

Downstream Petroleum 2009

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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 a key representative body of Australia's petroleum industry.

AIP's mission is to promote and assist in the development of a strong, internationally competitive Australian petroleum products industry, operating efficiently, economically and safely, and in harmony with environment and community standards. Through the active involvement of its members, AIP provides responsible and principled representation of the industry along with factual and

informed discussion of downstream petroleum sector issues.

As well as its policy development role, AIP also runs the Australian Marine Oil Spill Centre (AMOSOC) in Geelong that develops preventative strategies for oil spills and responds to major spills to water that may threaten the environment.

AIP encourages decisions on regulations or self regulation which are taken on a case-by-case basis in the best interests of the consumer and the industry so as to achieve excellence in standards of industry safety and product performance; and works to ensure that due diligence is maintained at all times on industry safety, occupational health and environment protection.

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Downstream Petroleum 2009 sets out key industry facts and issues impacting on the downstream petroleum sector in Australia.

The global financial crisis in 2008 had a major impact on the petroleum industry around the world. Prices fluctuated wildly, demand for liquid fuels fell significantly in industrialised economies, and petroleum product markets became oversupplied. Refining margins collapsed and petroleum refiners across the world suffered large financial losses. In Australia, the downstream petroleum sector reported a \$500 million loss in 2008.

At the same time, refinery construction across Asia continued strongly, with many countries continuing to pursue self-sufficiency in liquid fuels. Industry commentators are uncertain about the size and duration of this oversupply of petroleum products in the Asian region. This outlook creates significant challenges for an industry already, according to the ACCC, at the lower end of business profitability.

As the Australian Government recognised in its 2009 National Energy Security Assessment, liquid fuel security will decline significantly if more Australian refineries close.

Australian refineries constantly seek to improve the already high levels of efficiency of their operations. Refinery reliability and cost containment are crucial factors in sustaining commercial viability, as is avoiding unnecessary new regulatory requirements. Continuing availability of highly trained technical staff and contractors is also essential for this high technology industry.

Governments face the ongoing challenge of ensuring that policy changes do not place Australian refineries at a disadvantage compared to their competitors in Asia. For example, under any new carbon policy regime, emissions intensive trade exposed industries such as the petroleum refining industry must be clearly recognised as requiring special consideration to maintain a level playing field until such time as competitors in other countries are subject to similar carbon costs. Certainty about regulatory and taxation regimes will also be essential to ensure that liquid fuel production and distribution investments remain viable.

The complexity and volatility of the international and national liquid fuels market has created community uncertainty about whether liquid fuels are competitively supplied to Australian consumers. Since 2007, the ACCC has undertaken comprehensive analyses of the operation of the Australian fuels markets and prices to consumers.

In its 2009 fuel price monitoring report, the ACCC concluded that the Australian downstream petroleum industry has met its obligations under the Trade Practices Act, and confirmed the competitive, market-driven nature of the industry including:

- wholesale and retail fuel prices in Australia closely follow international prices and are amongst the lowest in industrialised countries
- the long established import parity pricing (IPP) and benchmarks are consistent with, and reflective of, the market
- consumers benefit from the ability of refiners to buy and sell bulk fuel to/from each other; there are also supply security benefits
- independently owned fuel terminals have considerable and increasing spare capacity accessible to independent fuel importers
- more petrol is sold on the cheaper days in the price cycle and price movements around public holidays are similar to those at other times.

For the foreseeable future, the reliable supply of liquid fuels will be fundamental for almost all industries that underpin the strength of the Australian economy. Alternative fuels can have a role in the liquid fuels market, provided consumers are satisfied that these fuels can reliably meet vehicle operability and environmental expectations, and that they are cost competitive with conventional fuels.

The downstream petroleum industry expects to be able to continue to provide Australia with secure and reliable liquid fuel supplies, largely from Australian based refineries, if a free market environment and level playing field continues.

Glenn Henson
Chairman, AIP

Key messages

- The Australian refining industry is a price taker in the Asia–Pacific region. Profits are related to Singapore product prices less crude oil costs.
- Australian refineries are smaller than regional competitors and must be more efficient to compete.
- The Asia–Pacific region has moved to a supply surplus due to increased supply from new refineries and suppressed demand as a result of the global financial crisis.
- Imports increased in 2008–09 to meet the growing gap between flat domestic refinery production and increasing demand.
- Variations in demand and the subsequent impacts of the global financial crisis have led to large fluctuations in crude oil and petroleum product prices.
- The Australian downstream petroleum industry has an excellent record over recent decades of ensuring reliable supplies. Regulatory measures to address perceived security of supply issues would prove counter-productive.

Petroleum refining in Australia

In 2008–09, domestic refineries supplied around 78 per cent of petroleum products required by major industries and the fuel distribution network of around 5500 service stations. The reliability of the fuel supply system is high given the unique logistical 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.

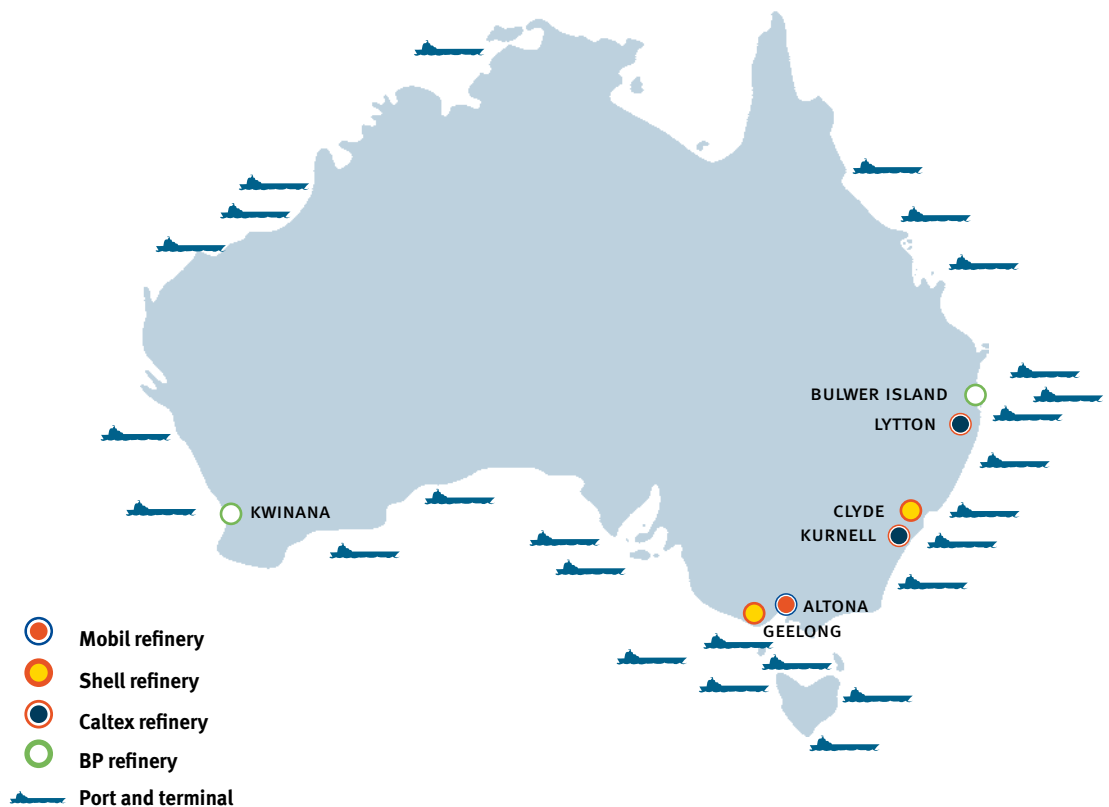
The Australian oil refining industry produces a range of petroleum products comprising:

- petrol (43%)
- diesel (31%)
- jet fuel (14%)
- fuel oil (2%)
- LPG (4%)
- other products (6%).

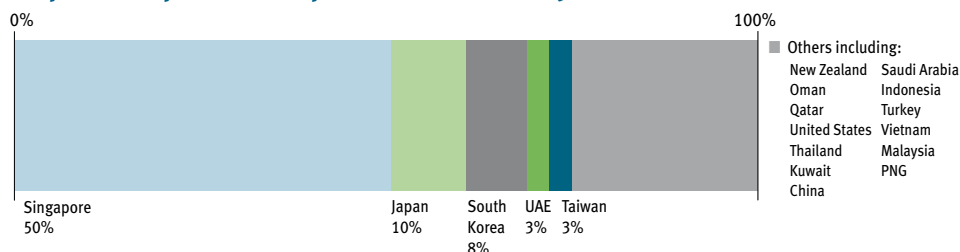
It also produces a substantial volume of chemical feedstock.

In 2008–09 Australia consumed 50 600 megalitres (ML) of petroleum products. Australian refineries produced 39 500 ML, of which around three per cent was exported (excluding LPG). Net imports accounted for 22 per cent (or 12 300 ML) of total consumption. A proportion of this imported volume was supplied to northern and north western areas of Australia where domestic refineries generally are unable to competitively supply market needs. Import terminals are located throughout Australia. The bulk of imported petrol was from Singapore.

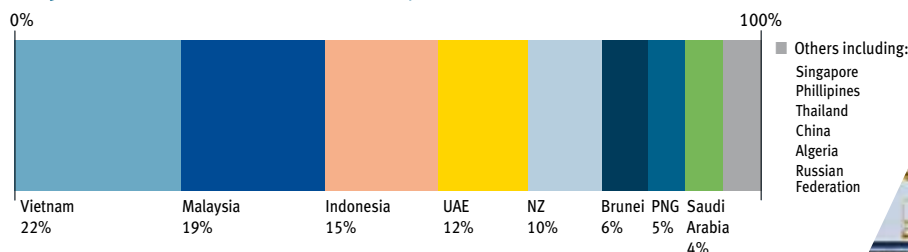
While Australia has substantial crude oil production, around 60 per cent of this oil was exported in 2008–09. Crude oils required to meet the product demand mix in Australia were imported by domestic refineries mainly from Asia (85%) and the Middle East.



Imports of petroleum products: 2008–09



Imports of crude oil: 2008–09



Australia has seven refineries that were generally constructed in the 1950s and 1960s, although they have been extensively upgraded since then, particularly during 2005 and 2006. These refineries are relatively small, with the largest having a capacity of 8300 megalitres per year (ML pa), compared with the four largest Asian refineries which produce between 30 000 ML pa and 70 000 ML pa.

Australian refineries must price their output to be competitive with imports (i.e. import parity) from the Asia–Pacific region. There is no tariff protection and all seaboard capitals have product import facilities. 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 Asian refiners. In future, the growth in demand in Australia will continue to be largely met by imports, further strengthening the price relationship with Asian product prices.

The demand for petroleum products in Australia was around 50 600 ML in 2008–09 (or around 139 ML per day – a 2 per cent increase since 2006–07).

Australian refineries

Refinery	Capacity: (ML pa)
Bulwer Island (BP—Brisbane)	5910
Lytton (Caltex—Brisbane)	6300
Clyde (Shell—Sydney)	4740
Kurnell (Caltex—Sydney)	7810
Altona (Mobil—Melbourne)	4640
Geelong (Shell—Geelong)	6530
Kwinana (BP—Kwinana, WA)	8280
Total	44 210

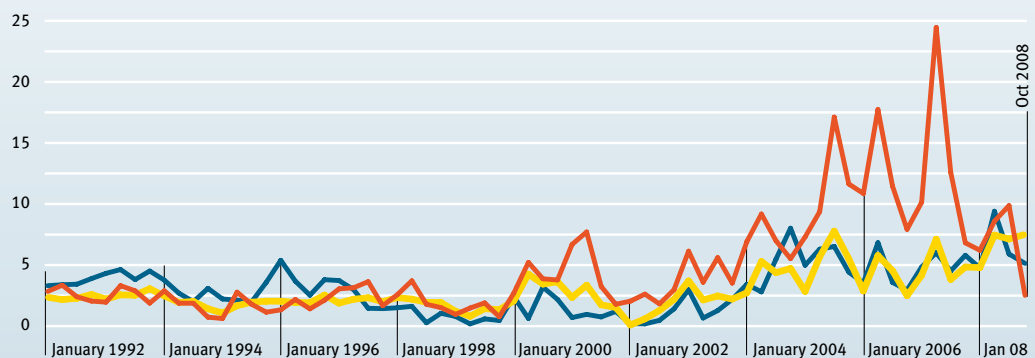
Refinery capacity has increased by 3.5 per cent since 2006 as a result of substantial upgrades and de-bottlenecking investments by industry.

The Mobil Port Stanvac (SA) refinery (capacity: 4520 ML pa) ceased operations in July 2003. As one of the smallest refineries in the Asia–Pacific region, it could not compete against larger regional refineries. In June 2009 Mobil announced the refinery would be demolished.

6 International refining

The global financial crisis has caused fundamental changes in the patterns of global fuel demand. The separate but interrelated fuels markets in the USA, Europe and Asia are responding in ways driven by regional market dynamics. Most markets have shifted to excess supply with many USA and European refiners responding by capacity closures and the delay, scaling back or cancellation of additional capacity construction. The impact in the Asian region has been cushioned by relatively strong economic growth in China and India, and as a result there has been substantial growth in refinery construction in the region. Since 2000, over 50 per cent of additions to global refining capacity have been in the Asian region.

World refining margins: 1992–2008



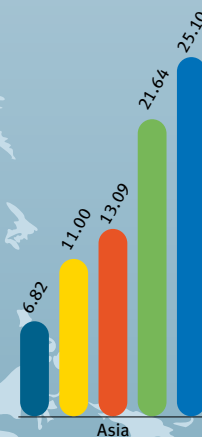
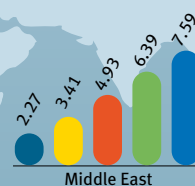
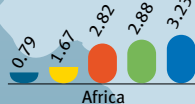
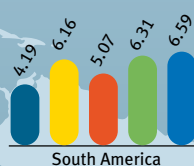
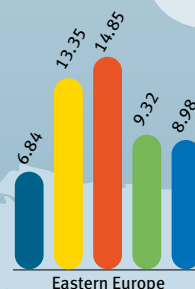
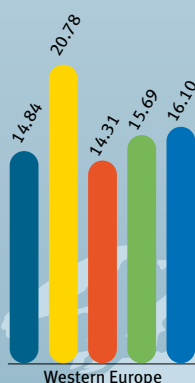
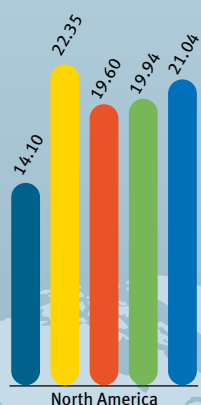
US\$ per barrel: — SINGAPORE DUBAI HYDROCRACKING — USGC WEST TEXAS SOUR COKING — NWE BRENT CRACKING
SOURCE: BP STATISTICAL REVIEW OF WORLD ENERGY, JUNE 2009

By the end of 2008, refiner margins had already fallen significantly in the USA and Asia, even though the full impact of the global financial crisis was not evident.

Refiner margins fell further in 2009, driven by declining product demand, to levels not seen since the last cyclical downturns in the late 1990s and the early 2000s. In early 2010, there were some signs that these negative margins were slowly recovering.

International forecasters such as the International Energy Agency (IEA) and FACTS Global Energy expect that refiner margins will remain under significant pressure for an extended period. For Asian refiners, margins for simple skimming refineries are forecast by FACTS to be negative out to 2020. Margins for more sophisticated cracking refineries are forecast to remain around us\$2 per barrel until 2020 (compared to margins in the range of us\$5–8 per barrel between 2004 and 2007).

World refining capacity



SOURCES:
● BP STATISTICAL REVIEW OF WORLD ENERGY, JUNE 2009
● OIL & GAS JOURNAL

Following a shortfall in supply of refined products in 2005–06, international forecasters had expected the Asian products market to return to balance around 2008 with excess supply peaking in 2015. As a result of the global financial crisis, the degree of excess supply is now expected to be greater in the shorter term out to 2012, with the subsequent duration and extent of the excess supply uncertain. Some international forecasters are suggesting this more pessimistic outlook for the Asian refined product balance points to a rationalisation of the refining industry in the major producing countries in the region.

Key factors influencing this regional outlook will be economic growth (particularly in China and India), decisions made about construction of planned new refining capacity, and any rationalisation of existing, less efficient, refining capacity.

Economic growth is the key driver of liquid fuels demand and growth in China and India has remained strong despite the global financial crisis. However, there is still significant uncertainty regarding the course of world economic growth particularly when economic stimulus packages are withdrawn globally. It appears at this stage that economic growth in the Asian region will continue to be relatively strong in the short term, notwithstanding the flow-on effects of future changes in the economies in other regions.

The course of the Asian refining industry will largely be set by supply side responses. A key factor is the level of ownership of the regional refineries by national oil companies (NOCs) or by companies with close associations with

their host government. This relationship and national development goals mean that refinery investments are likely to occur despite the weak commercial incentives. For example, China has a policy of national self-sufficiency in refining capacity and investments are expected to continue regardless of refiner margins.

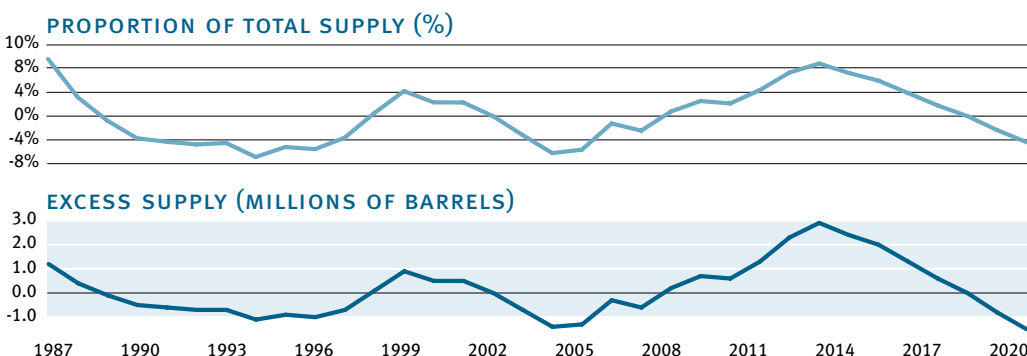
It is also likely that existing refining capacity of NOCs, which are not subject to the same commercial disciplines as privately or publicly owned refineries, will remain open despite the prospect of low refiner margins. For example, small regional refineries in China, are likely to remain open well beyond what could be justified on purely commercial factors.

Regional refiners have also been impacted by changes in the differential between the prices of light sweet and heavy sour crudes. The significant premium for light sweet crude since 2004 caused many refiners to install equipment to process heavy sour crudes. As a consequence the premium for light sweet crudes has fallen despite the general global shortage of reserves of light sweet crudes. These market reactions have improved the relative competitive position of refiners processing light sweet crudes.

On the other hand, some refineries operated by private sector companies will have little option but to close or significantly cut production runs thereby reducing their capacity utilisation. In Japan, such refineries are experiencing strong pressure to scale back operations or to close, given the significant refining over capacity and falling domestic demand for all petroleum products.

All these developments point to considerable uncertainty in the Asian region fuels market but the consensus of opinion appears to be that the outlook for refiner margins is weak for the short to medium term.

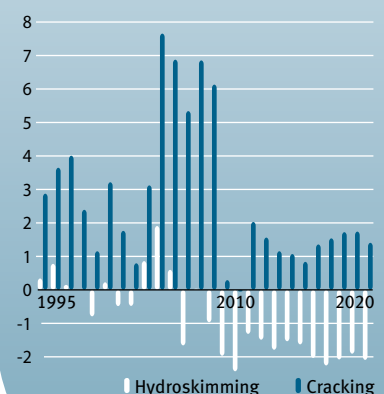
Asian excess supply capacity



SOURCE: FACTS GLOBAL ENERGY & CALTEX

Past and projected gross refining margins for Dubai Crude

SINGAPORE MARKET US\$/BBL



ACTUAL UP TO 2009 AND FORECASTS IN 2010\$ THEREAFTER
SOURCE: FACTS GLOBAL ENERGY 2009

8 Asian export production



In general, Asian refineries serve their own domestic demand with only Singapore, South Korea and Taiwan having significant export capacity. The Singapore refining complex is primarily oriented to exports. This is a key reason why Singapore is the regional hub for the liquid fuels market.

Since 2009, the Jamnagar refineries in India have been expanded to provide significant volumes for export. Other refineries in the region occasionally sell surplus production but do not view the export market as a major source of business; the Japanese refineries have traditionally been in this category.

In the past, the Chinese refining sector was a significant exporter of petrol providing Australia's independent retail sector with a large proportion of their petrol supplies. These supplies to Australia, which would no longer comply with Australian fuel quality standards, were generally lower quality, lower octane, high olefinic petrol which was augmented in Singapore with the octane enhancer MTBE.

China is now a net importer of petrol following rapid growth in domestic demand, but some recently upgraded refineries have recommenced exporting petrol and diesel.

General refinery costs

The cost of crude oil is the major input cost for refineries (over 90% according to the ACCC). Some of the other key costs for refineries include:

- crude oil shipment and storage costs
- the cost of additives, catalysts and chemicals
- capital costs/depreciation
- wages and salaries
- plant maintenance and 'outages' costs
- costs of site security and systems
- environmental protection costs
- product shipment and storage
- utilities and energy charges
- government taxes and charges.



Refinery competitiveness

Economies of scale provide a key competitive advantage in refining, with larger refineries having lower unit costs of production. Economies of scale arise from larger production runs, lower capital and labour costs per unit of production, and lower purchasing costs for greater volumes of inputs, such as crude oil and energy. In addition, newer refineries have additional efficiencies arising from newer technologies and the associated flexibility in the crude oil and product slates.

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

There are also competitive disadvantages in industrialised countries which impact on capital and operating costs of new and expanded

refinery investments. These include higher labour and construction costs as well as environmental and other regulatory constraints. Comparatively favourable taxation treatment is also provided in industrialising countries (particularly in Asia) — both for new facility construction and for substantial refinery upgrades.

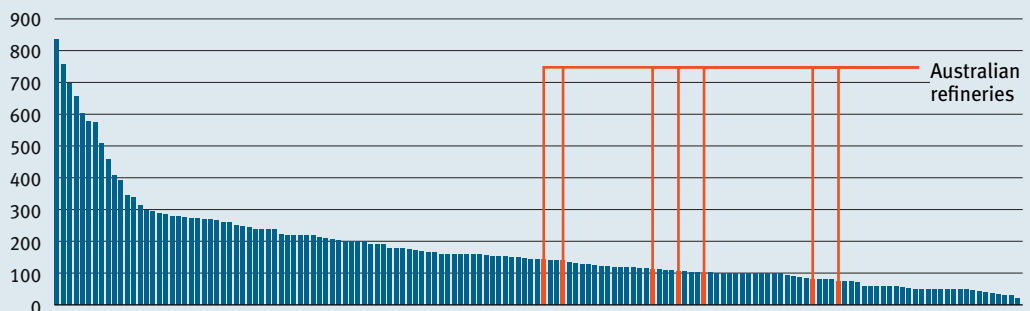
The major refineries currently under construction, or recently completed, are very large and generally in industrialising countries. For example, the Reliance refineries at Jamnagar, India have doubled capacity to nearly 70 000 ML pa (nearly twice Australia's total refining capacity). Other large projects under construction or being considered in the region have capacities ranging from 12 000 to 75 000 ML pa in China, and 25 000 ML pa in South Korea. The size of these refineries and the installation of newer technologies will make these refineries the performance benchmarks in the Asian region.



Competitiveness of Australian refineries

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. The relatively small Australian refineries offer no economies of scale benefits and as an industrialised nation, Australia offers none of the capital or operating cost benefits available in many developing countries.

Asia-Pacific refinery capacity: THOUSANDS OF BARRELS PER DAY



In addition, the taxation and investment regimes applying in Asia are highly attractive for new investment with the provision of taxation holidays, substantial investment allowances and investment facilitation.

Australian refineries have responded to these challenges by improving the efficiency of their operations through enhanced refinery reliability and cost containment. Highly trained technical staff and contractors contribute to these high levels of refinery efficiency.

The key challenge for federal, state and local governments is to ensure that their

policies do not place Australian refineries at a disadvantage compared to competitor refineries in Asia. For example, fuel pricing, charges and taxation, fuel standards and climate change policies are regulated by federal and state governments. Many environmental policies are regulated by state governments and in some cases by local governments. These policies increase the complexity of operations and raise the costs of doing business in Australia. Policy changes that further increase the complexity and cost of business will increase the comparative disadvantage of Australian refineries.

Key messages

- The Australian refining industry is part of a highly competitive global oil market. Profitability and ongoing viability will be determined by supply and demand in the Asia–Pacific refining industry. The Asian product market has moved from tight supply to increasing over-supply driven by refinery construction and depressed global demand due to the global financial crisis.
- Over the last ten years the Australian refining sector has invested over \$3 billion to meet cleaner fuels standards.
- Australian refineries face significant challenges over the next decade including:
 - increased competition from mega-refineries in Asia
 - commercial pressures for increased business efficiencies and avoidance of new costs
 - implementation of climate change policies
 - competing demand for construction services and skilled labour.
- Continued competitiveness of Australian refineries will depend on sound public policies based on efficient and competitive market principles.

Australian government policy

In addition to international and Australian market challenges, the downstream petroleum industry faces a complex policy environment regulated by federal, state and local governments.

AIP considers that a key role for government is to provide a clear, stable and consistent longer 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 Asia–Pacific region
- maintain a strong commitment to technical skills development in the Australian education system.

Government policies will have significant impacts on the commercial viability of refineries. Government policies will also impact on investor perceptions of the longer term prospects for Australian refineries.

Key policy influences on the competitiveness of the Australian refining industry are:

- fuel quality standards
- liquid fuel supply reliability and security
- alternative fuels policies
- fuel and corporate taxation
- skilled labour availability and training
- climate change policy
- environmental regulation
- competition regulation.

In each of these areas, AIP and member companies advocate policies that 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 economy and will not impact adversely on the competitiveness of the industry or liquid fuel supply security and reliability
- domestic and international markets are unable to deliver a similar outcome.



Investment and profits

Due to its capital intensive nature, the downstream petroleum industry routinely requires large and ongoing capital investment in plant and equipment to maintain safe and reliable operations.

Major milestones in the Australian Government's cleaner fuels program in 2006 meant a significant increase in capital expenditure in 2005 and 2006. Investment in plant and equipment doubled in 2005 to \$1.3 billion and continued in 2006 with a further \$1.5 billion in new investment. In 2007, investment in the Australian downstream petroleum industry was just over \$1 billion.

The large investment program continued in 2008 with the downstream petroleum industry investing \$1.6 billion – a record annual investment level by the industry. The average annual investment in plant and equipment for the industry over the five year period from 2004 to 2008 was just over \$1.2 billion.

These figures highlight the large and ongoing investments required to maintain an efficient downstream petroleum industry. In the ten years from 1999 to 2008 the industry invested \$8.6 billion. In comparison, net profits over the same period were almost \$7.8 billion on a statutory basis and just under \$7.1 billion on an underlying basis.

Over the last ten years, as a proportion of net profits on a statutory basis, investment was 110 per cent of net profits. On an underlying profitability basis, the proportion of investment to net profits was 122 per cent.

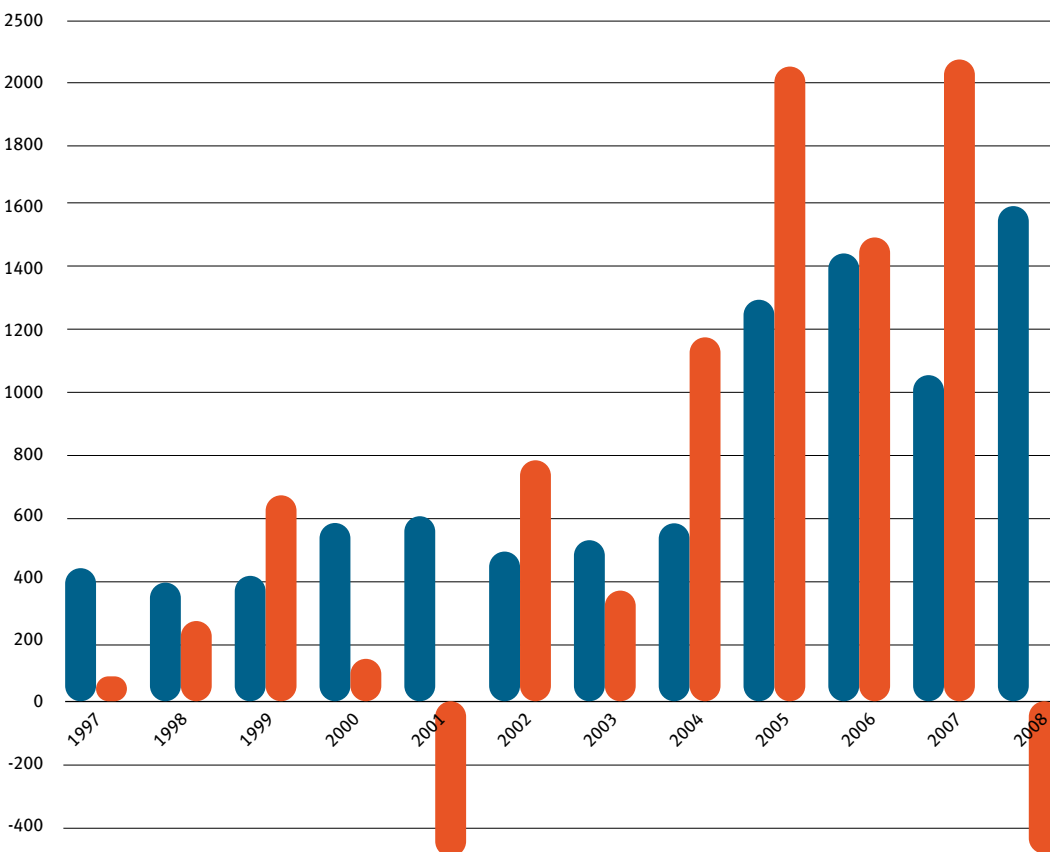
The figures for the last five years present a similar story, with the total investment from 2004 to 2008 being \$6 billion, while the net profit on a statutory basis was just below \$6.3 billion and on an underlying basis was around \$5.8 billion.

Asset value

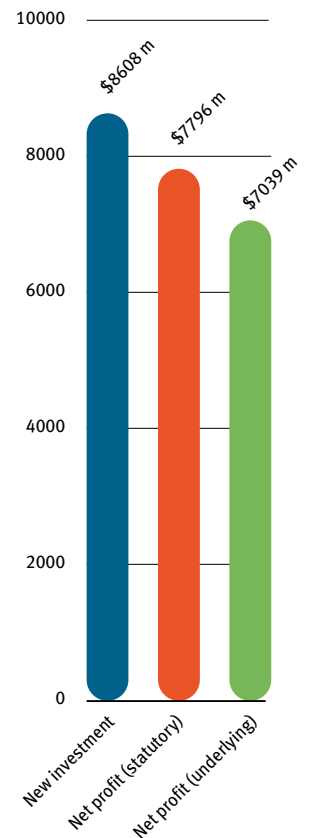
At the end of 2008 the total assets of the downstream petroleum industry were \$16.2 billion across the refining and marketing sectors. The fall in asset value, from \$19.2 billion in 2007, was caused by significantly lower inventory values and receivables at the end of 2008 as a result of falls in crude oil and petroleum product prices.

Investment and profits: \$ MILLION

Investments Profits



Downstream petroleum investment and profits: \$ MILLION (1999–2008)



12 Profitability measures

The profitability of the Australian refining sector is largely driven by the supply and demand balance in the Asian region. In this respect, there are three distinct periods of profitability for the Australian industry that match the regional supply balance. From 1993 to 1997, in a period of excess supply, five-year average returns were 7.3 per cent. With even greater levels of excess supply in the period 1998 to 2002, five-year average returns fell to 4 per cent. From 2003 to 2007, five-year average returns were 12.2 per cent reflecting a period of excess regional demand. The global financial crisis resulted in a return of 1.2 per cent in 2008.

The structural shift back to excess supply in the Asian region and the fall off in demand growth in the Asian region in 2008 combined to cause the worst financial result for Australian downstream petroleum since 2001. The industry lost \$382 million (EBIT on a statutory basis). The loss in 2001 on the same measure was \$582 million. The industry net profit after tax for 2008 was a loss of \$496 million. The net profit position of the industry fell by over \$2.5 billion in 2008.

The poor results were mainly caused by the large fall in the Australian dollar, resulting in significantly increased crude oil prices to Australian refineries.

The contribution of stock losses was a relatively small factor. Large falls in crude oil and product prices in 2008 led to total stock losses of \$612 million. In 2008 there was a small underlying profit of \$218 million on an EBIT basis. The underlying return was 1.2 per cent which compares unfavourably to average returns of 12.2 per cent between 2003 and 2007, and average returns of 4 per cent between 1998 and 2002. The 2008 result was well below the long term bond rate of around 6 per cent over the decade.

The cyclical nature and the ongoing challenges to the Australian downstream petroleum industry are further demonstrated by comparative industry profitability analysis. The Australian Competition and Consumer Commission (ACCC) (*Monitoring of the Australian Petroleum Industry, December 2009*) reported relative profitability of key Australian industries between 2002–03 and 2008–09.

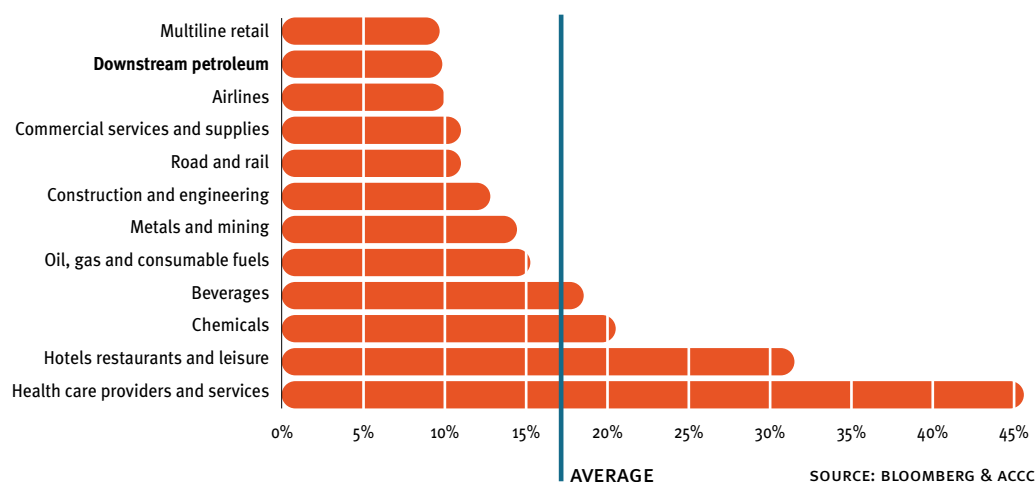
The ACCC noted that the Australian downstream petroleum industry return on assets was less than 10 per cent. This was comparable to returns in the airline and multi line retail sectors. In comparison, health care sector returns were 45 per cent and hotels and leisure sector returns were 33 per cent.

The ACCC also reported relative profitability of the refining, wholesale and retail components of the petroleum industry compared to similar components of other key industries. Over the same period the ACCC noted that:

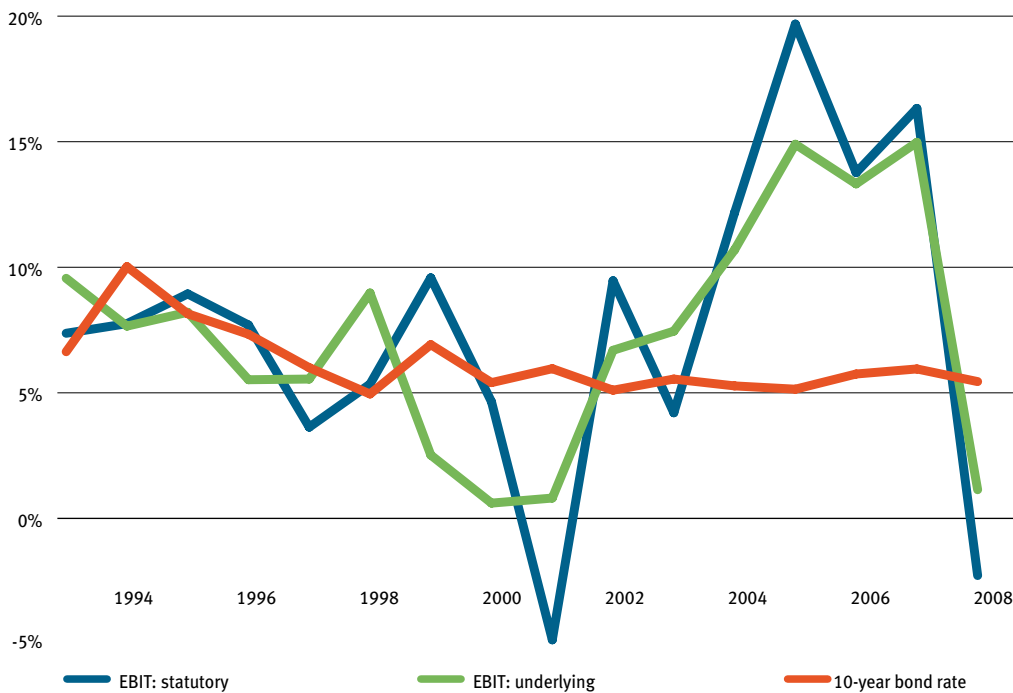
- petroleum refining activities showed a return on assets comparable to the chemicals and beverages manufacturing industries, but significantly lower than the metals and mining industries
- petroleum wholesaling showed comparable returns to grocery wholesaling and hardware, plumbing and heating equipment retailing
- retail petroleum returns on assets were well below food and staples retailing and specialty retailing.

These results underline the competitive pressure on every level of the downstream petroleum industry. The returns to the downstream petroleum industry are generally lower when compared to other industries of similar size and turnover value. When this result is considered with the favourable international comparison of Australian fuel prices and the recognised efficiency of the industry, a clear conclusion can be drawn from the latest ACCC price monitoring report that Australians are receiving value for money on liquid fuels at every level of the industry.

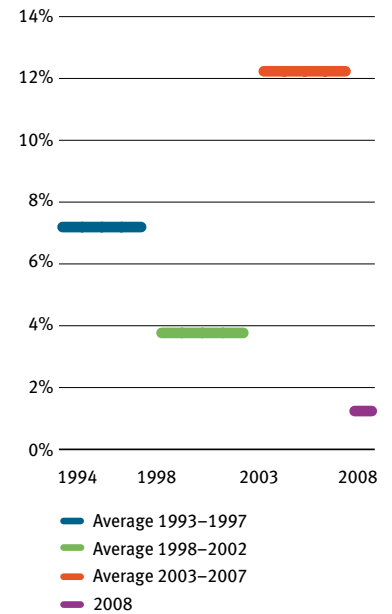
S&P/ASX 100 Australian industries return on assets: 2002–03 TO 2008–09



EBIT on total assets: PER CENT



Five-year average return on assets on underlying EBIT: PER CENT



Measures of profitability are presented as earnings before interest and tax (EBIT) on total assets for both statutory and underlying returns. The statutory return is reported in company accounts and complies with reporting requirements under relevant legislation. The underlying return removes the impact of stock gains and losses to derive a profit result not affected by the impact of movements in international crude oil and product prices. Removing the stock valuation effects from profitability measures provides a clearer picture of the fundamental economic performance of the industry.

Economic contribution of the Australian refining industry

The Australian refining industry is a significant contributor to the Australian economy providing direct and indirect economic benefits from its own activities and underpinning the competitiveness of key Australian export industries.

Economic modelling by KPMG Econtech found that the downstream petroleum industry directly contributed 0.5 per cent of GDP or \$6.2 billion per annum. This contribution to GDP is two-thirds the contribution of the textiles, clothing and footwear industry and twice that of the forestry and fishing industries.

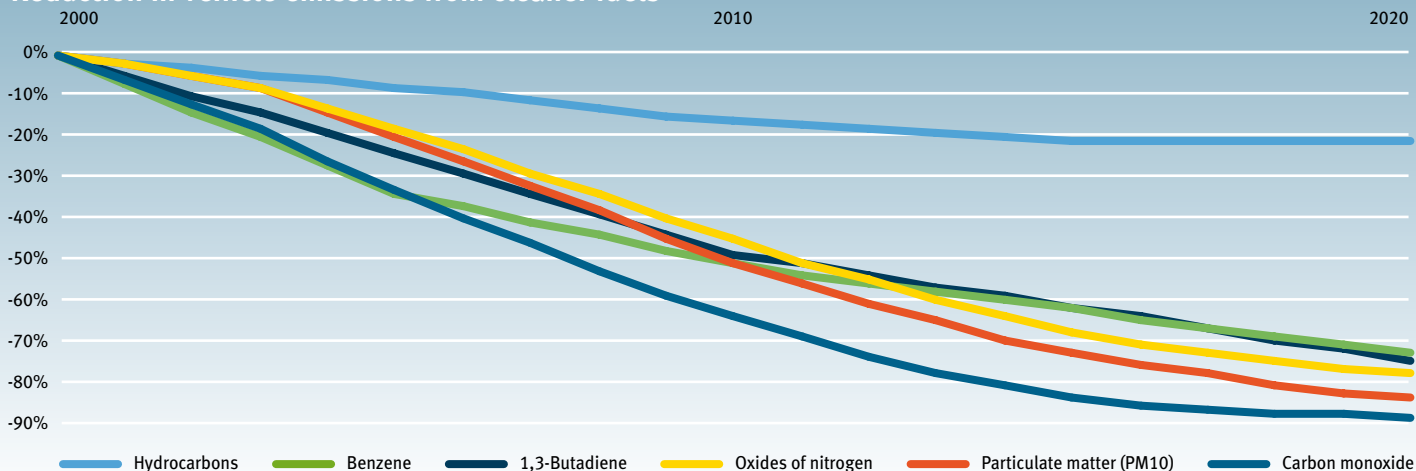
Each refinery is a significant economic contributor to their local region directly and indirectly providing some 3500–4000 jobs, with many concentrated in the local areas and in the supply of goods and services to the refinery.

As a technologically advanced industry, refineries employ and train many highly skilled, technical staff. International expertise flows readily into the Australian refinery workforce. There are also many ‘spill-over’ effects into other industries through the transfer of technical skills and expertise to other businesses.

The Australian petroleum refining sector underpins the competitiveness of other key Australian export industries — 48 per cent of all petroleum products by value are used in the agriculture, forestry and fishing, manufacturing, mining and transport industries. Petroleum products make up a significant portion of the intermediate input costs of key industries — 27 per cent in air transport, 19 per cent in road transport and around 12 per cent in various mining activities.



Reduction in vehicle emissions from cleaner fuels



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.
- Cleaner fuels require major refinery investment, cost more to produce and lead to higher CO₂ emissions from refineries.
- Benefits of further tightening fuel standards for premium grade petrol do not outweigh the costs of such action.
- Current high fuel quality standards mean the relative environmental benefits of alternative fuels have been reduced.
- For alternative fuels to compete in the market, they must be competitively priced, be reliably supplied and have consumer acceptance.

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.

AIP has worked closely with governments and the motor vehicle industry to ensure that changes to fuel quality standards are:

- consistent across Australia
- predictable, so that participants in the market have sufficient time to implement and adjust to any new standards.

Long lead times are required to make the necessary engineering changes to refineries. Consistent and stable application of policy is essential to provide the framework for refiners to recover their increased costs.

Cleaner fuels cost more to produce because of additional capital requirements, such as for new desulfurising or benzene treatment capacity. There are also additional operating costs at the refineries because of lower product yields and greater energy use, and higher handling costs in the distribution system. Since cleaner fuels are more energy intensive to produce they are also more CO₂ emission intensive. By 2009, the Australian refining sector had invested well over \$3 billion to implement the Australian Government's cleaner fuels program.

The *Fuel Quality Standards Act 2000* provides the regulatory framework for fuel quality

standards in Australia and for progressive changes in standards. In 2008, the Euro 4 sulfur standard was introduced for premium unleaded petrol (PULP) which is increasingly used by new vehicles in Australia. In 2009, the Euro 5 sulfur standard was introduced for diesel. These petrol and diesel fuel standards when combined with complementary engine technologies will address virtually all national air quality issues that can be controlled by regulating fuel quality.

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.

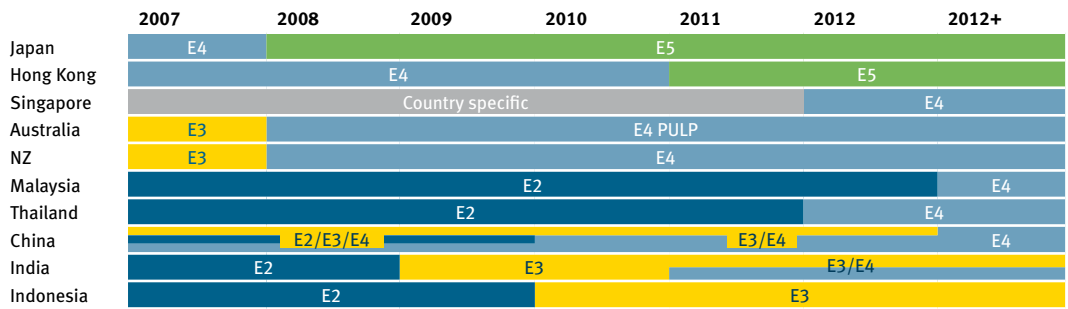
All prospective major petrol vehicle technologies, except for lean burn gasoline direct injection (GDI) can operate on fuels already available in the Australian market. Some lean burn GDI engines require 10ppm sulfur PULP to operate. However, this technology is only used in the very small, high performance, segment of the Australian vehicle market. Production and distribution of a boutique fuel for such a small market segment is not commercially viable. The alternative of changing the PULP fuel standard to 10ppm sulfur would require significant investment and additional refinery operating costs mainly because of increased energy consumption. A 2005 study by the Australian Government found that increased refinery CO₂ emissions would exceed the reduction in vehicle emissions and concluded that there would be net community costs if 10ppm sulfur PULP was introduced as the standard for all premium grade petrol.

Countries in the Asia–Pacific region are mandating cleaner fuels on different timelines. As demand for higher quality fuels increases, refineries in the region will produce these fuels as standard products rather than as boutique fuels for specific markets. This will result in increased supply availability of the cleaner fuels.

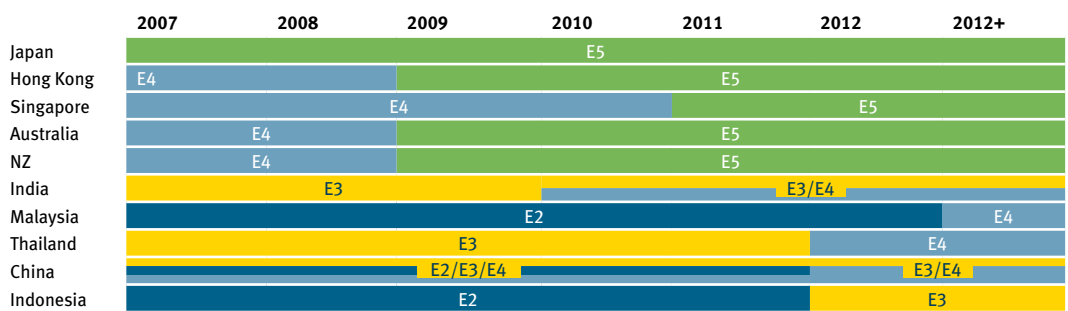
Euro standards (E2, E3, E4, E5) relate mainly to the reduction of sulfur in petrol and diesel, although they also set standards for other product parameters such as benzene and other aromatics, olefins, cetane, density, lead and oxygen.

For sulfur levels in petrol: E2 sets the limit at 500 ppm, E3 at 150 ppm, E4 at 50 ppm and E5 at 10ppm. For sulfur levels in diesel: E2 sets the limit at 500 ppm, E3 at 350 ppm, E4 at 50 ppm and E5 at 10ppm.

Petrol regulatory outlook for the Asia–Pacific region



Diesel regulatory outlook for the Asia–Pacific region



Alternative fuels

Alternative fuels that are used or have been proposed for use in Australian motor vehicles include:

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

For any alternative fuel to enter the fuel mix in a sustainable manner it must be competitively priced, have a reliable supply and be acceptable to consumers.

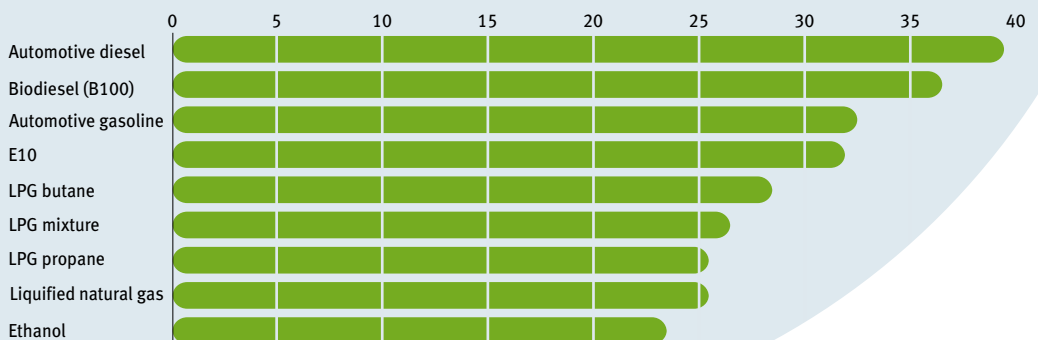
The Henry taxation review has recommended competitive neutrality in the excise treatment of transport fuels based on energy content. The Australian Government has confirmed implementation of a fuel excise system based on energy content. This should provide greater certainty for industry development of various alternative fuel markets.

AIP believes that government support for alternative fuels for reasons such as environmental performance must be transparent and cognisant of other policy settings, particularly where it has an impact on long-term investment in the fuels market. The perceived environmental advantages of alternative fuels need to be

judged against sound scientific evidence and the dramatic reduction in vehicle emissions enabled by the cleaner fuels program and the introduction of new vehicle technology.

A key driver for increased ethanol use will be enhanced consumer confidence. The lack of a coherent policy framework across all jurisdictions, limited supplies of competitively priced biofuels, and ongoing fuel quality issues are hampering the development of a commercially viable biofuels industry. Governments will need to work closely with the petroleum industry and other stakeholders to address these and other barriers to greater use of biofuels in the retail and commercial fuels markets.

Energy content of automotive fuels: MEGAJOULES PER LITRE



16 Maintaining supply security and reliability

Key messages

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

Supply security

Australia currently enjoys a high level of liquid fuel security and this position is not expected to change in the coming years.

This is due to:

- a diversity of supply sources for crude oil and petroleum products, including from both domestic and imported sources
- flexible, resilient and reliable supply chains (including shipping lanes and infrastructure)
- an efficient domestic refining capability providing additional supply options and the ability to convert domestic crude oil into useable product
- imported petroleum products providing a diversity of potential supply sources in the event of refinery disruptions
- supply and storage infrastructure able to meet fuel demand growth
- a strong record of efficient and reliable supply management by industry.

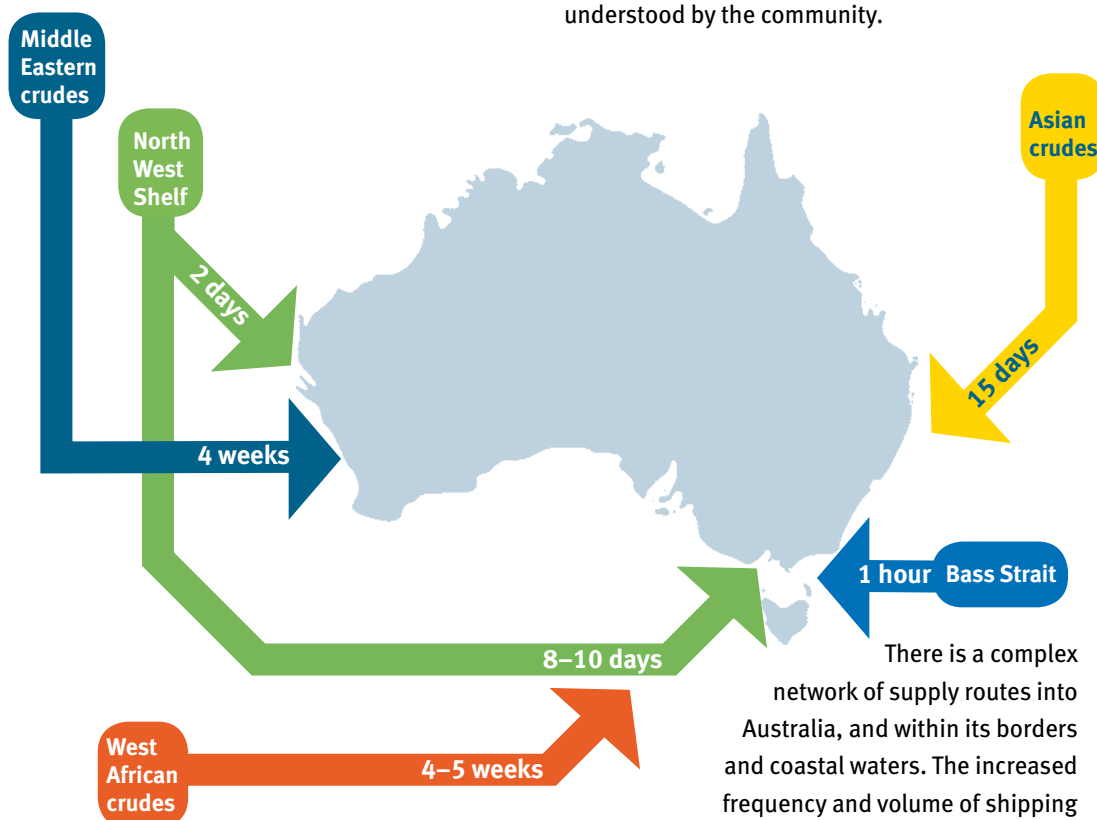
This assessment is confirmed in government and independent reviews of liquid fuel supply security released in 2009 including the National Energy Security Assessment (NESA) and the ACIL Tasman Liquid Fuel Vulnerability Assessment.

Crude oil and petroleum product supplies suitable for Australian needs have been readily available, even during periods of rapidly rising oil prices.

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 pay the international market price.

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

Where governments propose new policies for domestic energy security purposes, the impacts on Australia's international competitiveness and, thereby, on consumer fuel prices, need to be well understood by the community.



There is a complex network of supply routes into Australia, and within its borders and coastal waters. The increased frequency and volume of shipping to Australia now provide improved supply chain flexibility to respond to supply disruptions.



Supply chain reliability

The Australian fuel supply chain delivers a high level of reliability by global standards.

The supply chain includes crude and product shipments, refinery throughput, storage tanks, extensive terminal and distribution networks, around 5500 retail outlets, and the extensive storage facilities of bulk fuel customers.

There are strong business pressures on fuel suppliers to maintain resilient and efficient supply chains, since this is essential to minimise costs and to maintain market share and a reputation for reliable supply.

Australia's supply infrastructure has inbuilt flexibility, and there are new import and storage facilities under construction or planned. This infrastructure has been independently assessed by ACIL Tasman as being able to meet Australia's future fuel supply needs.

Current industry stockholdings reflect a sound commercial assessment of likely operating conditions and disruption risks. Any increase in stock levels beyond current levels would place higher costs on the supply system that would be passed on to consumers.

Supply disruptions

There are a variety of unplanned events that can create fuel supply challenges, including:

- refinery production disruptions
- breakdowns in critical supply infrastructure
- delays in ship arrivals
- customer demand exceeding identified or contracted supply requirements.

However, the impact of such disruptions is rarely felt by consumers, as refiners and major fuel suppliers are adept at managing these issues as part of day-to-day 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 wholesalers
- sourcing supplies from international sources
- equitably allocating available bulk fuel to customers
- drawing down industry stockholdings.

Emergency supply management

Industry and governments recognise the potential risks and impacts of a disruption to liquid fuel supplies. AIP actively participates in government sponsored management committees like the National Oil Supplies Emergency Committee (NOSEC).

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 liquid fuel supply or oil emergency at a national or international level.

A key issue is that all fuel consumers, particularly large fuel users supporting the economy and community, need to fully understand and be prepared to manage the impact of a supply disruption on their operations.



Key factors influencing international 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
- new oil discoveries
- investment in new oil production and refining capacity
- availability of alternative fuels
- future global demand and supply balances
- 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
- population growth
- regulation and government policy.

International prices

The price of fuel in Australia is dependent on world market prices.

Crude oil, petrol and diesel are bought and sold in their own markets. 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 is the Asia-Pacific market.

Crude oil and petroleum products are sold internationally and domestically through a

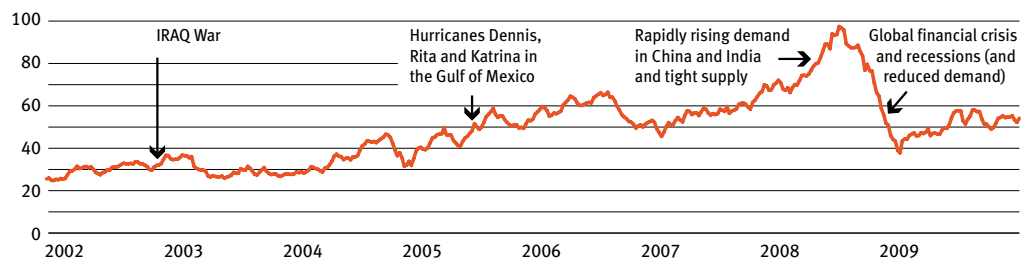
variety of term contract arrangements and in spot transactions. They are also traded on futures markets like NYMEX.

Price benchmarks or 'markers' for crude oil and petroleum products provide convenient indicators of what is happening with prices in specific markets.

Information on changes in the prices of these markets is extensively reported on a daily basis.

Australia's benchmark prices — Tapis crude oil, MOPS95 petrol and Gasoil 10ppm sulfur diesel — are quoted by the independent monitoring agency, Platts, based on actual transactions in the Singapore market on a given day.

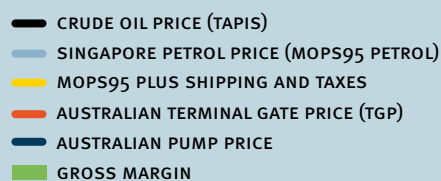
Major events impacting on crude oil prices: TAPIS CRUDE OIL: CENTS PER LITRE



The steep increase in the crude oil price in 2008 reflected a broader trend in the price of global energy commodities prior to the global financial crisis. The increase reflected market fundamentals. Specifically, the significant increase in global demand from economic growth in China and India, and supply not keeping pace with this demand growth. As a result, crude oil and product prices, as well as other commodity prices, increased in the Asia-Pacific region and globally.

Price trends in 2009

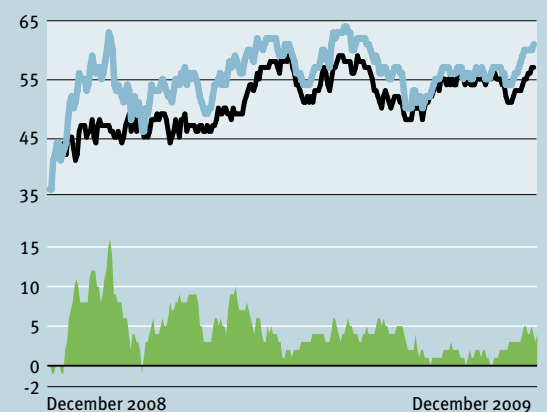
These charts provide a snapshot of the volatile movements over 2009 in the key market prices relevant to the price of petrol in Australia.



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: 2009

CENTS PER LITRE



The link between international and Australian prices

According to the ACCC, there is a close relationship between international fuel prices and Australian wholesale and retail fuel prices.

To meet Australian demand, around 25 per cent of fuel is imported, mostly from Singapore. 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 this represents the competitive alternative for supply to Australia.

Growth in demand for fuel in Australia will continue to be largely met by imports in the future, further strengthening the price relationship with Asian fuel prices.

Australian refiners must price their fuel to be competitive with fuel imports from Asia (called 'import parity').

If Australia's 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 be at a loss here). 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 extensive data published by AIP and its member companies.

The ACCC also formally monitors fuel prices.

The Singapore to wholesale price lag

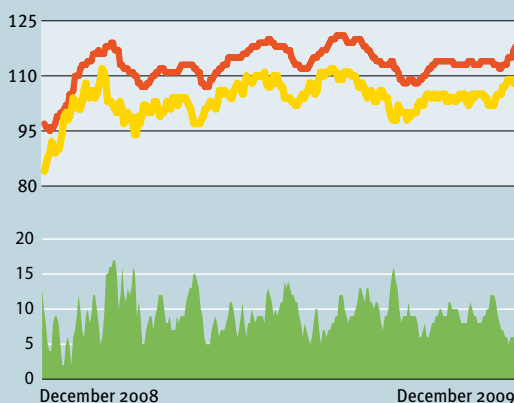
Generally there is a time lag of 1–2 weeks between changes in international (Singapore) prices and changes in Australian wholesale prices.

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).

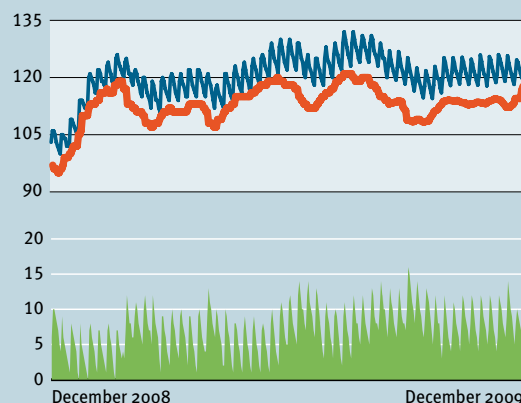
The lag is a result of using a rolling average of Singapore prices as part of the wholesale pricing methodologies of companies — very similar to that used by the ACCC when wholesale prices were regulated by government. The pricing methodology is called import parity pricing (IPP).



Wholesale market trends: 2009
CENTS PER LITRE



Retail market trends: 2009
CENTS PER LITRE



See www.aip.com.au/pricing for daily price movements

20 The Australian wholesale fuels market and prices



Key messages

- Australian wholesale fuel prices are transparent and linked to international prices.
- Over 95 per cent of the wholesale price of fuel is the refined product cost plus taxes.
- 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.
- Changing market shares and profitability of major fuel suppliers over time, including refiner-marketers and independent suppliers, demonstrates a competitive market.
- The underlying pricing approaches in bulk fuel contracts and TGP transactions are generally the same for all wholesale fuel customers.

Wholesale fuel prices

Australian wholesale fuel prices (called terminal gate prices or TGPs) are closely linked to international prices through import parity pricing (IPP). Changes in the IPP flow through to changes in wholesale and retail prices.

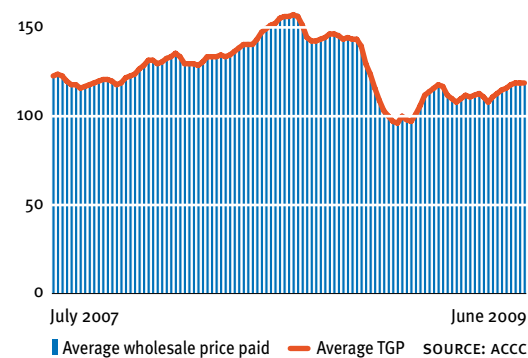
The IPP reflects the cost of importing fuel to import terminals around Australia and includes:

- the benchmark price for refined fuel (e.g. for petrol – MOPS95)
- the 'quality premium' for specific Australian and state fuel standards
- freight
- exchange rate
- wharfage, insurance and loss.

TGPs 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. TGPs 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 TGPs for petrol and diesel by all AIP members. TGP is the price at which any person with the necessary safety clearances can purchase fuel from bulk fuel terminals by the tanker load.

Average wholesale prices paid versus Average TGP: 2007–08 to 2008–09
CENTS PER LITRE



ACCC analysis shows wholesale prices paid by customers vary slightly from TGP (averaging 0.5 cents over the last 2 years) due to charges for additional services (such as delivery, branding and price support) included in the transaction and any volume discounts applying to large orders.

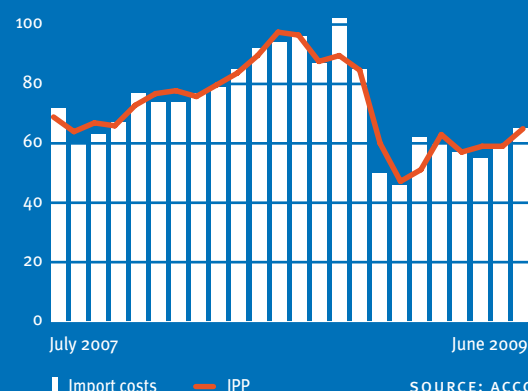
According to the ACCC, in 2008–09 the wholesale gross margin was 4 per cent for petrol, and 6 per cent for diesel. However, over a seven year period there was a 'net' wholesale loss on average for petrol.

IPP

ACCC analysis shows that the actual import costs paid by major fuel suppliers are broadly similar to, and move in line with, IPP. The ACCC considers that the use of IPP-based pricing in Australia is appropriate (if imports continue to be the marginal source of supply of refined fuel).

The use of IPP, including for sales between major fuel suppliers, provides clear benefits in terms of supply security and economic efficiency, and ensures Australia is not disadvantaged in accessing supplies of crude oil and products.

IPP versus import costs paid by wholesale fuel suppliers: 2007–08 to 2008–09
CENTS PER LITRE



Facts about bulk fuel terminals

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

Terminals can be owned and/or operated by:

- refiner marketers (including joint ventures)
- independent fuel importers
- independent terminal operators.

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
- leasing of storage capacity, typically long term agreements based on a commercial return on capital and operating costs.

Oil companies and independents often buy petroleum products from each other in markets

Import terminal ownership and hosting: 2009

Refiner marketers:	Sole ownership	34
	Joint venture	10
Independent		20
Total		64
<i>Hosting available</i>		34

SOURCE: ACIL TASMAN

where they do not own facilities or where they do not directly import through hosting arrangements.

Capacity and throughput are two key measures of terminal performance. Key determinants of terminal 'capacity' are the operating conditions that apply at individual terminals and in the supply network. These include demand patterns, mode of supply and related infrastructure, shipping schedules, berth capacity, physical tank storage capacity and load-out facilities. Similarly, 'throughput' depends on a range of factors such as demand, shipping and delivery schedules, and loading and storage capacity.

The ACCC has concluded 'there is considerable spare capacity in some independently owned import terminals around Australia, with more capacity likely to become available in future.'

Petrol capacity and throughput: 2008–09

	Capacity (ML)	Throughput (ML)	Turnover (times)
Independently owned	249	1320	5
Refiner-marketer owned	278	3084	11
Australia	527	4404	8

SOURCE: ACCC

Import infrastructure adequacy and access

In 2009 the Australian Government released a major independent review by ACIL Tasman of Australia's petroleum import infrastructure. It found that while future fuel demand in Australia could be met from existing and new infrastructure under construction, more investment is needed.

New fuel storage capacity of 270 ML is currently committed or under construction. Of this, 64 per cent is owned by independents.

This comprehensive review also found that the current operating environment and access arrangements do not impose a constraint to competition for petroleum importers.

AIP supports reforms to ensure that planning, approval and regulatory processes are efficient, timely and nationally consistent, to support longer term investment in import and storage facilities.

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, although spot purchases occur. Contracts are typically based on IPP or TGP while spot purchases are on the basis of TGP.

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.





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 weekly retail 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.
- Oil company profits are a very small proportion of the retail price (profit over last 10 years has averaged 1.6 cents per litre of fuel sold).
- Independent operators and the major supermarkets have a significant share of the Australian retail fuels market.
- There is a trend towards fewer, larger volume retail sites.

Prices and taxes

In 2008 and 2009 Australia continued to have among the lowest retail petrol and diesel prices in the OECD. 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.

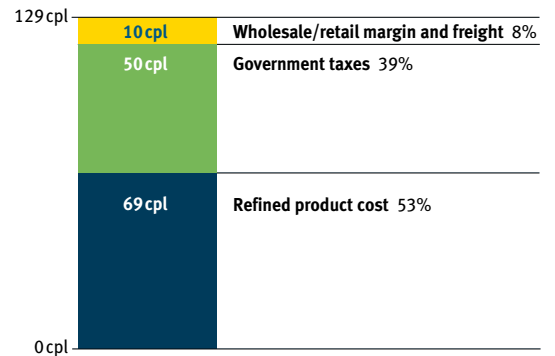
The components of the national average retail petrol price highlight the small proportion of the final price received by fuel wholesalers and retailers. In 2008–09, the tax component (GST and fuel excise) of the final price of petrol averaged about 39 per cent or 50 cents per litre.

Payments to the Australian Government in 2008 (from fuel excise, GST on fuels and income tax) by AIP member companies were \$19.3 billion.

Fuel excise provided over 5 per cent of taxation revenue to the Australian Government in 2008.

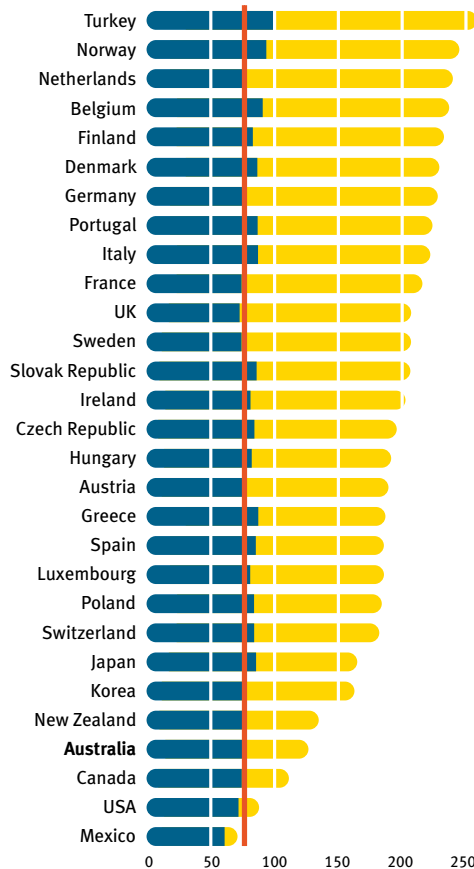
According to the ACCC, ‘petrol industry costs are dominated by refined international benchmark prices and taxes’.

Retail petrol price components: NATIONAL AVERAGE 2008–09

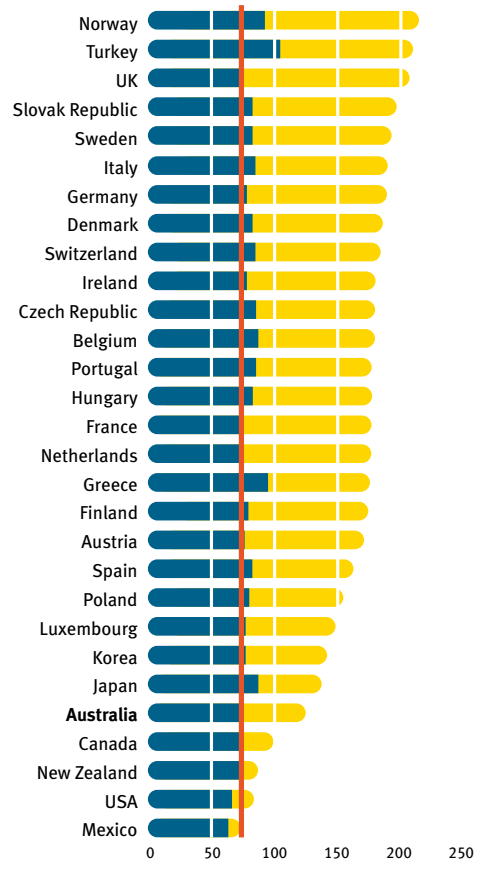


Petrol and diesel prices and taxes in OECD countries: SEPTEMBER QUARTER 2009

PETROL: CENTS PER LITRE



DIESEL: CENTS PER LITRE



PRE-TAX PRICE TAXES AUSTRALIAN PRE-TAX PRICE

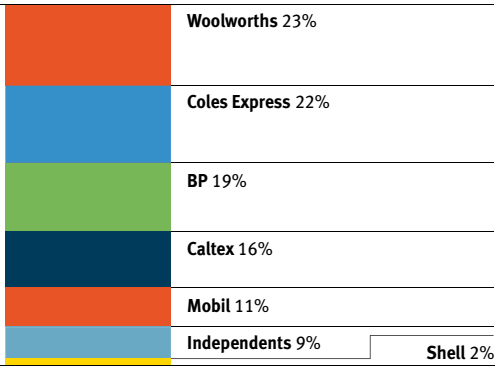
SOURCE: DRET & IEA

The retail market

Retail market share

The supermarket alliances and independents control more than half of the retail petrol market.

Petrol volume sold by brand: 2008–09

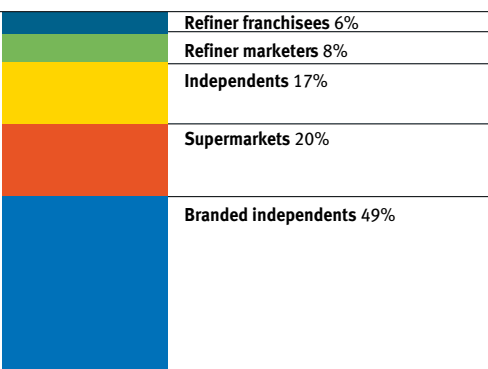


SOURCE: ACCC

The retail business and operators

The structure of the retail market continues to evolve. The number of retail sites has decreased from 20 000 sites in 1970 to around 5500 in 2009. The ACCC has concluded that consolidation of retail sites has slowed significantly over the past few years. Most sites now sell larger volumes of fuel and rely more on convenience store sales. Major oil companies in the retail market (BP, Caltex and Mobil) now directly operate and set the prices at only 8 per cent of retail sites across Australia.

Who sets retail prices: 2009

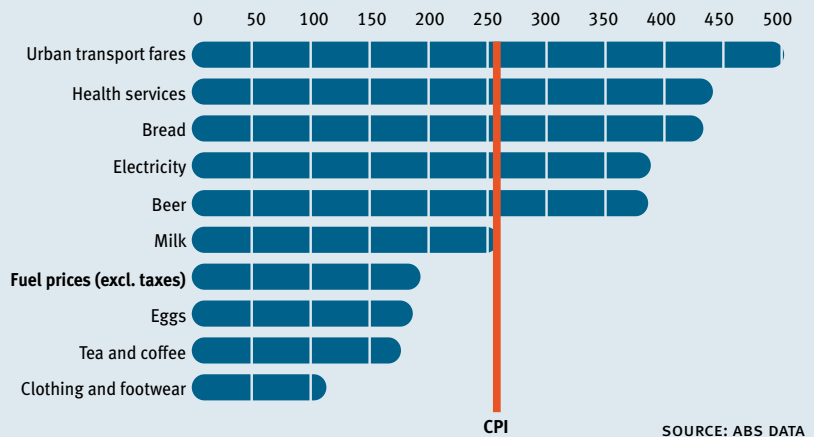


SOURCE: ACCC



Relative changes in retail prices

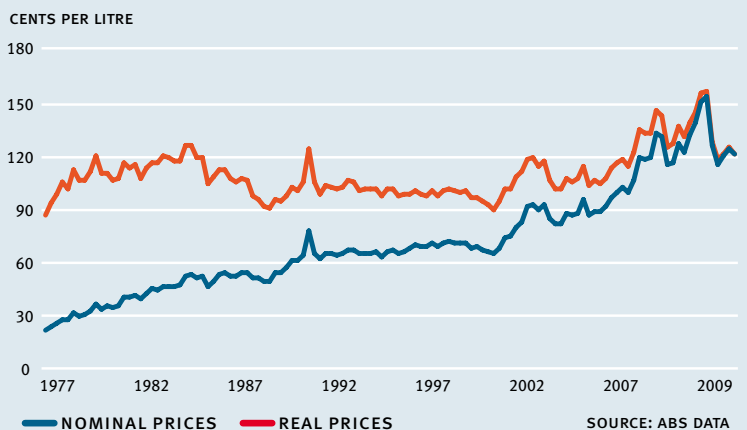
Percentage change in retail prices: 1980–2009



SOURCE: ABS DATA

Since 1980, the increase in retail fuel prices paid by consumers has been less than the increase in the CPI and less than price increases for other significant household consumables, when fuel taxes are excluded.

Retail fuel prices over the last 30 years



SOURCE: ABS DATA

Climate change presents a significant risk to economies, societies and the environment. AIP member companies support actions to advance climate science to improve understanding and therefore reduce the risks from future impacts.

A broad-based approach is required to emissions abatement recognising that there are many pathways to reduce greenhouse gas emissions. These include improved energy efficiency, development and deployment of new and innovative technologies, enhanced public awareness and supportive policy frameworks. Practical adaptation to the unavoidable impacts of climate change is also a critical part of an effective response.

A national approach to climate change policy is needed in Australia to ensure that the most effective and appropriate frameworks are put in place.

Policy decisions by governments must be based on sound scientific and economic analyses that recognise the risks, costs and benefits to the economy generally, as well as to the downstream petroleum industry. The future viability of Australian refineries, and hence Australia's energy security, will be dependent on maintaining the international competitiveness of Australian refined products.

Cooperative international action by governments and industry is required to achieve sustainable longer term climate change mitigation, recognising the global nature of climate change.



Complementary measures

A range of complementary measures may be needed in the transport sector to achieve significant reductions in greenhouse gas emissions from liquid fuels over the timeframe envisaged by governments.

Complementary measures in the transport sector to be considered by governments include:

- the role of alternative liquid fuels
- improvements in fuel efficiency for small to medium petrol and diesel fuelled vehicles, and the introduction of hybrid and electric vehicles
- improved fuel efficiency of heavy transport vehicles
- accelerated fleet turnover to more fuel efficient vehicles
- driver education programs and incentives to encourage more efficient use of vehicles
- improved public transport as an alternative to private motor vehicle use.

In each case, full consideration needs to be given to assessing the benefits and costs of these measures to ensure that climate change benefits will be realised across the full fuel lifecycle, and that all other non-climate-change costs and benefits are identified. Before introduction of any of these potential measures, all stakeholders will need to be assured that there are overall net national benefits from adopting them and that the measures do not undermine the effects of an economy-wide ETS or other market-based measure.



Australian emissions trading scheme

The Australian Government’s decision to delay the introduction of an emissions trading scheme until 2013 will enable further consideration of key features impacting on a range of businesses. In this process, AIP member companies support policy outcomes that effectively address climate change risks while minimising risks to business in order to deliver sustainable environmental outcomes for Australia.

AIP member companies have worked closely with the Australian Government to assist with the development of emissions trading scheme (ETS) legislation.

Impacts of carbon prices on refineries

Australian petroleum refineries are energy intensive operations. Irrespective of any climate change policies, refiners have an ongoing focus on improving refinery energy efficiency.

The introduction of an ETS is expected to increase petroleum refining costs in Australia.

Since almost all liquid fuel imported into Australia comes from countries which are unlikely to impose a carbon price on their refinery operations in the foreseeable future, Australian refiners will be placed at a commercial disadvantage to their overseas competitors. These additional costs will not be recovered from consumers. If the costs are not fully offset under the ETS, then industry profits

The challenges of including liquid fuels in an ETS have been significant. With the exception of New Zealand, no other trading schemes have developed a template for imposing a carbon price on all relevant liquid fuels where there are millions of individual greenhouse gas emitters.

Key design features of the proposed ETS legislation (the Carbon Pollution Reduction Scheme) aim to ensure the relevant carbon price applies to all liquid fuels entering the Australian market, whether produced locally or imported. The proposed ETS also envisages carbon price pass-through to fuel consumers (subject to initial excise offsets) and the transparency of the carbon price to consumers.

will decline. In the case of Australian refiners, this amounts to around \$190 million per annum if emissions permits are valued at \$30 per tonne of CO₂. This is equivalent to 25 per cent of average industry profits (EBIT) over the past ten years.

The proposed CPRS legislation recognised this concern for refinery competitiveness, and provided emissions permit offsets for the majority of these refinery emissions under the Emissions Intensive Trade Exposed (EITE) provisions. However, these EITE provisions do not take into account the impacts of any future regulatory changes to Australian fuel standards that are likely to significantly increase refinery emissions.

Impacts on fuel suppliers and consumers

Inclusion of liquid fuels in an Australian ETS would mean that AIP member companies and major fuel users would have an obligation to acquire some 115 million emissions permits to cover liquid fuel used in transport and other applications (around 23 per cent of the total number of emissions permits available in Australia in any one year).

From a consumer perspective, emissions permits valued at \$30 per tonne CO₂ are equivalent to an additional 8–9 cents per litre on the retail price of petrol and diesel. Under currently proposed ETS legislation this would be offset by an equivalent reduction in fuel excise in the initial years. Consumers would be subject to incremental carbon costs after this initial period.

Key messages

- AIP and its member companies are committed to safe and environmentally sound practice 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 doing so, their aim is to:
 - treat with care all materials that may cause pollution
 - achieve a zero accident rate
 - maintain open communications with governments and local communities
 - 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, and the lubricants waste management and recycling program.

Oil spill response

Each of the companies involved in production of crude oil 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. These petroleum industry activities form part of Australia's national oil spill response arrangements coordinated by the Australian Maritime Safety Authority (AMSA).

Additional industry expertise and resources are provided through the Australian Marine Oil Spill Centre (AMOSC) at Geelong (Victoria). AMOSC was set up in 1991 as a wholly owned subsidiary of AIP. Its roles are:

- provision of equipment and personnel on a 24-hour basis to respond to a major oil spill
- provision of oil spill response training
- provision of advice on spill equipment.

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

CRC CARE

AIP is a foundation participant of the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) which undertakes innovative, cutting edge research aimed at preventing, assessing and remediating contamination of soil, water and air.

AIP projects involve collaboration with environmental regulators to develop best practice, risk based approaches to technology development and remediation techniques to respond to hydrocarbon contamination of soil. This work will assist the development of an effective regulatory framework for remediation of contaminated sites.

CRC CARE is delivering high quality research outcomes that underpin policy development work, numerous technology patents, and extensive academic and industry training.

support recycling, funded through an excise on sales of lubricants. AIP is also a signatory to the National Packaging Covenant. AIP on behalf of its member companies has established a collection and recycling program for used plastic oil containers across Australia. Over 220 collection sites are maintained by Visy Packaging for AIP, with around 290 tonnes of plastic being recycled into various industrial products annually.

Health Watch

For the last 30 years, AIP has sponsored the development and operation of an epidemiological study called Health Watch which tracks the health of over 19 000 present and past employees of the Australian petroleum industry.

The information from Health Watch is important in identifying factors within the industry that may be a risk to the health of the industry workforce and ways in which these risks may be addressed. Health Watch is an independent university-based research program, and is currently being conducted by the Monash Centre for Occupational and Environmental Health, a leading international centre for epidemiological programs and collaborative research at Monash University.

AIP continues to support Health Watch because it is highly valued by the petroleum companies and their employees and is an internationally respected study. The study also provides a robust scientific basis for the community to understand the health impacts of exposure to petroleum products. In 2010, the Health Watch study will be significantly expanded, to include new employees in participating company worksites across Australia.

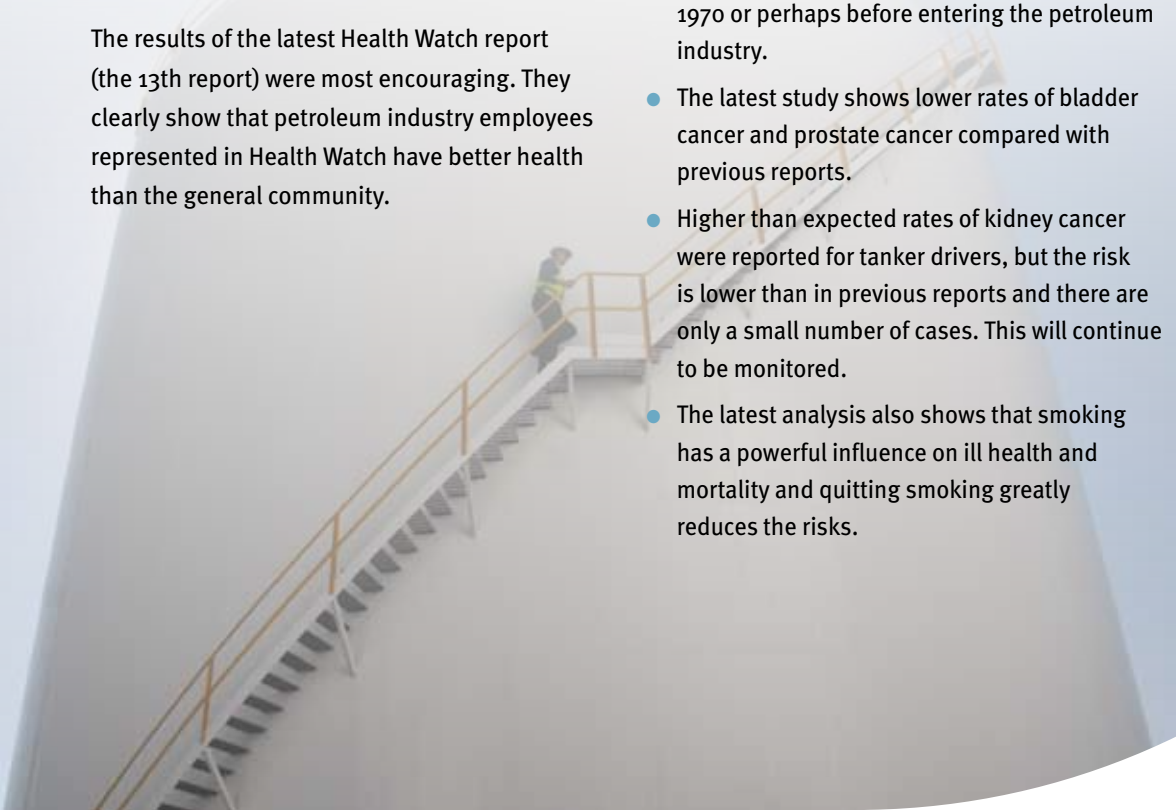
The results of the latest Health Watch report (the 13th report) were most encouraging. They clearly show that petroleum industry employees represented in Health Watch have better health than the general community.

- The death rate for both men and women in the petroleum industry is significantly lower than in the general Australian population.
- The death rate for men in all major disease categories is also significantly lower than in the general population. This includes death from diseases like heart disease, cancer and respiratory disease.
- The latest analysis shows that the risk of leukaemia of all types is no greater than in the general population and has fallen compared to previous Health Watch reports. This is true even of acute non-lymphatic leukaemia, which has in the past been associated with exposure to benzene. The industry has taken significant steps to reduce employee exposure to benzene and to petroleum products in general.
- Higher reported rates of melanoma (skin cancer) are unlikely to be caused by any workplace factor and the death rate from this cancer is the same as that for the general population.
- There were some mesothelioma cases identified in the Health Watch cohort, but because of the long latency associated with mesothelioma, relevant exposure to asbestos was likely to have occurred in refineries before 1970 or perhaps before entering the petroleum industry.
- The latest study shows lower rates of bladder cancer and prostate cancer compared with previous reports.
- Higher than expected rates of kidney cancer were reported for tanker drivers, but the risk is lower than in previous reports and there are only a small number of cases. This will continue to be monitored.
- The latest analysis also shows that smoking has a powerful influence on ill health and mortality and quitting smoking greatly reduces the risks.

Fuel for Aboriginal communities

Petrol sniffing is a major concern in remote Aboriginal communities.

Since 2005 Opal petrol has been supplied to remote communities and the regions surrounding those communities. This fuel is produced by BP and is the first of its kind in the market place, containing low levels of aromatics. The fuel is available from all suppliers to the communities under the Australian Government Petrol Sniffing Prevention Program. AIP member companies continue to work closely with federal, state and territory governments to help tackle petrol sniffing in Indigenous communities.





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