuel suppliers and consumers, limit price competition and associated marketing innovation, and fail to encourage the development of robust and reliable fuel supplies. Fuel consumers will bear the cost of mandates through increased prices, reduced choice or more vulnerable liquid fuels supplies.

Biofuels and alternative fuels that are used in Australia include:

- biodiesel and biodiesel blends,
- ethanol blends in petrol (up to 10 per cent),
- high ethanol content fuel (up to 85 per cent),
- liquefied petroleum gas (LPG),
- compressed natural gas (CNG), and
- liquefied natural gas (LNG).

AIP members are contributing to efforts to overcome the challenges that biofuels and alternative fuels face in progressing to a fully sustainable market position.

ETHANOL BLEND FUELS

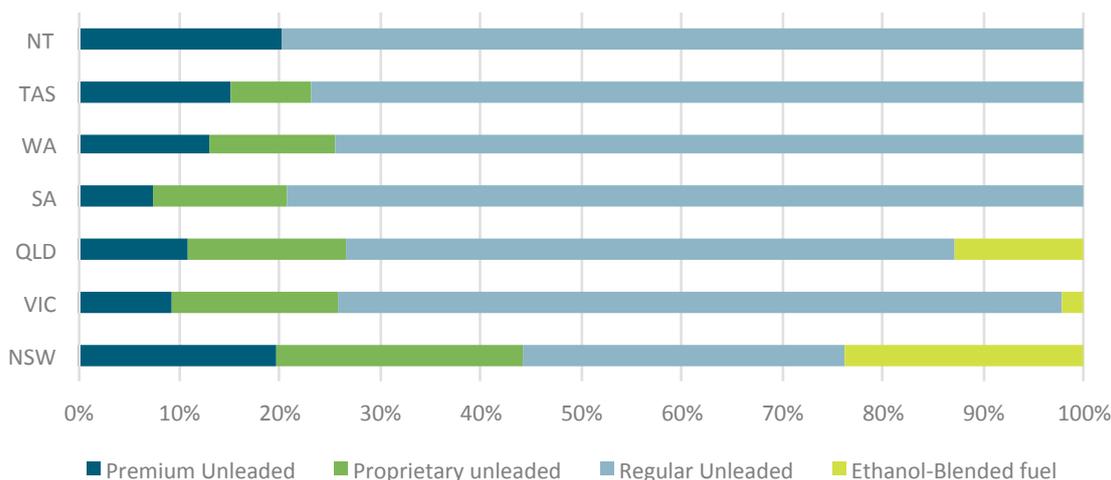
Ethanol is commonly made from biomass such as waste starch and sugar cane and is blended with regular unleaded fuel up to 10 percent for sale into the Australian consumer fuels market and sold as E10. The majority of E10 is sold into New South Wales, primarily due to the 6 percent ethanol mandate of total petrol (unleaded and premium) imposed by the New South Wales Government. Queensland also introduced a mandate which commenced in 2017 requiring 3 percent of unleaded fuel (not premium) sold in Queensland to be ethanol. The ethanol market share is currently less than 2.5 percent in NSW and approximately 1 percent in Queensland, well short of the mandated demand imposed by the respective State Governments.

Industry has invested significantly in storage, blending and distribution infrastructure and appropriate storage tanks for ethanol blends in service stations.

However, the small number of domestic ethanol producers, combined with the excise on imported ethanol, means the ethanol supply chain in Australia remains vulnerable, including through exposure to natural weather events such as droughts and floods on raw material production, as evidenced following the 2012 Queensland floods which led to a substantial shortage of E100 and subsequent drop in E10 sales.

While vehicle compatibility issues will continue to gradually disappear through turnover of the vehicle fleet, the NSW Independent Pricing and Regulatory Tribunal (IPART) noted that the single biggest barrier to greater uptake in ethanol remains consumer aversion. The experience with the NSW mandate has seen customers instead prefer a shift to premium unleaded petrol with sales in those fuels in that State almost doubling since 2009 while in the rest of Australia, PULP sales have only increased by around 35 percent over the same period. Sales of E10 in NSW, while higher than other states due to the mandate, have also subsequently fallen having peaked at around 4 percent.

This preference for PULP purchases over E10 highlights the inherent risks of market intervention by government. AIP notes that any proposal for mandating the inclusion of ethanol in premium unleaded petrol (PULP) will only exacerbate distribution issues, reduce competition between proprietary brands, and further remove choice for consumers who do not wish to use or cannot use ethanol blends.



Source: Australian Petroleum Statistics

NSW ETHANOL PERCENTAGE OF TOTAL PETROL SALES SOLD BY REGULATED ENTITIES



Source: NSW Fair Trading

Biodiesel blends

There currently exists a range of challenges to the supply of biodiesel in Australia in terms of meeting the required volumes and doing so at a competitive price. While the fuel standards framework (which allows up to a 5 per cent biodiesel blend in diesel and 20 per cent in business applications) is being revised to facilitate market development of biodiesel blends, more consistent advice and endorsement is needed from automobile, truck and heavy vehicle manufacturers on the suitability of biodiesel for use in vehicles, including warranty concerns.

LPG, LNG and CNG

These alternative fuels remain a niche section of the market due in large part to a lower than expected uptake of compatible vehicles, changes in excise arrangements, removal of subsidies for vehicle conversion and/or a shift in consumer preference such as towards hybrid vehicles.





ALTERNATIVE FUEL POLICY

AIP supports neutrality and a level playing field for competing transport fuels.

Where financial incentives (excise concessions, production grants and technology and market facilitation grants) are used to facilitate and encourage the use of biofuels and alternative fuels in Australia, these must be transparent and either:

- short-term and aimed at offsetting some of the up-front capital costs associated with bringing the fuel or the fuel use technology to the market, or
- ongoing but solely aimed at recognising significant and demonstrated environmental benefits of the fuels compared to the current environmental performance of mainstream fuels.

In this context, AIP supports the policy of successive governments of fuel excise neutrality for transport fuels based on the relative energy content of the individual fuels.

However, for more than a decade an excise concession of 50% has applied for alternative transport fuels (ethanol, biodiesel, LPG, CNG) compared to mainstream transport fuels. This concession, introduced for regional development purposes, typically costs taxpayers over \$1 billion over 4 years and has not facilitated the increased demand and market supply of these transport fuels. In fact, demand for these fuels has fallen in recent years despite this favourable tax treatment and other government support and subsidisation. AIP therefore encourages the removal of this excise concession.

In principle, AIP also does not support mandates requiring the use of any particular fuel as a way of increasing the demand for that fuel. As IPART noted, the major benefits of measures to increase ethanol uptake would accrue to producers of ethanol, while the magnitude of other benefits (such as greenhouse and air quality benefits) are much smaller than the increase in producer surplus.

While AIP members will continue to work to comply with the requirements of both the NSW and Queensland biofuels mandates, AIP believes mandates for biofuels that may help to increase short-term consumer demand must be designed so that they enable a normal and competitive market to develop in the medium to longer term for those fuels.

FUEL MANDATES IMPOSE HIGHER COST FUELS, REDUCE MARKET TRANSPARENCY FOR FUEL SUPPLIERS AND CONSUMERS, LIMIT PRICE COMPETITION AND ASSOCIATED INNOVATION, AND FAIL TO ENCOURAGE THE DEVELOPMENT OF ROBUST AND RELIABLE FUEL SUPPLIES

AIP will continue to work with governments to ensure that the barriers to greater market uptake of biofuels and alternative fuels are fully understood and will promote sound approaches to policy design to overcome market barriers while avoiding unintended consequences. In particular, AIP will work with governments to ensure that policy and regulatory compliance regimes are credible, predictable and equitable for all fuel suppliers and do not impose costs that threaten retailer viability.

REDUCING GREENHOUSE GAS EMISSIONS



KEY MESSAGES

- Climate change presents a significant risk to the environment, and therefore to the economy and society. AIP member companies support actions to advance climate science to improve understanding and reduce the risks from future impacts.
- AIP member companies support a broad-based national approach to encourage emissions abatement. Pathways to reduce emissions from production and use of liquid fuels include improved energy and vehicle efficiency, development and deployment of innovative technologies, and improved driver practices.
- Policy decisions must be based on sound scientific and economic analyses that recognise the risks, costs and benefits to society and the economy, as well as to the downstream petroleum industry.
- The future viability of Australian refineries, which contribute to Australia's energy security, will be dependent on maintaining the international competitiveness of Australian refined products.



The Australian Government has implemented a range of measures to meet its objective of reducing Australia's emissions by 26-28% of 2005 emissions levels by 2030. The centrepiece of the policy is the Direct Action Plan which aims to establish a market driven framework for abatement. The plan covers the main greenhouse gases, and provides financial support for least cost actions to abate emissions across the Australian economy. Measures have also been included to safeguard the abatement mechanism through provision of incentives for businesses not to exceed their historical emissions baselines.

As capital and energy intensive operations, Australian refineries continuously seek ways to improve operational and energy efficiency. As new abatement opportunities are identified and projects developed, they will be assessed for their potential to compete for support from the Emissions Reduction Fund. Petroleum refineries expect to compete for financial support available for abatement activities. Typical example projects for refineries might include butane capture or improved boiler efficiency. More significant abatement opportunities may arise during major maintenance activities or the design of new, replacement units at refineries.

AIP member companies will continue to work closely with the Australian Government on the downstream petroleum sector aspects of the Direct Action Plan. A key consideration is the ongoing competitiveness and viability of

Australian refineries and Australia's future fuel supply security.

AIP continues to advocate that the baseline compliance measures in the Emissions Reduction Fund have the potential to increase direct and indirect petroleum refining costs in Australia.

Successive Australian governments have recognised the Emissions Intensive Trade Exposed (EITE) status of Australian refineries and it is critical that this is maintained.

**AUSTRALIAN PETROLEUM
REFINERIES ARE ENERGY
INTENSIVE OPERATIONS WITH
SIGNIFICANT VARIATIONS
IN ENERGY USE AND HENCE
GREENHOUSE GAS EMISSIONS
FROM YEAR TO YEAR**

To help maintain Australian refinery competitiveness, any assessment of emissions above a business as usual (BAU) baseline must take account of variations in refinery operations, and hence emissions, due to:

- changing market requirements and any disruption in refinery operations,
- regular and ad hoc refinery maintenance,
- refinery upgrades or changes flowing from regulatory actions by federal, state or local governments which result in increasing refinery emissions.

Since almost all liquid fuels imported into Australia come from countries which are unlikely to impose a carbon price on their refinery operations over the next decade, Australian refiners will be placed at an increasing commercial disadvantage to their overseas competitors if they become subject to excess emissions charges. As verified by the ACCC, import parity pricing of liquid fuels in Australia means that there is little scope to recover these additional costs from consumers, hence industry profits will be impacted.

INTERNATIONAL LANDSCAPE

As participants in one of the world's most fiercely competitive markets, Australia's downstream petroleum industry has a keen interest in the international climate change policy landscape and any resultant domestic policies. As transportation emissions remain an area of focus, the industry has a central role in reducing emissions not only from its own operations, but more broadly in areas such as fuel conservation and alternative fuels.

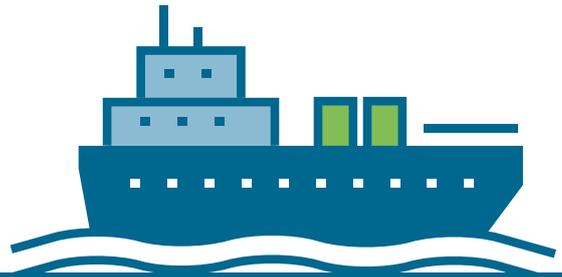
Key to the Paris agreement is the recognition that all countries must play a role in meeting the challenge. The establishment of binding commitments through "Nationally Determined Contributions" (NDCs) from more than 160 countries each underpinned by domestic measures aimed at achieving them is a welcome pragmatic step, as is the commitment to regularly report and review progress. This provides nations with scope to meet their agreed targets in a manner that best suits their particular economic circumstances and development objectives.

However, the nature of each nation's relevant policies, their effectiveness, the differing targets and the timeframes for meeting those targets all remain uncertain. Similarly, the impact of other nations' climate policies on particular industries, including refining, may differ. For these reasons, Australia's domestic policies must take into account any potential competitive disadvantage to the trade exposed refining sector and ensure that measures are in place to maintain a level playing field.

GLOBAL CLIMATE CHANGE NEGOTIATIONS REACHED A SIGNIFICANT MILESTONE AT THE PARIS CLIMATE CONVENTION AT THE END OF 2014



MAINTAINING SUPPLY SECURITY AND RELIABILITY



KEY MESSAGES

- Australia's longer-term fuel supply security and transport energy needs will be best met through market measures including:
 - open crude oil and fuels markets,
 - competitive, market determined prices,
 - clear investment and market signals,
 - clear, bipartisan and long term energy policies,
 - flexible and resilient supply chains,
 - efficient supply management,
 - diversity of crude oil and liquid fuel sources,
 - competitive and viable domestic refineries,
 - policy and competitive neutrality between transport fuels,
 - improved vehicle technologies, and
 - reliable, clean and high quality fuels acceptable to consumers.
- As these conditions generally exist now for liquid transport fuels, the imperative for governments is to maintain or further strengthen these market features.

SUPPLY SECURITY

Australian liquid fuels supply is highly secure, competitively priced and reliable because of:

- established and effective integration into the rapidly growing Asian fuels market,
- a diversity of supply sources for crude oil and petroleum products, including domestic and imported sources,
- a flexible, resilient and reliable supply chain, including secure shipping routes and a significant volume of stock on the water owned by Australian companies,
- a domestic refining capability providing multiple supply options and the ability to convert domestic and imported crude oil into useable products,
- actual and planned import, storage and distribution infrastructure which is able to meet growth in fuel demand,
- a strong record of efficient and reliable supply and supply chain management by industry, and
- robust risk and emergency management by industry and government.

These market features have been confirmed in successive government and independent reviews of liquid fuel supply security over many years, and Australia’s secure position is not expected to change in the coming years.

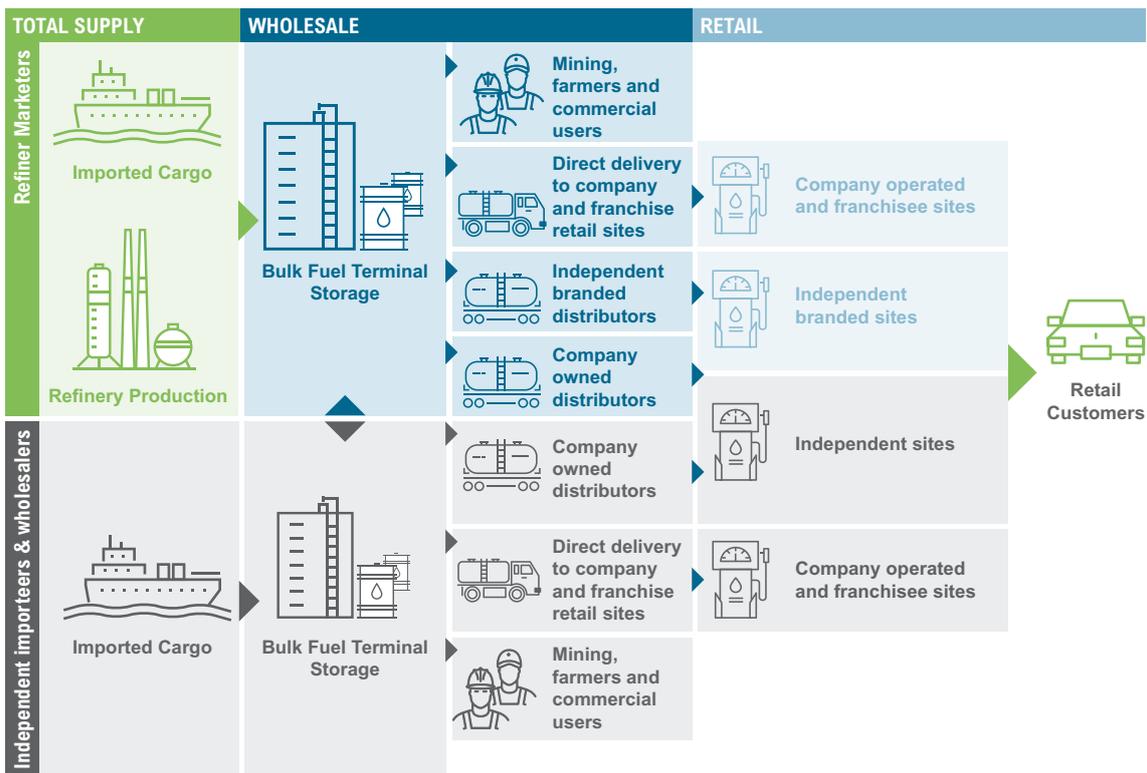
Australia will continue to be able to access crude oil to meet its refining needs as well as imported petroleum products for customers as long as we support efficient and open global markets and pay the prevailing international market price.

The industry has well established and reliable access to crude oil and petroleum product supplies from across the region and beyond. Current and forecast excess supply in the region supports this ready availability of product suitable for Australian needs.

Australia’s market based approach has delivered secure, reliable and competitive liquid fuel supplies which meet the operational requirements of consumers and major fuel users.

A continuation of this market-based approach, complemented by a stable policy and investment environment, will encourage the ongoing significant investment needed in supply infrastructure to meet growing fuel demand in Australia.

THE FUELS SUPPLY CHAIN



SUPPLY RELIABILITY

Australia is well serviced by a reliable and diverse supply chain that delivers a high level of reliability by global standards.

The supply chain includes crude oil and petroleum product shipments into and around Australia, refinery throughput, bulk fuel storage tanks, extensive terminal and distribution networks, thousands of retail outlets, and substantial fuel storage facilities of major fuel users.

There are strong business pressures on refiners and fuel suppliers to maintain resilient and efficient supply chains, since this is essential to minimise costs, and to maintain or increase sales through a reputation for reliable supply.

To maximise the benefits of increased shipping volumes to Australia, new import and storage facilities have been built over recent years and more are under construction or planned. This infrastructure, including the conversion of some refineries to major import and storage terminals, has been independently assessed as being able to meet Australia's future fuel supply needs.

Independent analysis has also confirmed current industry stockholdings and their management reflect a sound commercial assessment of likely operating conditions and disruption risks. Commercial stockholdings are keeping pace with increases in fuel demand and a changing product mix and planned terminal and storage capacity takes account of expected growth in fuel demand.

Any requirement to increase stockholding levels beyond commercial levels would place significant additional costs on the supply system that, unless funded by government or customers requiring stockholdings, would be passed on to consumers.

Managing supply disruptions

Unplanned events can create fuel supply challenges at short notice including unplanned refinery disruptions, breakdowns in key supply infrastructure or pipelines, delays in ship arrivals, natural disasters, and customer demand exceeding contracted supply requirements.

Large and unanticipated surges in demand by major fuel users will always present a particular supply challenge for Australian fuel suppliers. For example, there can be intense demand spikes at short notice such as a result of crop harvesting following rain or from military activities, which can also vary across fuel types and geographical areas. The record grain harvests in late 2016 is a recent example, where actual diesel demand from major fuel customers in some States exceeded forecast/contracted demand by up to 80%.

THE IMPACT OF SUPPLY DISRUPTIONS IS RARELY FELT BY CONSUMERS, AS REFINERS AND MAJOR FUEL SUPPLIERS ARE ADEPT AT MANAGING THESE ISSUES AS PART OF NORMAL OPERATIONS

Rapid and comprehensive industry response strategies are in place to address or replace any lost supply, including:

- numerous 'in-refinery' technical options,
- utilising alternative supply infrastructure and supply and distribution routes,
- sourcing supplies from other Australian refiners and fuel wholesalers,
- sourcing supplies from international sources and from the spot market,
- equitably allocating bulk fuel to customers, and
- drawing down industry stockholdings.

While current industry response strategies are highly effective, these can be further enhanced by the more widespread adoption of active supply management and business continuity planning by major fuel users supporting the economy in Australia. Major fuel users are best placed to make decisions about their need for liquid fuels, and the way they use those fuels to meet their own operational requirements.

Guidance on business continuity planning and actions that fuel users can take to manage the impacts of a reduction of fuel supply is provided by the National Oil Supplies Emergency Committee (NOSEC).

In addition to business continuity planning, actions can also be taken by major fuel users to address any unacceptable business risks arising from a fuel supply shortage, including:

- investing in their own extra stockholdings and storage capacity,
- improving fuel supply management (either on their own or through their fuel supplier), and
- changing business operations to avoid or minimise the impact of any fuel supply disruption.

AIP member companies encourage the active management of fuel supply and stocks with their customers, particularly where supply chains can be lengthy in regional and remote areas with limited supply options.

Australia has robust emergency response plans for managing a national liquid fuel emergency, which reflect Australian market characteristics, utilise proven market and commercial response mechanisms, and adopt international approaches that will be effective in our operating environment.

While every effort is made by industry to ensure continuing reliable supply, NOSEC and the International Energy Agency (IEA) have established management plans that would help ensure a coordinated response to any supply emergency at a national or international level.

ACCORDING TO THE IEA, AUSTRALIA IS WELL SERVED BY AN INDUSTRY WHICH OPERATES A RESILIENT AND DIVERSIFIED SUPPLY CHAIN, SUPPORTED BY A REGIME OF POLICY AND REGULATORY EMERGENCY MEASURES, REGULAR IN-DEPTH VULNERABILITY ASSESSMENTS, AND INTERNATIONAL ADVOCACY OF OPEN GLOBAL MARKETS

Emergency Supply Management

Industry and governments recognise the potential impacts of a severe national shortage of fuel supplies to business, consumers and communities.

The Australian Government has also announced, as part of its IEA Compliance Plan, that it will purchase 400 kilo tonnes of oil tickets in 2018-19 and 2019-20 to enable Australia to contribute to an IEA collective action if needed. Tickets are used by some IEA members to supplement in-country stocks to meet their IEA obligations.

SUPPLY CHAIN

Stocks as days consumption cover

Average number of days



SUPPLY FLEXIBILITY

The complex network of shipping routes to and around Australia are secure and highly flexible. There are ships with crude oil or petroleum products constantly on the water along each supply route, with cargo discharges sequenced every few days in major Australian ports.

With the key demand centres in the southeast of the country, most imported cargoes travel a considerable period of their voyages along the Australian coast and within Australian waters.

THE AVERAGE TIME PETROLEUM PRODUCTS ARE ON THE WATER IS AROUND 12 DAYS, VARYING BETWEEN 6 AND 23 DAYS

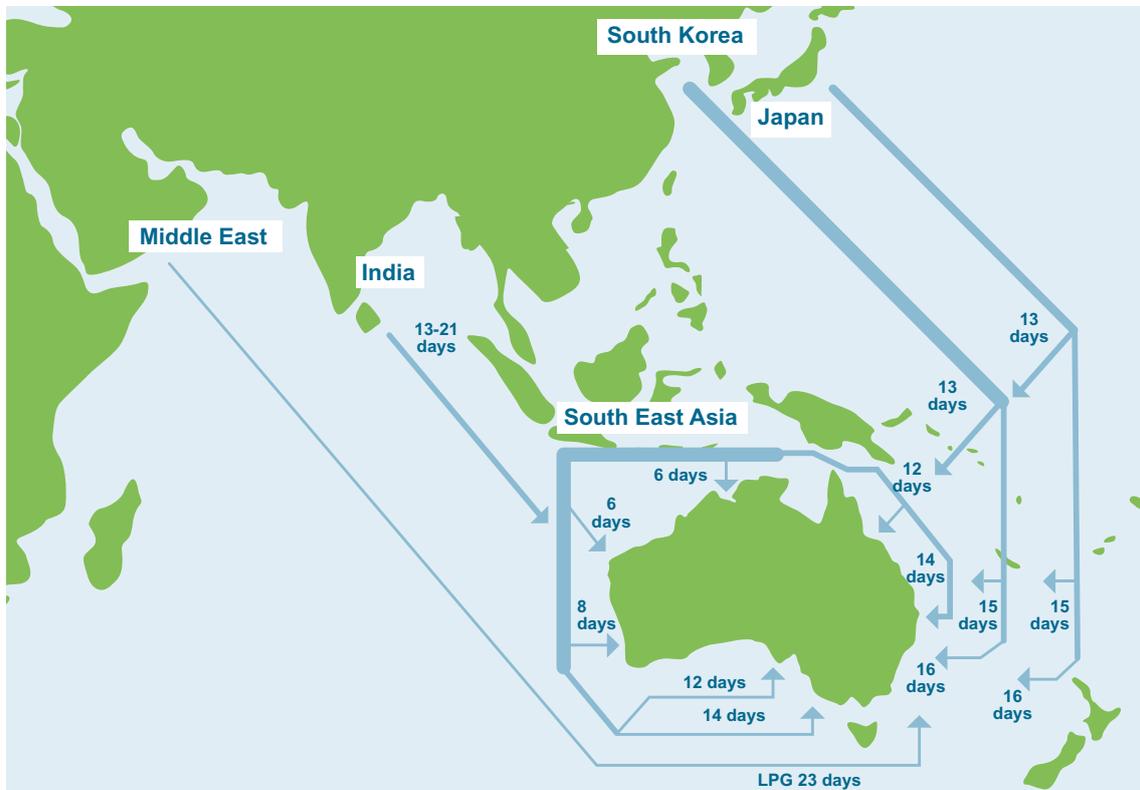
Shorter voyage times reflect both closer supply locations in the Asia–Pacific region and direct importing into northern Australia.

The bulk of crude oil demand is from the south-east of Australia.

Petroleum product stocks in ships on the water and the ready availability of petroleum tankers have proven to be very valuable for responding in a flexible and timely way to unplanned supply disruptions at particular locations in Australia.

In the event of an Australian supply disruption, petroleum product cargoes at sea can be redirected by Australian companies to Australian ports to help manage the disruption. Ship discharges can be planned to ensure land-based stockholdings can be fully utilised to provide a buffer against supply disruptions and to minimise the severity of disruptions. This buffer provides time for major fuel suppliers to make decisions about how best to respond to any disruption.

AUSTRALIA’S MAJOR IMPORT SHIPPING ROUTES: Petroleum products





SUPPLY AVAILABILITY

Independent and government reviews have concluded that “supply from overseas suppliers of refined petroleum products is considered extremely reliable” and “an increasing number of refineries in Asia are capable of supplying Australian-specification products”.

The ‘geopolitical risks’ of sourcing crude oil and petroleum products from foreign countries are sometimes claimed as vulnerabilities in Australia’s liquid fuel supply chain. However, international events that impact on crude oil and petroleum product markets will generally be felt by all countries, so Australia is unlikely to be placed at a supply or competitive disadvantage. Further, past instances of geopolitical instability, civil unrest and war have had a relatively small impact on global crude oil flows and have not had an impact on the reliability of supplies to Australia. Supply diversity clearly plays a key role in managing and mitigating such risks to Australia.

AUSTRALIA’S ACCESS TO DIVERSE SUPPLY SOURCES AND WELL ESTABLISHED AND FLEXIBLE INTERNATIONAL AND DOMESTIC SUPPLY NETWORKS SUGGESTS THAT ANY FUTURE DISRUPTION RISKS ARE UNLIKELY TO COMPROMISE AUSTRALIA’S ACCESS TO THE PHYSICAL SUPPLY OF LIQUID FUELS

STOCK ON WATER: a critical part of the Australian supply chain

Over the last decade, the growing volume and frequency of petroleum products imported into Australia have increased and contributed to domestic supply reliability.

The growing and changing demand for particular liquid fuels, coupled with the closure of a number of Australian refineries, has driven the increase in petroleum product imports. As a result, Australia now has a significant proportion of petroleum stock on the water from various source locations, particularly from Asia.

About 14-21 days of Australian supply is typically on the water at any time, with a large proportion of this stock in Australian waters. This is some 30 per cent of all stock owned by AIP member companies.

In addition, a similar proportion of stock designated for import to Australia is yet to be loaded for transit here. For AIP member companies, an import cargo requirement is generally locked-in over the period 30-60 days prior to arrival in Australia. In this period, this means that a cargo commitment is established, contracting arrangements have been finalised and the cargo is nominated in the supply plan for these companies (ie. it is considered firm or designated supply to Australia).

The Asian and Australian liquid fuels markets are dominated by term supply contracts to ensure known, secure and reliable supply, and these contracts ensure cargoes are delivered as planned. Consequently, as part of these normal commercial transactions, Australian companies have an ownership interest over the majority of stock on the water.

This stock is securely intended only for the Australian market in contrast to the European market where cargoes may be directed to any number of countries.

Major changes to voyages once a ship with an Australian cargo leaves an Asian port are very rare, because this is constrained by:

- expensive increases in freight rates for redirection of ships to another country,
- limited opportunities for short term (or spot market) trading in the regional market,
- different product specifications across the region,
- some local market participants only operate in Australia, and
- restrictions in commercial contracts.

The significant volume and wide distribution of cargoes of crude oil and petroleum products on the water serves as floating storage which provides a diverse and flexible source of supply. It also provides an efficient and cost effective logistical and storage solution, which is now fundamental to managing ongoing reliable supply of liquid fuels to Australian markets and customers.

The highest level of fuel supply flexibility and reliability is achieved when stock on water can be readily diverted between Australian locations on an as needs basis.

SHIPPING SECURITY ASSESSMENTS

Relying on shipping for petroleum imports to Australia does not increase security risks, and shipping lanes and activity are not easily disrupted.

Most countries are reliant on movements of petroleum (crude and product) within and between countries, and particularly so for Australia - in both an export and import sense.

Security of shipping cargoes is a key focus of the global supply chain and regional supply. This includes for substantial exports of Australian commodities to Asia (eg. oil, coal, LNG, iron ore).

The market would adjust to any threats or impacts to major shipping lanes.

For example, ship owners would:

- deploy vessels to areas that the market will look to for alternative supply
- continue to operate near any threats (eg. vessels operating in risky areas have the option of recovering war risk insurance premiums from the Charterer)
- consider or take alternatives to major (most efficient) shipping routes, simply meaning increased voyage time.

INDEPENDENT ASSESSMENTS HAVE CONCLUDED THAT SHIPPING LANES TO AUSTRALIA ARE HIGHLY FLEXIBLE AND THEREBY SECURE, INCLUDING UNDERPINNED BY MILITARY PRESENCE IN THE REGION

For Australia, there are options on many of the shipping routes into the country should there be issues on a particular route. For example, while the Malacca Strait (in the Indonesian archipelago) handles a significant proportion of shipments to Australia, efficient and established alternative routes are available if Malacca were to be threatened. Such alternatives routes (or any others) would simply be at a slightly higher cost due to the additional sailing time required.



Given the diversity and flexibility of Australia's crude oil and products supply routes, and the thousands of ship movements each year through major shipping routes, the industry does not see that threats such as a terrorist attack on a shipping route would have any material impact on Australian fuel supply.

However, while the security of sea lanes from piracy and military action is not seen as a critical risk by market experts, it is a risk that must be managed through international cooperation.

INTERNATIONAL COOPERATION TO REDUCE THE RISK OF PIRACY HAS INCREASED IN SOUTH EAST ASIA AND THE SECURITY OF THE STRAIT OF HORMUZ IS CLOSELY MONITORED

There are monitoring and regional cooperation agreements amongst Asian nations to combat acts of piracy or terrorism against ships operating in Asia.

Previous acts of piracy against crude oil tankers in the region have had no material impact on the regional oil market, as there was no ongoing disruption to the shipping lane or to market, trading and freight activity.

The 'Case Study' provides 'real time' snapshots of the volume and diversity of vessels carrying petroleum products, crude oil, gas and petrochemicals. This includes snapshots of vessels in Australian waters, the Asia-Pacific region, the Singapore trading hub and the Indian Ocean.



CASE STUDY:

THE VOLUME AND DIVERSITY OF PETROLEUM SHIPPING

Crude oil and petroleum products flow freely between different regional markets.

These maps are a real time snap shot of petroleum ships on water at a point in time.



- There are a wide range of established and alternative cargo transit routes through SE Asia.
- There are most efficient (shortest) transit routes between countries, but ships can and do easily change course to avoid poor weather and high seas or a potential problem area.
- Singapore is an important trading hub for the Asian region and Australia, and there are multiple fuel suppliers and loading points in Singapore (it would be highly unlikely for the whole hub to be disrupted).
- At any time, around 30-40% of total petroleum stock owned by Australian companies is on ships in Asia-Pacific waters coming only to Australia and a similar proportion of stock designated for import to Australia is yet to be loaded for transit here.



- Each month, around 90 cargoes of petroleum products (70) and crude oil (20) are imported into Australia - 3 ships each day.
- For these petroleum vessels, there are multiple import 'entry points' into Australia.

THE INTERNATIONAL CRUDE OIL AND PRODUCT MARKETS



KEY FACTORS INFLUENCING OIL PRICES

- short and longer term changes in regional and global supply balances,
- major supply disruptions from natural disasters, war, civil unrest/strikes,
- seasonal demand and demand spikes,
- inventory management,
- shipping availability and freight rates,
- market trading activities and strategies,
- short term decisions of oil producing countries, National Oil Companies (NOCs) and nations holding strategic reserves,
- changes in economic conditions/ sentiment,
- new oil discoveries,
- investment in new oil production and refining capacity,
- future global demand and supply balances,
- population growth,
- longer term global economic growth and short term conditions,
- costs of oil production and refining,
- technological progress,
- long term policies of NOCs and oil producing nations, and
- regulation and government policy.



INTERNATIONAL PRICES

The price of fuel in Australia is dependent on world market prices, with these world market prices reflecting the market supply and demand balance.

Crude oil, petrol, diesel and jet fuel are bought and sold within their own specific trading markets. As they are different products – with their own unique physical characteristics, uses, and demand and supply factors – they are priced and traded separately.

Each market is regionally based. There are linkages and transactions between regional markets to balance global demand and supply.

Prices in regional markets can be volatile and can move in different directions from each other. This can be due to the impact of factors and events unique to one market or all markets globally. Australia's regional market for petroleum products is the Asia Pacific market.

Price benchmarks or 'markers' for crude oil and petroleum products are highly transparent providing convenient indicators of what is happening with prices in specific markets. Information on changes in the prices of these markers is extensively reported on a daily basis.

Australia's benchmark prices, including Tapis and Dated Brent crude oil, MOPS95 petrol and Gasoil 10ppm sulphur diesel, are quoted daily by the independent monitoring agencies, Platts and Argus, based on transactions in the Singapore market on a given day.

Supplies of crude oil and petroleum product are sold internationally and domestically through a variety of term contract arrangements and in spot transactions. Crude oil and petroleum products are also traded on futures markets like NYMEX and ICE.

MAJOR EVENTS IMPACTING ON CRUDE OIL PRICES: TAPIS CRUDE OIL - CENTS PER LITRE (\$A)





THE LINK BETWEEN INTERNATIONAL AND AUSTRALIAN PRICES

There is a close relationship between international fuel prices and Australian wholesale and retail fuel prices, as verified by the ACCC.

To meet Australian demand, around 55% of petroleum products are imported, mostly from Asia. Singapore is the regional refining, distribution and trading centre and among the world's largest.

Singapore prices are the key pricing benchmarks for Australia because they represent the competitive alternative for supply to Australia. Benchmark prices are adjusted by a negotiated quality premium that reflects Australian fuel standards.

GROWTH IN DEMAND FOR FUEL IN AUSTRALIA IS LIKELY TO CONTINUE TO BE LARGELY MET BY IMPORTS, FURTHER STRENGTHENING THE PRICE RELATIONSHIP WITH ASIAN FUEL PRICES

Australian refiners must price their fuel products to be competitive with fuel imports from Asia —called 'import parity' pricing.

If Australian fuel prices were below Singapore prices, Australian fuel suppliers would have no commercial incentive to import the fuel needed here because sales of that fuel would incur losses. In addition, Australian refiners would have an incentive to export production.

As the Singapore benchmark prices for fuel are quoted in US\$ per barrel terms, their price in Australian dollar terms also reflects movements in the US\$/A\$ exchange rate. This means that exchange rate movements can offset or magnify changes in Singapore fuel prices.

The Singapore market price for fuel plus shipping costs, Australian taxes and the exchange rate — called the refined product cost — represents over 90 per cent of the retail price of fuel in Australia.

Overall market and fuel price transparency in Australia is assisted by data published by AIP and member companies. The ACCC also formally monitors fuel prices in Australia and publishes a report quarterly.

The Singapore to wholesale price lag

Generally, there is a time lag of one to two weeks between changes in international (Singapore) prices and changes in Australian wholesale prices.

Importantly, this time lag occurs whether prices are going up (when the lag slows price rises to consumers) or prices are going down (when the lag delays price falls).

The lag is a result of using a rolling average of Singapore prices as part of the wholesale pricing methodologies of companies — very similar to that used by the ACCC when wholesale prices were government regulated. The pricing methodology is called import parity pricing or IPP.

According to the ACCC, this time lag can be longer during times of significant volatility in international prices.

PETROL PRICE TRENDS

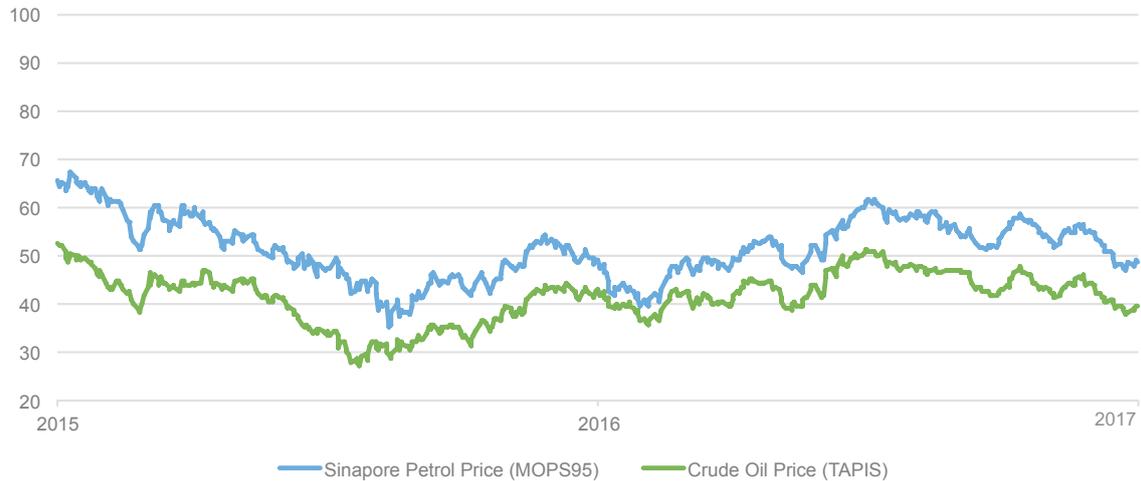
These charts provide a snapshot of the movements in the key market prices relevant to the price of petrol in Australia.

- CRUDE OIL PRICE (TAPIS)
- SINGAPORE PETROL PRICE (MOPS95)
- MOPS95 PLUS SHIPPING AND TAXES
- AUSTRALIAN TERMINAL GATE PRICE (TGP)
- AUSTRALIAN PUMP PRICE
- GROSS MARGIN

The 'margin' shown in these charts is the difference between two market prices or benchmarks and is used to highlight trends within a specific market or market segment. It is a 'gross margin' and does not represent profits in the market nor take account of the range of relevant costs.

INTERNATIONAL MARKET TRENDS: 2015/16 - 2016/17

Cents per Litre (A\$)



INTERNATIONAL MARKET TRENDS: 2015/16 - 2016/17 GROSS MARGIN

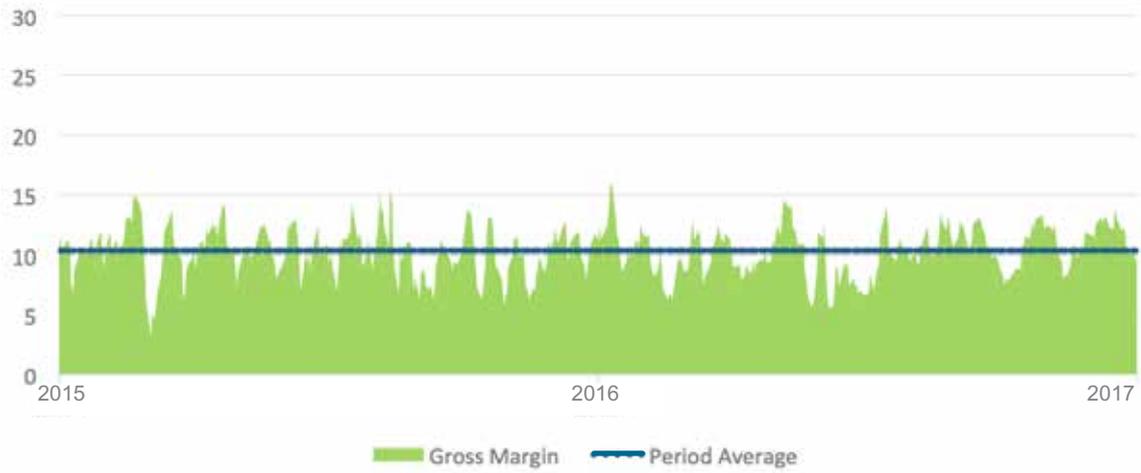


WHOLESALE MARKET TRENDS: 2015/16 - 2016/17

Cents per Litre (A\$)

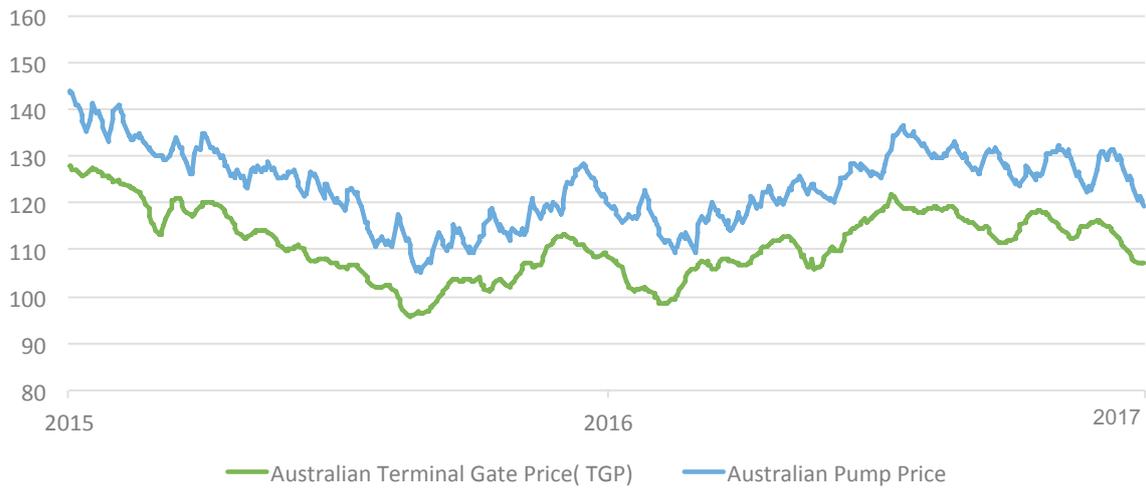


WHOLESALE MARKET TRENDS: 2015/16 - 2016/17
GROSS MARGIN

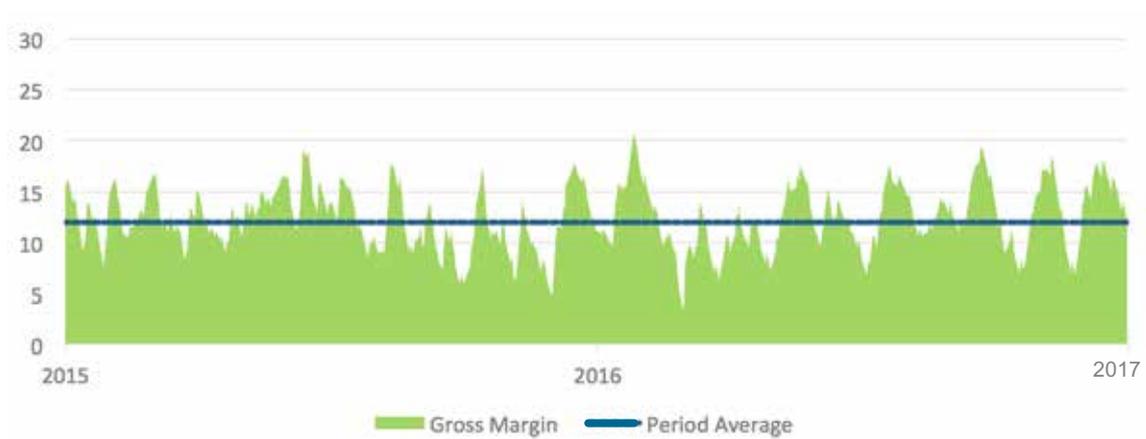


RETAIL MARKET TRENDS: 2015/16 - 2016/17

Cents per Litre (A\$)



RETAIL MARKET TRENDS: 2015/16 - 2016/17
GROSS MARGIN



THE AUSTRALIAN WHOLESALE FUELS MARKET AND PRICES



KEY MESSAGES

- Australian wholesale fuel prices are transparent and linked to international prices.
- Over 90 per cent of the wholesale fuel price is refined product cost plus Government tax.
- There is significant wholesale market competition in Australia.
- There is competition for bulk fuel supply both 'into terminal' and 'ex-terminal' to wholesalers, resellers, retailers and other major fuel users.
- The underlying pricing approaches in bulk fuel contracts and TGP transactions are generally the same for all wholesale customers.
- Changing market shares and profitability of major fuel suppliers over time, including refiner-marketers and independent suppliers, demonstrates a competitive market.
- Independent fuel importers and wholesalers now own the same import storage capacity for petrol as the major oil companies.
- Petrol imports by independent wholesalers have increased six -fold since 2007-08 according to the ACCC.

WHOLESALE FUEL PRICES

Australian wholesale fuel prices are closely linked to international prices through Import Parity Pricing (IPP).

The IPP is the 'landed cost' of refined fuel to import terminals around Australia and includes:

- the refinery benchmark price for fuel (eg for petrol - MOPS95 petrol),
- the 'quality premium' for specific Australian fuel standards,
- freight,
- exchange rate, and
- wharfage, insurance and loss.

Terminal Gate Prices (TGP or spot wholesale prices) typically include the IPP as well as 'wholesaling costs' to store and handle the fuel once it arrives in Australia and prior to its distribution to the domestic market. TGP also include taxes (fuel excise and GST) and a small wholesale profit margin.

Wholesale price transparency in the Australian market is assisted by the regulated publication of TGP for petrol and diesel by all AIP member companies. The ACCC has concluded that "by virtue of its transparency and the fact that it represents a fuel-only charge, TGP is a useful benchmark for analysing wholesale prices".

ACCC analysis shows wholesale prices paid by customers vary slightly from TGP. In 2013-14, the average difference was 0.7 cent per litre. Differences are explained by volume discounts applying to contracted customers and large orders, or charges for additional services as part of the transaction like delivery costs and use of proprietary brands.

According to the ACCC, the average annual net profit for the wholesale sector over the last 12 years was 0.3 cents per litre for petrol and 1.7 cents per litre across all fuels.

AVERAGE WHOLESALE PRICES PAID VERSUS AVERAGE TERMINAL GATE PRICES (TGP)

2011-12 to 2013-14 ULP, Cents Per Litre



Source: ACCC

IMPORT PARITY PRICING (IPP)

The ACCC has concluded that the IPP benchmark has a strong relationship with actual costs of fuel imports into Australia.

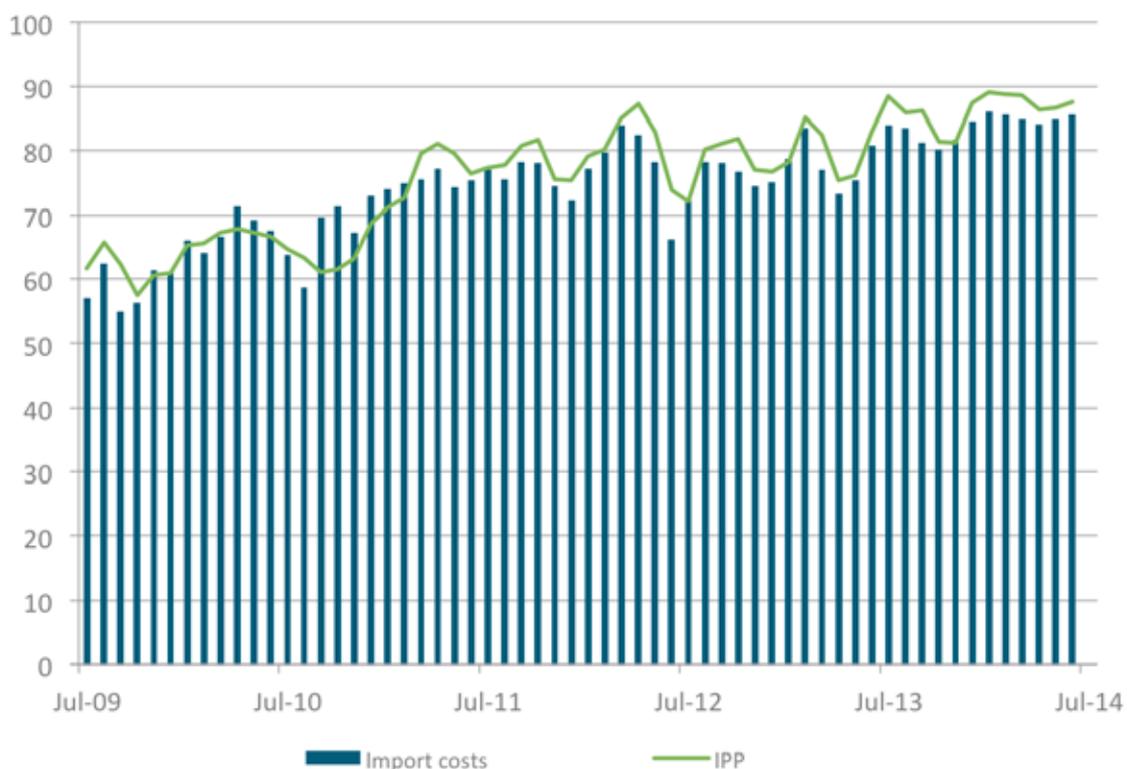
ACCC analysis shows that the actual import costs paid by major fuel suppliers have closely followed the IPP over the past three years, with the difference averaging around 2.6 cents per litre.

With imports providing the marginal source of supply and with prices set according to IPP, the ACCC considers Australian refiners (and suppliers) have little scope to pass on costs that are out of line with international markers.



IPP VERSUS IMPORT COSTS PAID BY WHOLESALE FUEL SUPPLIERS

2009-10 to 2013-14, ULP Cents per litre



Source: ACCC

FACTS ABOUT BULK FUEL TERMINALS

Bulk fuel terminals are large storage facilities from which bulk fuel is stored and distributed to wholesalers, retailers, distributors and large end-users. These may be import terminals, refinery terminals, marketing terminals or depots.

The bulk fuels market in Australia is highly competitive and efficient, with diversified ownership and operation of bulk fuel terminals, and with prices and contracts being market determined.

Terminals can be owned and/or operated by:

- refiner-marketers (including joint ventures),
- independent fuel importers,
- independent terminal operators, and
- large end users.

Import Terminals - Ownership: 2013-14

Refiner Marketers:

- Sole Ownership	41
- Joint Venture	3

Independent 14

Total 58

SOURCE: ACCC

Other parties may access terminals through:

- hosting arrangements to store and load product at the terminal (for a market-based usage charge on a spot or long-term basis), and
- leasing of storage capacity (typically long-term agreements based on a commercial return on capital and operating costs).

For economic and cost efficiency reasons, refiners, major fuel suppliers and independents often buy bulk fuel from each other in markets where they do not own facilities or where they do not directly import through hosting arrangements.

Terminal capacity and throughput are two key measures of terminal usage.

The key determinants of terminal capacity are the operating conditions that apply at individual terminals and in the supply network, including the number and size of tanks, demand patterns, mode of supply and related infrastructure, shipping schedules, berth capacity and load-out facilities.

Similarly, throughput depends on a range of factors such as demand patterns, shipping and delivery schedules and loading, storage and supply capacity.



Import Terminals - Petrol capacity and throughput: 2013-14

	Capacity (ML)	Throughput (ML)	Turnover (times)
Independently Owned	337	1965	6
Refiner-Marketer Owned	280	2446	9
AUSTRALIA	617	4411	7

SOURCE: ACCC

Fuel sales into and out of terminals

Contracts for sales of fuel 'into' terminals, whether from domestic or international sources, are based on import parity pricing (IPP).

Sales of fuel 'from' terminals are negotiated on commercial terms mainly to contracted wholesale and retail customers, and wholesale prices are based on IPP.

Terminal operators seek to recover the terminal's capital and operating costs including taxes and other charges. Discounts or premiums may apply to customers depending on the volume, contract term, and any branding or marketing support provided.

Spot purchases occur at terminal gate prices (TGPs) which are also based on IPP.

IMPORT AND INFRASTRUCTURE ADEQUACY AND COMPETITION ISSUES

Australia's petroleum import and distribution infrastructure is a key component of the Australian fuel supply chain and is underpinned by considerable investment in new and existing facilities. Over a number of years, major independent and government reviews have concluded that:

- significant investment in new or expanded facilities has been occurring and more is under construction or planned,
- there is spare capacity to meet future demand and import growth for fuels, particularly in some independently owned import terminals, and
- there are a range of economic options in Asia to import fuel currently meeting Australian quality standards.

THIS INVESTMENT ENVIRONMENT WILL ENSURE ONGOING FUEL SUPPLY SECURITY AND COMPETITIVE FUEL PRICES TO CONSUMERS AND MAJOR FUEL USERS.

There is no regulated access for third parties to bulk fuel terminals and distribution infrastructure as there is significant spare capacity in the bulk fuels market. Access is readily available on commercial terms (through leasing, hosting and usage charges).

Applying access regulation to this privately owned infrastructure would seriously reduce incentives to invest in new infrastructure and maintenance, and would increase the costs of fuel supply to business and consumers. Australia's future supply security would be impacted because more investment in terminals would be needed to meet future demand and a higher level of imports.

AIP supports reforms to ensure that planning, approval and regulatory processes are efficient, timely and nationally consistent, so as to facilitate longer term investment in liquid fuel import, storage and distribution infrastructure. There is also an ongoing need for governments (and private port operators) to maintain investment in port and channel facilities and associated fuel handling infrastructure to remove supply bottlenecks and to meet future expected growth in fuel imports and demand.



THE AUSTRALIAN RETAIL FUELS MARKET



KEY MESSAGES

- The retail fuel market is highly dynamic and competitive.
- Australian retail fuel prices are closely linked to international prices.
- Australia has among the lowest retail fuel prices in the OECD, providing the domestic economy with a competitive advantage.
- A majority of consumers utilise the retail petrol price cycle in capital cities to purchase heavily discounted fuel; ACCC analysis shows retail price movements around public holidays are similar to those at other times.
- Prices can vary greatly between regional towns due to their differing competitive and economic characteristics as highlighted in the various ACCC regional studies.
- The ACCC has shown that industry profits are a very small proportion of the retail price (profit over the last decade has averaged 1.8 cents per litre of fuel sold).
- Major supermarkets and independent operators have the majority share of the Australian retail fuels market.

PRICES AND TAXES

In 2016 and 2017 Australia continued to have among the lowest retail petrol and diesel prices in the OECD. In today's dollar terms, retail petrol prices are lower than they were in the 1980s and represent a smaller proportion of the average household consumer budget than ever before.



The ACCC considers that Australian retail fuel prices are highly competitive. Retail fuel prices apply to almost half of the fuel sold in Australia. The remainder of sales are under competitive tenders to commercial, industrial and agricultural buyers.

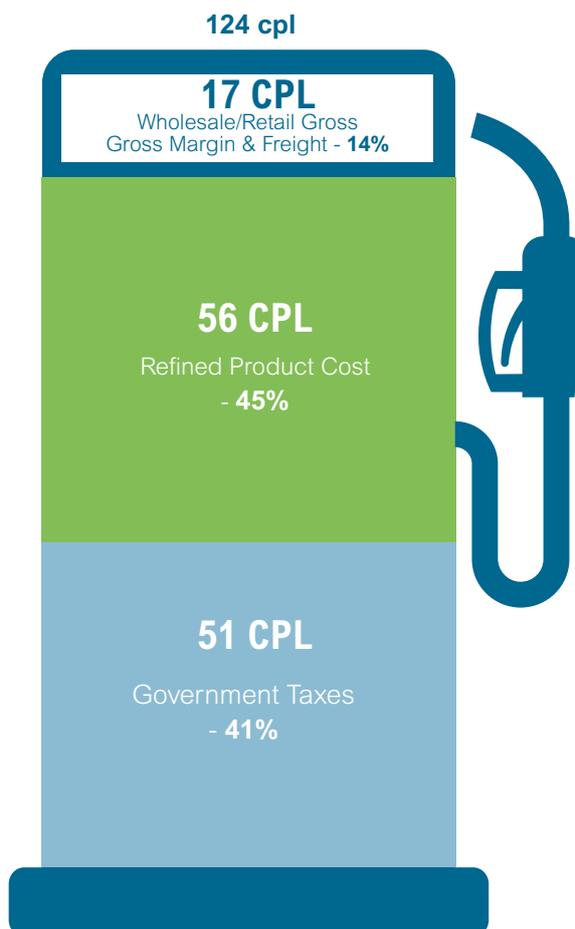
The components of the national average retail petrol price highlight the small proportion of the final price received by fuel wholesalers and retailers. In 2015-16, the tax component (GST and fuel excise) of the final price of petrol averaged about 41 per cent or 50 cents per litre.

ACCORDING TO THE ACCC, “PETROL INDUSTRY COSTS ARE DOMINATED BY REFINED INTERNATIONAL BENCHMARK PRICES AND TAXES”

AIP member companies make payments to the Australian Government (from fuel excise, GST on fuels and income tax) typically over \$20 billion per annum. Fuel excise payments of \$18 billion provided around 5 per cent of taxation revenue to the Australian Government in 2015-16.

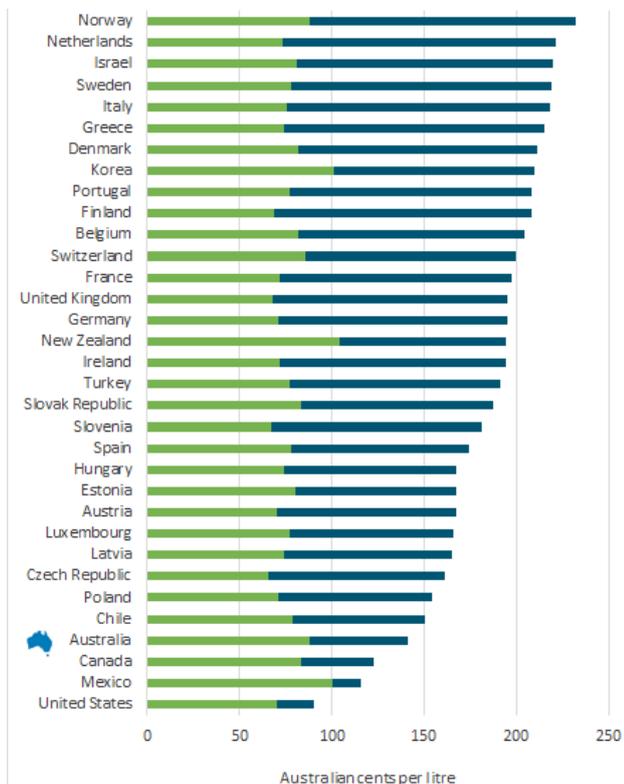
RETAIL PETROL PRICE COMPONENTS:

National Average 2016-17



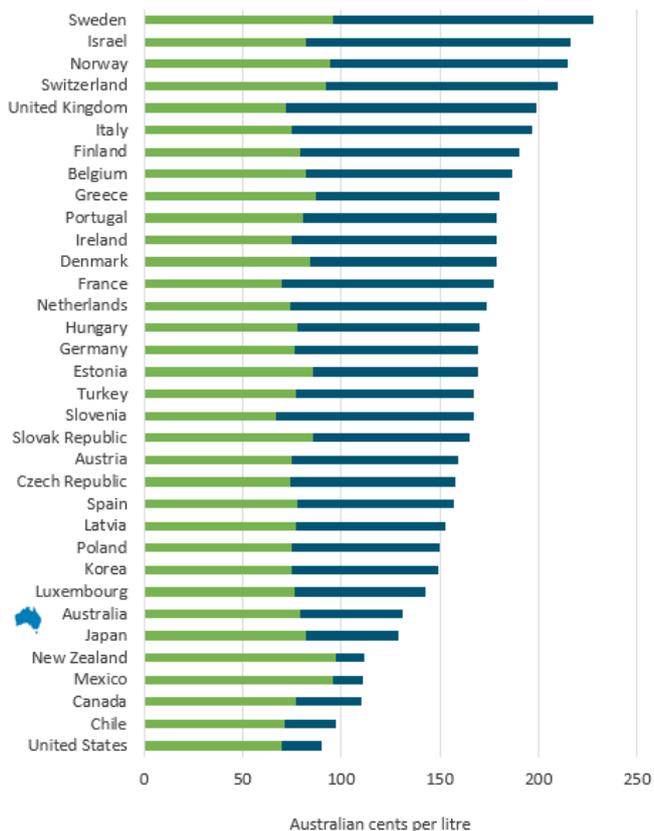
PETROL PRICES AND TAXES IN OECD COUNTRIES

March Quarter 2017



DIESEL PRICES AND TAXES IN OECD COUNTRIES

March Quarter 2017



■ Tax Component

Source: Australian Petroleum Statistics

THE RETAIL MARKET

Retail market share

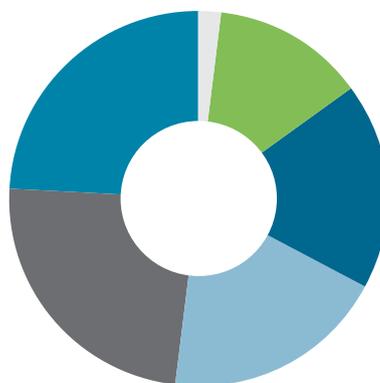
The supermarket alliances and independent operators account for around two-thirds of the retail petrol market. Since 2002-03, the major brands (BP, Caltex, Mobil & Shell) share of retail operations has declined from 83 per cent to 33 per cent.

- Shell 2%
- BP 13%
- Caltex 18%
- Independents 19%
- Coles Express 24%
- Woolworths 24%

SOURCE: ACCC

PETROL VOLUME SOLD BY BRAND:

2013-14

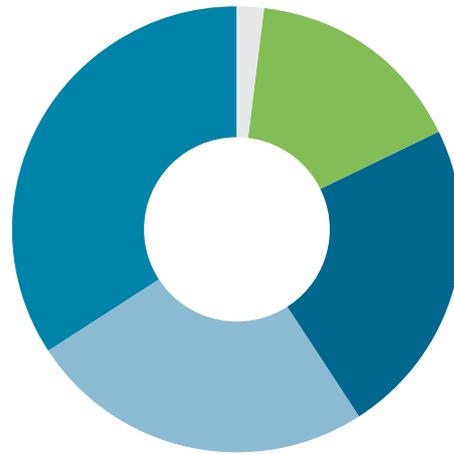


The retail business and operators

The structure of the retail market continues to evolve. The number of retail sites has decreased from around 20,000 sites in 1970 to around 7,000 in 2017, but the ACCC has concluded that consolidation of retail sites plateaued since the mid-2000s. Most sites now sell larger volumes of fuel and rely more on convenience store sales. The major oil company brands now directly operate and set the prices at only 16 per cent of retail sites across Australia.

- Refiner Franchisees - 2%
- Refiner Marketers - 16%
- Independents - 23%
- Supermarkets - 25%
- Branded Independents - 34%

WHO SETS RETAIL PRICES 2013-14



SOURCE: ACCC

MARKET TRANSPARENCY AND CONSUMER INFORMATION

In recent years, the retail fuels market has become increasingly transparent due to a range of initiatives by AIP and the ACCC including:

- Detailed weekly pricing data provided on the AIP website,
- ACCC price monitoring,
- ACCC quarterly and annual reports and Regional Market Studies, and
- Price reporting on television and in print media.

This information has empowered consumers through a better understanding of daily pricing as well as retail price cycles. Price cycles occur as a result of the pricing policies of fuel retailers. This allows consumers to take advantage of the bottom of the cycle to buy cheaper fuel which is often sold at or below the wholesale cost price.

In addition to these initiatives, there is an expanding range of third party services and IT applications that builds on this information by providing real time and personalised price comparisons.

These include commercial applications such as MotorMouth and GasBuddy, along with regulated approaches such as FuelCheck in New South Wales. AIP contends that given the constant evolution and innovation of the various commercial offerings, Government intervention, such as in New South Wales, is unwarranted and simply imposes significant costs on the industry without commensurate consumer benefit beyond that already freely available in the market place.

The display of highly visible price boards at service station sites also enables consumers to make quick price comparisons on the road if they are not using information technology.

In three States - Victoria, South Australia and Queensland - a uniform approach to price board regulations has provided motorists with consistent information for price comparison purposes and without unduly increasing costs for the industry and therefore motorists. Tasmania and the Northern Territory are adopting a similar approach to these States.

AIP supports these ongoing developments that support further market transparency and encourages consumers to utilise this information to make timely and well informed purchasing decisions in their local area.

ENVIRONMENT, HEALTH AND SAFETY



KEY MESSAGES

- AIP and its member companies are committed to safe and environmentally sound practices in their operations. AIP member companies in Australia share the general community concern for conservation of the environment, and seek to protect air, water and soil from contamination through their operations.
- In this commitment to safety and the environment, their aim is to:
 - achieve a zero accident/harm rate,
 - treat with care all materials that may cause pollution,
 - regularly maintain their refinery, terminal and retail infrastructure to comply with various Federal and State regulations,
 - maintain open communications with governments and local communities, and
 - support market mechanisms for conservation and wise use of our valuable energy resources.
- Some of the programs contributing to these objectives are the AMOSC oil spill response centre, the CRC CARE research program, the petroleum industry Health Watch program, production and supply of low aromatic fuels, and lubricants waste management and recycling programs.



HEALTH WATCH

For over 36 years AIP has sponsored an epidemiological study called Health Watch which tracks the health of over 20,000 past and present employees of the Australian petroleum industry.

HEALTH WATCH INFORMATION IS IMPORTANT IN IDENTIFYING FACTORS THAT MAY BE A HEALTH RISK TO INDUSTRY EMPLOYEES AND WAYS IN WHICH THESE RISKS MAY BE ADDRESSED.

Health Watch is an independent university-based research program, currently conducted by the Monash Centre for Occupational and Environmental Health, a leading international centre for epidemiological research at Monash University.

Health Watch is highly valued by petroleum companies and their employees and is an internationally respected study. Recently the study was expanded to provide new employees in participating company worksites across Australia the opportunity to join, which expanded the Health Watch cohort by 2,000 employees.

The study's findings are published in regular Health Watch reports. Overall, the reports have clearly and consistently shown that petroleum industry employees represented in Health Watch have better health than the general community.

The latest Health Watch Report (14th) published in late 2013 builds on the results of the preceding thirteen reports in demonstrating that:

- the chance of developing most types of cancer is no different for men and women in this industry compared with other Australians
- the overall cancer death rates in the industry workforce are significantly (30%) lower than in the general Australian population

- the death rate is lower for men in all major disease categories: heart disease (25% lower), cancer (20% lower), respiratory disease (30% lower), diseases of the digestive system (40% lower) and external causes like accidents (40% lower)
- the chances of dying or of getting cancer or heart disease are very similar no matter where Health Watch members worked, including refineries, terminal and distribution worksites and upstream production sites.

However, three cancers among men – prostate cancer, mesothelioma and melanoma are occurring at statistically significantly higher rates than in the general population, and will continue to be closely monitored:

- there are more cases of prostate cancer in Health Watch than expected, but death rates for prostate cancer are the same as the general population, suggesting effective early screening and treatment for this cancer
- there are 39 mesothelioma cases, largely in refinery workers who were hired before 1980, and some may have had asbestos exposure outside the petroleum industry
- there are higher rates of melanoma but this is not related to duration of employment which suggests it may not be associated with employment in the petroleum industry.

Health Watch also analyses the powerful effects of lifestyle on the health of industry employees:

- it is estimated that smoking has played a part in about 40% of the deaths among Health Watch members, but quitting smoking noticeably reduces the risks, and
- low to moderate drinkers have lower overall death rates than total abstainers, but heavy drinking (7+ drinks per day) remains associated with increased overall mortality.

For more information on the 14th Health Watch Report see:

www.aip.com.au/health/ohs.htm

The 15th Health Watch Report will be released early in 2018.



CRC CARE

AIP is a foundation participant of the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE). CRC CARE undertakes innovative, cutting edge research aimed at preventing, assessing and remediating contamination of soil, water and air. CRC CARE is delivering research outcomes that underpin policy development work, numerous technology patents and techniques, and extensive academic and industry training.

The research is divided into four complementary programs:

- 1. Best practice policy:** More effective, efficient and certain national policy for assessing and remediating contamination,
- 2. Better measurement:** More accurate, rapid, reliable and cost-effective measurement and assessment,
- 3. Minimising uncertainty in risk assessment:** New technology, methods and knowledge for assessing risks to human health and the environment, and
- 4. Cleaning up:** Innovative clean-up technologies and a wider range of effective management options.

AIP'S KEY FOCUS RELATES TO BOTH THE DEVELOPMENT OF THE NATIONAL REMEDIATION FRAMEWORK (NRF) AND THE DEDICATED CRC CARE PETROLEUM RESEARCH PROGRAM



The NRF will provide regulators and practitioners with practical remediation guidance to complement the National Environment Protection (Assessment of Site Contamination) Measure.

It is expected that the NRF will facilitate more effective and efficient site remediation where appropriate for the downstream petroleum industry. The success of the NRF will rely on the development of a clear pathway to adoption by regulatory agencies.

The Petroleum Research Program involves collaboration between industry, researchers and environmental regulators to develop best practice, risk based approaches to remediation of soil and groundwater contaminated by hydrocarbons. The program provides for the development of guidance documents relating to site characterisation, health screening levels for petroleum hydrocarbons, monitored natural attenuation, light non-aqueous phase liquid (LNAPL) remediation, and petroleum vapour intrusion.

CRC CARE is also leading a project on the assessment, management and remediation of perfluorooctanesulfonate (PFOS) and perfluorooctanoic acid (PFOA). These perfluorochemicals have historically been used to improve the ability of fire-fighting foam to smother fire. The project will not only develop comprehensive guidance documents for site assessment and remediation in relation to PFOS and PFOA, but CRC Care has developed a proven on-site solution called matCare that removes aqueous film forming foams from contaminated soil and wastewater.

OIL SPILL RESPONSE

Each of the companies involved in petroleum exploration and production, and in refining and distribution of petroleum products, has major programs in place to minimise the risk of a marine oil spill.

COMPANY PERSONNEL ARE ALSO TRAINED TO RESPOND TO ANY OIL SPILL SO AS TO MINIMISE ANY ENVIRONMENTAL IMPACT.



AMOSC's primary roles are to:

- provide equipment and personnel on a 24-hour basis to support a major oil spill response,
- maintain petroleum industry stockpiles of equipment for use in a response to a major oil spill,
- maintain the Australian petroleum industry Subsea First Response Toolkit,
- maintain and support petroleum industry capability to respond to oiled wildlife during an oil spill response,
- coordinate Australian petroleum industry mutual aid arrangements for oil spill response, and
- train, accredit and maintain a core group of spill response personnel.

These company specific petroleum industry activities are supported and supplemented by the Australian Marine Oil Spill Centre (AMOSC), a wholly owned subsidiary of AIP set up in 1991. AMOSC has offices at Geelong, Victoria and Perth and Fremantle, WA.

AMOSC also provides a range of ancillary services and advice to the petroleum and shipping industries, and to governments in Australia and in the South Pacific region on:

- oil spill response plans,
- selection and management of oil spill response equipment, including short term equipment hire,
- operational and strategic advice on oil spill response matters, and
- access to international oil spill response providers and petroleum industry spill response networks.

AMOSC forms a key part of the petroleum industry's commitment to support Australia's national oil spill response arrangements, as set out in Australia's National Plan for Maritime Environmental Emergencies, in petroleum industry obligations under the Environment Protection and Biodiversity Conservation legislation, and in requirements imposed on the petroleum industry by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

AMOSC resources and services are also made available to Australian governments, through a memorandum of understanding with the Australian Maritime Safety Authority (AMSA), to support responses to oil spills from general shipping and other sources.

AMOSC has provided substantial support to all major oil spill responses in the Australasian region for many years, including the Montara oil spill off the northwest of WA, the Pacific Adventurer and Shen Neng oil spills off Queensland, the Pasha Bulker incident at Newcastle, and the Rena oil spill in New Zealand.

FUEL FOR REMOTE COMMUNITIES

Petrol sniffing continues to be a major concern in some remote communities.

Industry actively supports Government initiatives to address this concern. Since 2005, the industry has produced low aromatic fuels to be supplied to remote communities and the regions surrounding these communities. Low aromatic fuel has been designed to discourage people from sniffing by lowering the amount of the toxic aromatic components, which give people who sniff petrol a 'high'.

THERE ARE AROUND 170 RETAIL SITES ACROSS QUEENSLAND, THE NORTHERN TERRITORY, WESTERN AUSTRALIA AND SOUTH AUSTRALIA THAT SELL LOW AROMATIC FUEL.

The replacement of regular unleaded fuel with low aromatic fuel in targeted regions is a proven strategy to reduce petrol sniffing. Research by the Menzies School of Health Research has found that:

- low aromatic fuel is linked with a continuing decline in the numbers and frequency of young people sniffing petrol in remote communities;
- sniffing rates have been reduced by 88% across communities surveyed since 2005-07; and
- a comprehensive regional approach works best to reduce petrol sniffing.

AIP member companies continue to work closely with federal, state and territory governments to help tackle petrol sniffing.

WASTE MANAGEMENT AND RECYCLING

Lubricants are not completely consumed in use and result in waste oil that needs to be collected and recycled. AIP members have adopted a product stewardship role for their products and are actively supporting the collection and recycling of waste oil and its packaging.

The Australian Government has introduced a product stewardship scheme for waste oil to support recycling, funded through an excise on sales of lubricants. AIP members are also active signatories to the Australian Packaging Covenant which aims to design more sustainable packaging, increase recycling rates, and reduce packaged litter.

AIP, on behalf of its member companies, established and operated a collection and recycling program for used plastic oil containers across Australia for more than ten years. However, due to significant free rider issues where around half of all market participants did not financially contribute to the scheme, the program was closed at the end of 2016. At full scale, over 430 collection sites across Australia were maintained by VIP Packaging on behalf of AIP, with around 500 tonnes of plastic being recycled into various industrial products.

AIP remains committed to identifying a workable solution where all industry participants (beyond the four AIP members) contribute to managing this waste stream. AIP supported the listing of Used Oil Bottles on the National Product Stewardship List and expects that this process will deliver a workable solution to this waste stream.



For more information visit www.aip.com.au