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Additional submitted attachment is included below.

Maintaining supply security and reliability for liquid fuels in Australia

Australian Institute of Petroleum

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Key messages

Australia currently enjoys a high level of supply security and reliability for liquid fuels.

Market experts agree that supply security and reliability is not a function of supply 'self-sufficiency' or 'independence' from markets, it is a function of effective market integration, supply diversity, a flexible supply chain and robust risk management by industry and government.

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 local 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
- robust risk and emergency management frameworks at industry and government levels.

Each of these important features of the Australian liquid fuels market and supply chain is addressed in this publication.

These market features have been confirmed in successive government and independent reviews of liquid fuel supply security over many years. Key reviews include the National Energy Security Assessments (NESA) and Liquid Fuel Vulnerability Assessments since 2008, Australian Government Energy White Papers in 2004 and 2012, and the 2013 Report of the Parliamentary Inquiry into Australia's Oil Refining Industry.

Fundamentally, 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 prevailing market prices for crude oil and petroleum products.

A market-based approach to liquid fuel supply and infrastructure development, 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.

Open market operations also mean that Australia is not insulated from the structural changes occurring in the global market, and will ensure that Australia can capture the benefits of the reshaping of the global refining industry and pattern of trade, and the rise of Asia as a global refining, demand and trading centre.

Experience has shown that orderly structural change in the industry has little impact on longer term supply reliability and market prices for consumers, as confirmed in the 2013 Parliamentary Inquiry Report.

Demonstrated, efficient supply chain management by industry, and rapid and comprehensive response strategies, enable lost supply to be replaced in the event of disruptions. Industry actions are also well supported by the robust national emergency planning and management frameworks outlined in this publication.

Australia's open, market based approach is expected to continue to deliver secure, reliable and competitive liquid fuel supplies which meet the operational requirements of consumers and major fuel users like the mining, transport and farming sectors. Being on the doorstep of Asia and well integrated into this emerging market means the Australian petroleum industry will be in a strong position to maintain a high quality supply performance well into the future.

This publication provides a factual overview of the liquid fuels market and the factors influencing supply security and reliability for liquid fuels in Australia.

In addition, key roles are identified for governments to ensure effective monitoring and assessment of the liquid fuels market, and also actions that major fuel users can adopt to enhance their supply management and business continuity planning.

Australia's integration into the Asian fuels market

Energy imports and exports have been an important part of international trade for more than a century and are vital to economies and energy systems around the world — helping to fuel transport systems, sustain industrial processes and supply electricity generation.

Expanding trade opportunities for energy products increases economic growth and living standards, particularly for an energy 'net exporter' like Australia. This is because open international markets and trade enable the efficient allocation of scarce resources by providing the link between energy suppliers and consumers (both internationally and domestically) which is vital to ensure reliable and affordable supplies for households, industry and business.

The cornerstone of modern international trade is significant integration and optimisation of supply chains across the world and in regional markets. This supply chain integration, which has consistently made reliable and affordable products available for consumers, is only possible through open international trade.

Open trade and supply chain integration is a major feature of global and regional oil markets. Substantial quantities of oil (whether in the form of crude oil or petroleum products) are freely and routinely traded on the international oil market every day, and it is one of the most actively and extensively traded commodities. This trade provides opportunities for buyers (importers) as well as sellers (exporters) to create value that strengthens economic growth.

International trade in oil, and the oil market more broadly, is predicated on crude oil and petroleum products being:

- competitively priced
- reliably supplied
- fit for purpose and of a quality required by buyers and their customers.

This market is also facilitated by the relative ease with which crude oil and petroleum products can be moved in readily available ships, pipelines, or surface transport.

Although oil is traded globally, major regional markets have developed around the main demand centres of North America and Europe, and more recently Asia.

There are many common features of these regional markets, but each has developed its own characteristics depending on:

- availability of locally produced crude oil
- location and commercial viability of refineries
- cost and availability of transport options
- the regulatory regimes applying in countries in each region
- the business structures of major fuel suppliers and users.

The interaction of all of these factors has shaped and changed liquid fuel supply chains over time, and will continue to do so.

The key role of Asia in the global oil market

Global refining and crude oil and petroleum product trade have been transformed with the rise of Asia as one of the world's major supply and demand centres for petroleum products. This shift is expected to continue to reshape the global industry for some time.

Over the past two decades significant refining and storage capacity, and highly complex and export orientated refinery operations, have developed in Asia in close proximity to major global trade routes. These very large Asian refineries have significant competitive advantages in terms of scale and lower unit costs, and processing complexity, as well as their ability to meet different regional fuel standards at lower costs.

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. These newer refineries also benefit from the latest technology with efficiencies realised from greater flexibility in the crude oil inputs and product slates produced.

As a result of the rapid expansion of refining capacity in Asia over the past decade, a surplus refining capacity is forecast for the region through to around 2020. In response to this highly competitive Asian surplus capacity, refinery rationalisation has occurred in the more mature markets around the world, including in Europe, the US and Australia.

As part of a highly competitive global market, the Australian refining industry needs to work hard to compete against the economies of scale and other advantages of refining in Asia.

The relatively small Australian refineries offer limited economies of scale benefits and none of the capital or operating cost benefits available in many Asian countries.

Nevertheless, Australian refineries seek to manage all these challenges by improving the efficiency of their operations through enhanced refinery yields, reliability improvements and cost containment. At the same time, Australia's proximity to the Asian region also provides opportunities to take advantage of Asia's surplus refining capacity and to continue to strengthen our regional supply chain.

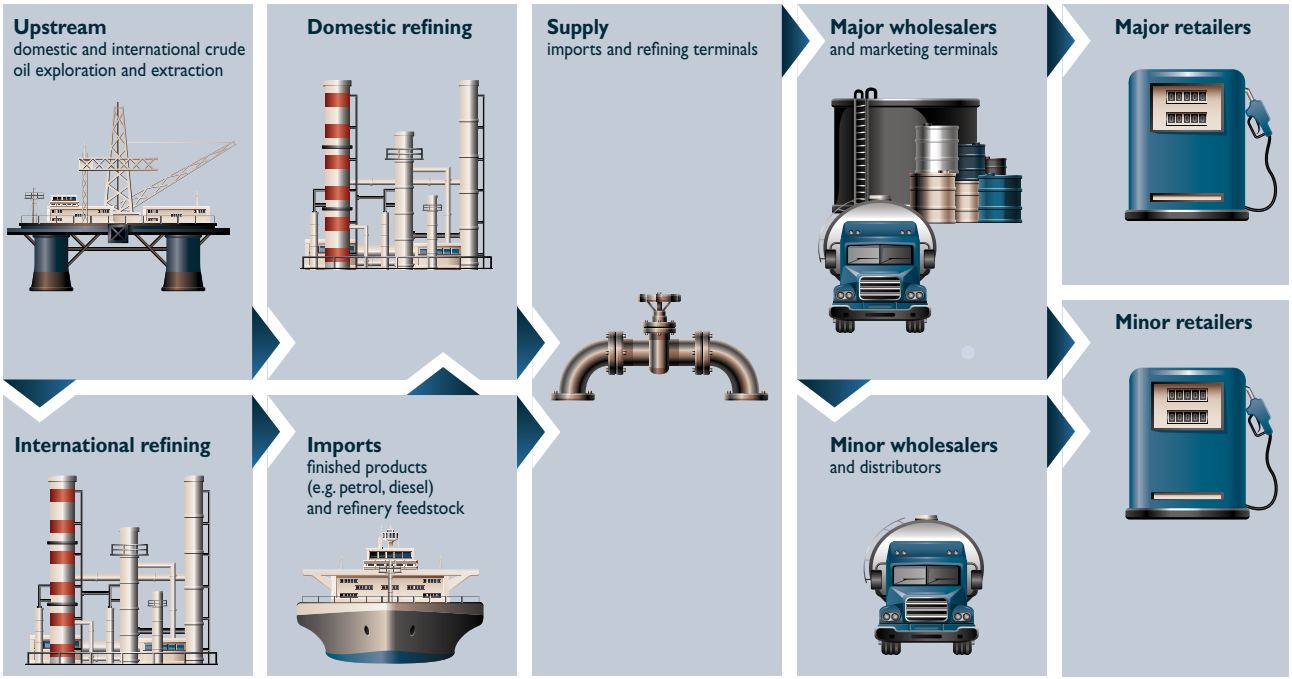
With increasing fuel import requirements since 2003, the domestic industry has taken the opportunity to fully integrate into the deep and growing Asian market to meet growth in Australian fuel demand, and has established multiple and reliable sources of supply from the region.

Importantly, additional diversity and flexibility in the Australian supply chain is expected over time with the emergence and proximity to Australia of major new petroleum export centres (e.g. India).

Australia's direct involvement in global trade in crude oil and petroleum products provides security through the diversity of source countries and multiple import terminals.

The Australian liquid fuels supply chain

The Australian supply chain for liquid fuels



Australia is well serviced by a reliable and diverse supply chain that delivers a high level of reliability by global standards, despite the significant challenges in distributing fuel across such a large country with a geographically dispersed population.

The Australian supply chain, outlined in the diagram above, includes crude oil and petroleum product shipments into and around Australia, refinery throughput, bulk fuel storage tanks, extensive terminal and distribution networks, over 6000 retail outlets, and substantial fuel storage facilities of major fuel users.

The fuel supply chain works to match Australian fuel demand and quality specifications with international and domestic refinery capabilities.

This involves decisions by Australian fuel suppliers on which crudes and finished products to purchase to meet demand when and where needed, at the quality standards required by customers and local regulation.

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

The Australian fuel supply chain and associated infrastructure has been independently assessed as being secure and functioning efficiently and effectively to meet Australia's current and future fuel supply needs. These assessments also highlight the significant ongoing investment in increased capacity that will be required, particularly in key markets, to maintain this performance over time.

Australia's access to diverse supply sources and well-established 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.

Supply diversity for liquid fuels

Diversification of supply sources is one of the most important elements of liquid fuel supply security. Diversity of supply avoids over-reliance on any single supply source and helps mitigate risks from potential supply disruptions.

Australia has a high level of supply diversity built into its fuel supply chain including multiple supply networks into Australia, a number of domestic refineries, multiple and flexible import and distribution networks in each state/territory, and a range of alternative fuel importers and suppliers throughout the supply chain.

Within this diversified supply chain, Australia's liquid fuel security risks are spread between imported crudes and products from a variety of different sources and domestic crudes and products from a variety of different sources. Australia's capacity to process crude oil in domestic refineries, including Australian crude, provides additional supply diversification and flexibility.

A variety of alternative liquid fuels (including LPG, ethanol, biodiesel, CNG and LNG) also contribute to Australia's liquid fuel supply options.

While Australia has significant crude oil production, around 75 per cent of this oil was exported in 2012–13 and around 25 per cent was used in Australian refineries. The majority of crude oils used in domestic refineries were imported from over 17 countries, mainly from Asia (40% of our crude oil requirements), Africa (18%) and the Middle East (17%).

This means that any crude oil disruption risks are spread between domestic and imported crudes, as well as between crude oils from a variety of different sources.

In 2012–13, Australia consumed 54,900 ML (megalitres) of petroleum products and net imports accounted for 37 per cent (20,200 ML) of total consumption. These imported petroleum products were sourced from over 20 countries, mainly from Asia, particularly Singapore (53%).

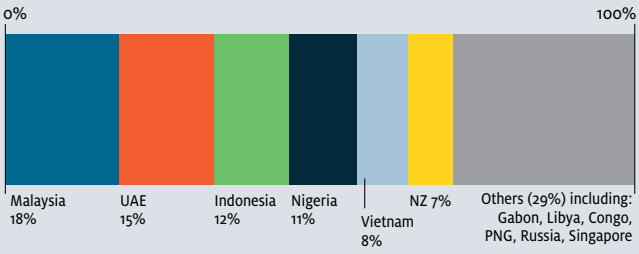
Singapore is an important regional refining centre, but also has substantial storage and tank capacity which is used to store petroleum products and feedstock on behalf of other companies in the region for ready trade and export to the market. Consequently, it is generally more economic to supply northern and north western areas of Australia directly from Asia than from Australian refineries.

Independent and government reviews have concluded that "supply from overseas suppliers of refined petroleum products is considered extremely reliable".

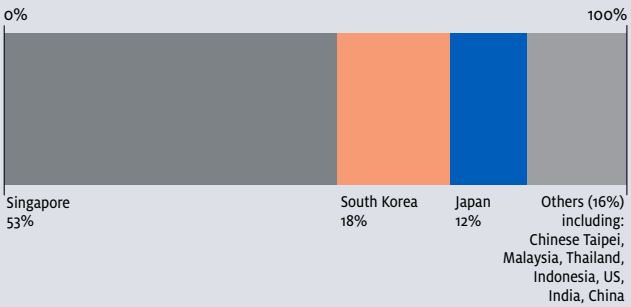
Sourcing crude oil and petroleum products from foreign countries and 'geopolitical risks' are sometimes claimed as vulnerabilities in Australia's liquid fuels supply chain. However, international events that impact on crude oil and petroleum product markets will generally be felt by all countries, so 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 a major impact on the reliability of supplies to Australia. Supply diversity clearly plays a key role in managing and mitigating such risks to Australia.

Imports of crude oil: 2012–13

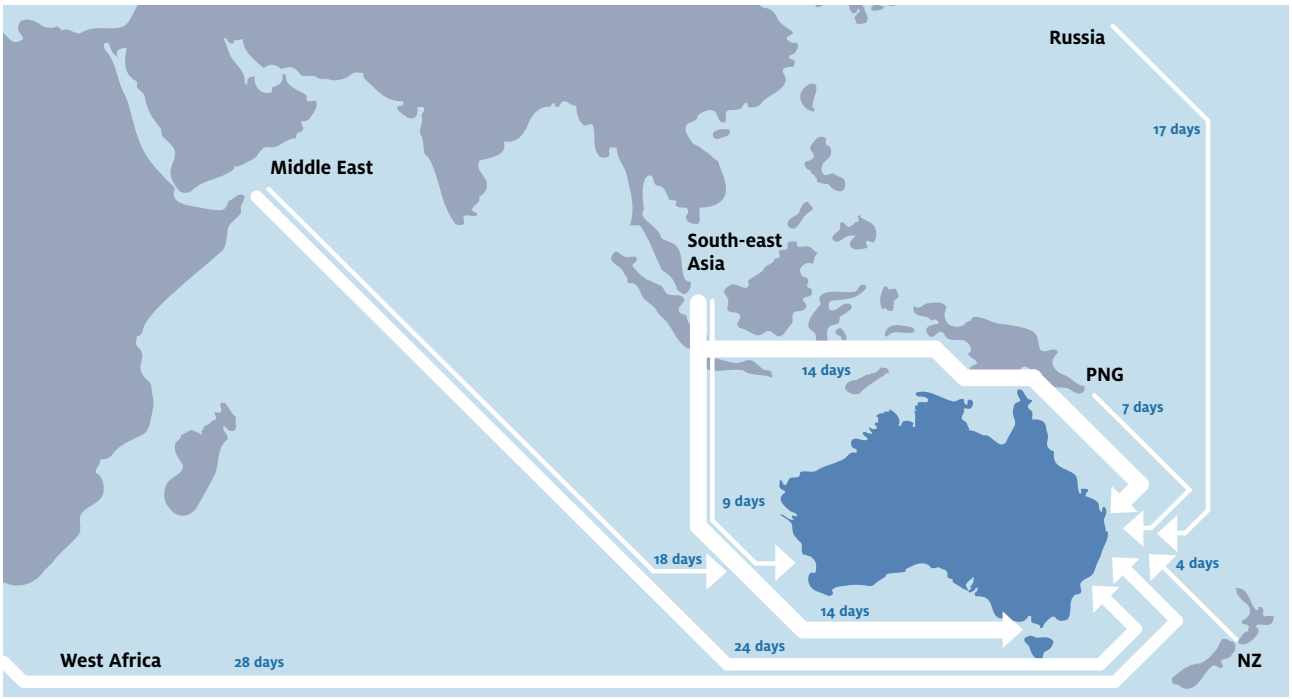


Imports of petroleum products: 2012–13



Flexible and secure shipping routes

Australia's major import shipping routes: crude oil



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 and demand centres.

The diagrams on pages 8 and 9 illustrate the variety of routes and approximate sailing times for crude oil and petroleum product shipments to Australia. With the key demand centres in the south-east 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 in the south-east of Australia.

Petroleum product stock 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.

Shipping security assessments

Independent assessments have found that shipping lanes to Australia are secure, and this is supported by an ongoing military presence in key shipping lanes.

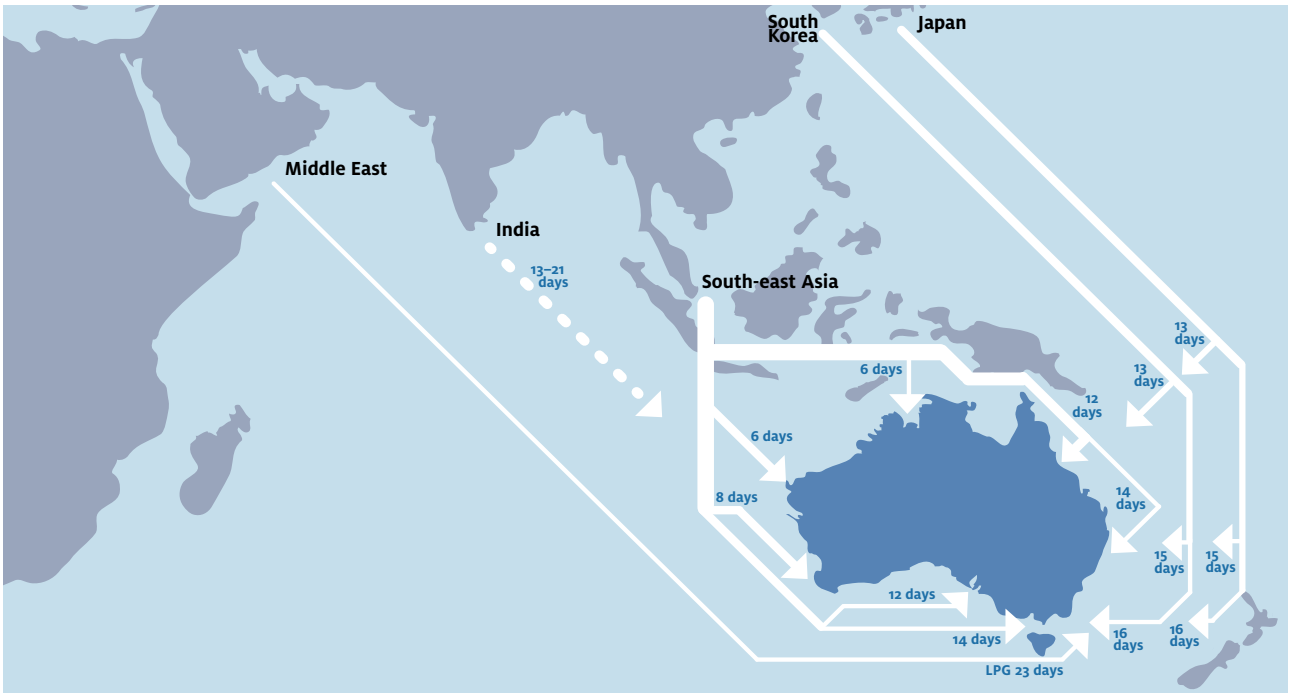
While security of sea lanes from piracy and military action is a risk that must be managed, it is not considered a critical risk by market experts.

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.

While the Mallacca Strait (in the Indonesian archipelago) handles a significant proportion of shipments to Australia, there are efficient and established alternative routes available (e.g. Sunda and Lombock Straits) if a major shipping route was threatened. Such alternatives would typically only involve the cost of additional sailing times.

The IEA has reported that 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.

Australia's major import shipping routes: petroleum products



'Stock on water' is 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 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, as shown in the diagram above.

About 2–3 weeks 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.

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 and generally take ownership (title) to their crude oil and petroleum product cargoes at the port where it is loaded onto the ship for transport to Australia.

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, 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.

The Australian refining industry

The role of Australian refineries

The Australian refining capacity provides a valuable complement to imports as part of the reliable, mature and diverse supply networks in Australia and provides many supply flexibility options.

Australia currently has six operating refineries located in Brisbane, Melbourne, Perth and Sydney. In most cases these refineries are connected by pipelines to major import terminals, and ex-refinery to major distribution terminals. There are also port facilities located around the Australian coast which are used for petroleum product imports and distribution.

In 2012–13, domestic refineries supplied around 63 per cent of petroleum products required by major industries and the fuel distribution network. The Australian oil refining industry produces a range of petroleum products comprising: petrol (43%), diesel (35%), jet fuel (15%), fuel oil (2%), LPG (3%) and other products (2%). A substantial volume of chemical feedstock is also supplied to the market.

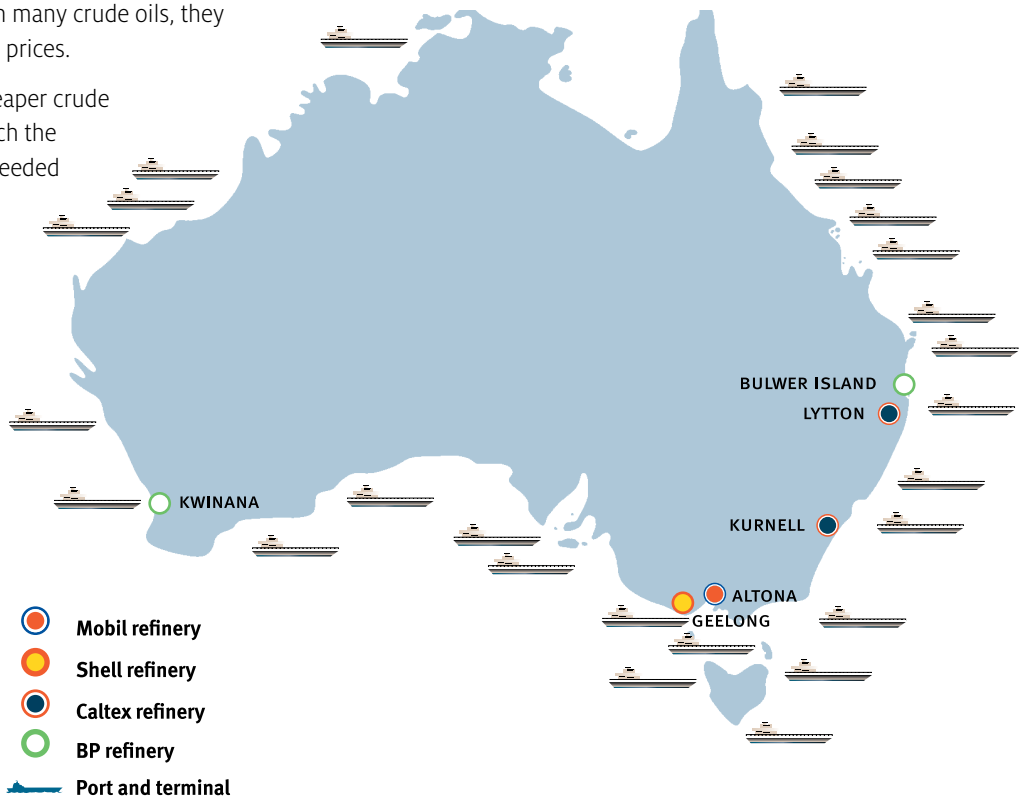
Australian refineries purchase a mix of Australian and imported crudes which best suits the specific capabilities, equipment and economics of each refinery along with the demand and quality requirements of their target markets. Since Australian crudes tend to be lighter (lower density) and sweeter (lower sulfur) than many crude oils, they generally attract higher market prices.

Australian refiners can find cheaper crude oil alternatives that better match the yields of petroleum products needed to supply Australian fuel users. Consequently, only some 15 per cent of the crude oil consumed in our refineries is from Australian oilfields. Australian crudes are also not suitable for producing heavier products like bitumen and lubricants.

Australian refineries normally operate on a continuous basis all year. However, they must cease operation every few years for major maintenance and for construction of replacement or upgraded processing units. AIP member companies carefully plan these major refinery maintenance cycles to optimise the utilisation and efficiency of the refinery. When maintenance is planned, actions are taken before, during and after the maintenance period (e.g. stock build) to minimise any potential impacts on supply reliability.

Alternative fuels can also add to supply diversification if they are of appropriate quality, competitively priced, reliably supplied and acceptable to customers. However, unless issues with reliability, quality, and lack of diversity of biofuels supply can be resolved, and the excise differential removed from imported ethanol, it will be difficult for biofuel blends to become a consistently available and mainstream transport fuel of choice.

For these reasons, conventional petroleum fuels currently contribute 95 per cent of Australia's liquid fuel needs and most market experts do not expect this to change significantly over the next 20 years.



Impact of Australian refinery closures

Australia is not insulated from structural changes occurring in the global market, including the reshaping of the global refining industry and pattern of trade, and the rise of Asia as a global refining, demand and trading centre.

Structural change has been occurring in the Australian downstream petroleum industry for decades, at the refining, wholesale and retail levels, to ensure ongoing competitive and reliable fuel supply to the domestic market.

As a consequence, these structural changes typically follow an orderly transition and have little discernible impact on supply reliability or market prices for consumers, as confirmed in the 2013 Parliamentary Inquiry Report. The ACCC has also stated that as a result of Australia's import parity pricing, the retail price for petrol is not impacted by refinery closures.

Scale and competitive disadvantages, and excess refining capacity in Asia, mean Australian refineries will face significant challenges over the next decade. Increased competition from Asian refineries, commercial pressures for increased business efficiencies and avoidance of new costs, coupled with implementation of climate change policies, the general tightening of regulatory requirements in Australia, and competing demand for skilled labour all have the potential to impact refinery viability over time.

Decisions to close Australian refineries reflect business assessments of commercial viability of the refineries and the competitive pressures faced by those facilities.

However, since Australian refineries that are being closed are located near market centres and have efficient access to existing import and distribution infrastructure, the refineries are being converted to import terminals. Consequently these facilities will maintain these important supply connections and continue to play a key role in meeting customer demand.

Projected reductions in Australian crude oil production and refining capacity will mean that domestic demand growth will be met by product imports from the Asian region. With any Australian refinery closure there will be a substitution of crude oil imports for greater imports of finished product. Being on the doorstep of Asia and well integrated into this market means Australia is in a strong position to maintain reliable supply.

Addressing any supply security risk from domestic refinery closures needs to be considered alongside an assessment of the costs and benefits of maintaining such crude oil processing capabilities, overall supply flexibility, and the security benefits provided by open global trade.

Australia's supply and distribution infrastructure

Australia's petroleum import and distribution infrastructure is a key component of the Australian fuel supply chain. This is underpinned by considerable industry investment in new supply infrastructure, and a requirement for significant ongoing investment to maintain existing capacity.

As shown in the following fuel supply chain diagram, bulk fuel terminals play an important role in the domestic liquid fuels supply chain as the primary distribution point for domestic refineries. They are also the key link between the international and domestic fuels market through import terminals at Australian ports.

Bulk fuel terminals also play a critical role in any industry and government response strategy to manage a major disruption to liquid fuels supply — see 'Industry actions to maintain supply reliability' (pages 14 and 15) and 'Emergency planning and management' (page 16).

The establishment of a bulk fuel terminal storage facility is a major capital investment in specialised infrastructure.

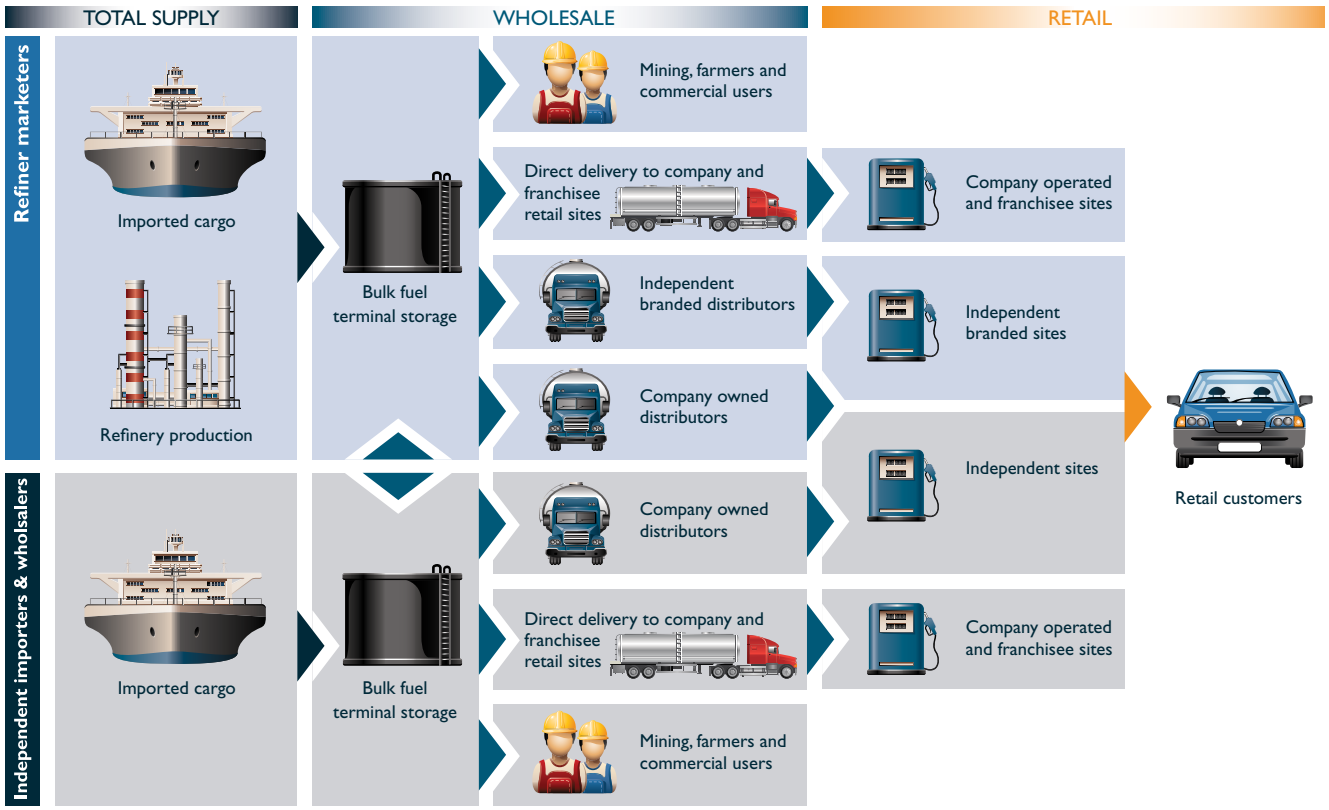
There is also a requirement for significant ongoing investment to maintain existing capacity. These investment risks are minimised through long term supply contracts with major fuel users and customers.

Capital intensity and business risk also mean there are significant commercial incentives for efficient infrastructure and supply chain management including:

- maximum utilisation of infrastructure (i.e. little or no surplus capacity, including through hosting and joint venture arrangements) so costs are minimised
- an ongoing program of infrastructure maintenance
- holding fuel stocks which reflect a robust commercial assessment of demand, operational conditions and risks
- regular review of supply chain operations and infrastructure adequacy.

Regular reviews by the industry have led to construction of new or expanded supply infrastructure and fuel storage in key import and demand centres around Australia, to better meet changes in the customer base and the fuel products they require.

The fuels supply chain



Over a number of years, major independent and government reviews of industry's petroleum import and supply infrastructure 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
- there are a range of economic options in Asia to import fuel meeting Australian quality standards
- terminal operations and access arrangements do not impose a constraint to import competition or to investment in supply infrastructure.

The key conclusion from these detailed assessments, including in the 2012 Energy White Paper, is that "currently, the market is delivering adequate terminal and importing infrastructure to meet Australia's liquid fuel needs, and investment in new import infrastructure and storage is keeping pace with increasing consumption".

A strong market-based approach in Australia will support continued investment in the supply infrastructure needed to meet growth in fuel demand. AIP therefore supports reforms, as recommended in the 2012 Energy White Paper, 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 state and territory governments (and private port operators) to maintain investment in port facilities and associated fuel handling infrastructure to remove supply bottlenecks and to meet expected growth in fuel imports and demand over time.

Bulk fuel terminals: market structure and operation

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.

Bulk fuel terminals are large storage facilities from which bulk 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.

Major terminal ownership

Refiner marketers	Sole ownership	39
	Joint venture	5
Independent		14
Total		**58**

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).

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.

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 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.

Industry actions to maintain supply reliability

Day-to-day supply management

AIP members seek to ensure continuous and reliable supply of competitively priced fuel to all customers and areas of Australia. This involves simultaneously managing all aspects of the supply chain — crude oil and petroleum product shipments, refinery production, and pipeline, terminal and distribution capacities and throughput.

Industry considers reliable supply of high quality fuel essential to maintain customer brand loyalty, as well as to maximise business commercial viability. A 'stock-out' will force customers to source fuel from a competitor leading to a loss of revenue and profits. It will also adversely affect customer confidence in the supply reliability of the company concerned.

As a result, major fuel suppliers and their distributors encourage the active management of fuel supply and stocks with their customers, particularly in markets with limited supply options (e.g. in remote areas). The supply chain diagram on page 15 highlights the key stockholdings along the Australian supply chain.

AIP member companies undertake regular reviews of demand forecasts, their supply chain operations and commercial levels of stocks. In reviewing demand forecasts, AIP member companies continuously impress on their distributors and customers the importance of providing accurate and detailed demand forecasts which take full account of potential demand spikes.

Large and unanticipated surges in demand by fuel users will always present a supply challenge to major fuel suppliers because of the general commercial and cost imperative not to hold excess stocks and because different points in the supply chain are subject to different constraints (e.g. pipeline capacity or the availability of transport).

There are typically demand spikes at the end of each year as a result of crop harvests, holiday driving activity, and defence requirements. The intensity of these demand spikes can also vary across fuel types and geographical areas.

AIP members normally expect to meet all requests to buy fuel at terminals. However, circumstances may arise where demand exceeds supply when either actual demand exceeds forecast demand (e.g. during unexpected demand spikes) or when there is a supply disruption.

When a potential problem is emerging, AIP members will attempt to meet demand using all available supply alternatives in the market. If the ability of AIP members to ensure continuous supplies is at risk, and stock levels are expected to be drawn down at an unacceptable rate, the chief mechanism for managing supply is bulk allocations at the terminal.

Bulk allocations involve the supply of existing contracted customers at a proportion of their usual forecast demand. When supply is subject to allocations, spot sales (normally about 5% of sales) are not conducted at that location. Allocations are usually commenced at 100% of contracted volumes and most customers will not be aware that there is a potential supply problem as contracted supplies are still fully available.

Allocations falling below 100% of contracted volumes are a potential indication of a supply problem and the impact on customers would depend on the expected duration of the event and customers' own stock levels.

The use of allocations is a precautionary measure which largely ensures an equitable distribution of available supplies over the duration of the supply disruption or demand spike. In more severe events, allocations also ensure that sufficient stocks are maintained by industry for the use of emergency services.

Most bulk fuel customers prefer to enter into term contracts with fuel suppliers to guarantee supply availability in a fuel supply restriction. Term contracts also provide access to site branding and fuel card operations, and help to manage risks between supplier and customer in relation to future movements in market prices for fuel.

Stockholdings in the Australian supply chain

AIP member companies regularly review stock levels to assess whether demand and market characteristics have changed sufficiently to warrant changes in stock levels and storage capacity at individual locations.

The current levels of commercial industry stockholdings reflect a considered assessment of the operating conditions throughout the supply chain and the risks more likely to be encountered by major fuel suppliers. Industry's objective is to reduce to an acceptable level the risks and consequences of supply disruptions. This involves balancing supply reliability with cost to fuel users and consumers.

Successive Australian Government National Energy Security Assessments (NESA) and Liquid Fuel Vulnerability Assessments have found that current levels of commercial stockholdings and their management by industry are fundamentally sound. They also confirm that Australia has sufficient commercial stocks in the supply chain for supply security and this will continue into the future with recent and planned increases in terminal and storage capacity.

An increase in stock levels beyond commercial levels would place significant additional costs on the supply system that unless government-funded would ultimately be passed on to consumers.

There is no evidence that the substantial cost of an emergency stockpile is justified on energy security grounds, given industry's efficient and reliable performance to date with no widespread or prolonged fuel shortages being experienced in Australia for decades. Even during international crude oil and petroleum product supply disruptions, such as in the aftermath of Hurricane Katrina in 2005, Australian fuel supplies have not been disrupted.

Views are expressed by some parties that Australia's security of liquid fuels supply would be improved through the introduction of government funded or mandatory stockholdings in the supply chain for emergency purposes.

Such a move would require very careful examination of the costs of stockpiling against the risk-weighted benefits of such action.

Management of 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.

Each supply disruption develops in its own way and requires dynamic industry management. Almost all supply problems are capable of being managed by industry and the market. However, there are also well established arrangements for relevant Commonwealth and state ministers and departmental officials to be kept fully informed of developments when there are supply disruptions so that governments are well positioned to assist with supply management if needed.

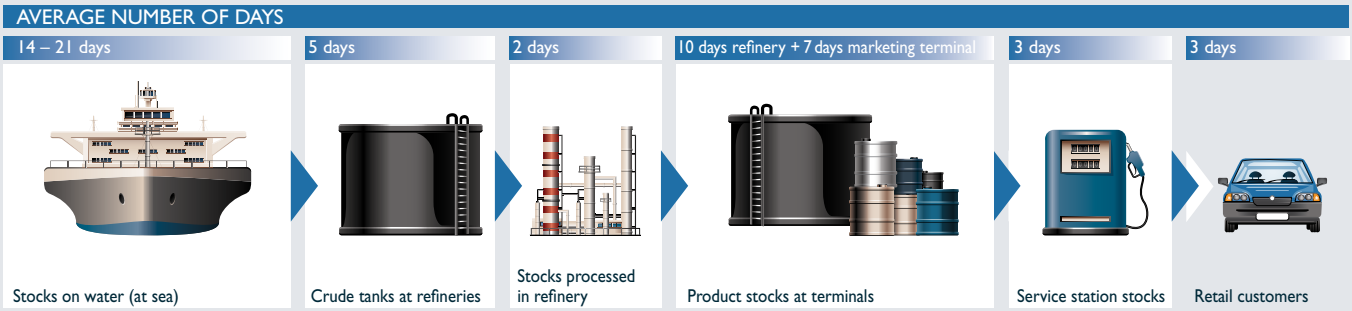
The impact of supply disruptions is rarely felt by consumers, as refiners and major fuel suppliers are adept at managing these issues as part of normal operations.

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 the spot market
- equitably allocating bulk fuel to customers
- drawing down industry stockholdings.

All fuel consumers, particularly large fuel users supporting the economy, are expected to have plans to manage the impact of a fuel supply disruption on their operations (see 'The role of major fuel users' on page 20).

Supply chain stocks as days consumption cover



Emergency planning and management

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

Industry and governments in Australia fully recognise the potential impacts of a severe national shortage of fuel supplies to business, consumers and communities. While every effort is made by industry to ensure continuing reliable fuel supply on a daily basis, the National Oil Supplies Emergency Committee (NOSEC) and the International Energy Agency (IEA) have established management plans to ensure a coordinated response to any liquid fuel or oil supply emergency at a national or international level.

National Oil Supplies Emergency Committee and National Plan

NOSEC is a committee of the Standing Council on Energy and Resources (SCER) and provides the main executive channel through which Australian governments jointly formulate their overall response to a national liquid fuel emergency and receive advice on issues relating to the national supply of crude oil and petroleum products. NOSEC comprises representatives from the Commonwealth (chair), all the states and territories, AIP and the major refiners/suppliers of bulk fuel.

NOSEC has developed and manages the National Liquid Fuel Emergency Response Plan (NLFERP) which details how Australian governments, along with industry, would respond effectively to a national fuel supply disruption or emergency.

During a national liquid fuel shortage, the NLFERP aims to ensure that available fuel supply is managed and allocated in the most efficient and fair way, so as to help minimise the economic impacts of the shortage on fuel users and customers.

The NLFERP reinforces market and industry strategies for returning Australia to normal fuel supply levels and includes a communication plan for the early identification and management of any emergency, whilst also ensuring key decision-makers, the media and consumers are provided with timely information.

NOSEC and the NLFERP are also well supported by flexible ministerial powers under the *Liquid Fuel Emergency Act 1984* (the LFE Act) to authorise the Australian Government to prepare for, and manage, a national emergency. These powers include control of stock drawdown, transfer and sale of industry held fuel stocks and the products produced by Australian refineries, as well as management of bulk and retail sales of fuel across Australia. There are also contingency planning powers which may be activated prior to a national emergency including powers to direct fuel suppliers to maintain levels of reserves, develop bulk allocation procedures and to maintain statistical data. These ministerial powers would be invoked in the event of a prolonged and widespread fuel shortage in Australia, but have never been utilised.

Each state and territory has responsibility for ensuring that plans are established under their own legislation to manage liquid fuel emergencies at the local or jurisdictional level and minimise the impact on fuel users. Each state and territory has agreed to harmonise their own emergency plans for liquid fuels with the NLFERP.

In the event of a localised supply emergency, the relevant state or territory legislation and emergency plan is activated. However, if an emergency escalates to have national implications, the NLFERP may override the arrangements of the states and territories, under the intergovernmental agreement between the Australian Government and state/territory governments.

For more information on NOSEC and Liquid Fuel Emergencies see https://lfe.govspace.gov.au.

‘Essential users’ of fuel in a national emergency

Governments all agree that emergency services should have ‘priority access’ to fuel in an emergency.

These fuel users are defined as ‘Essential Users’ in the LFE Act and in the Liquid Fuel Emergency (Essential Users) Determination 2008 and include:

- defence of Australia
- ambulance services
- corrective services
- fire or rescue services
- police services
- public transport services
- state emergency services
- taxi services.

During a national emergency, essential users may be entitled to fuel above and beyond that which is available to other fuel users. It is highly unlikely that fuel supply would ever be restricted to essential users only.

All other fuel users will continue to receive a proportion of their normal fuel supply (under a bulk allocation or retail rationing scheme directed by government) depending on the available fuel supply. While all businesses and consumers will receive an equitable share of the available fuel supply, all parties will need to prioritise and conserve fuel use during a national emergency.

This legislated framework for essential users provides operational certainty for industry and fuel users. Importantly, it also ensures that major fuel users understand the need to make contingency plans and take actions to manage the risks of a supply disruption on their own activities (see ‘The role of major fuel users’ on page 20).

For more information on Essential Users in a National Liquid Fuel Emergency, see https://lfe.govspace.gov.au.

Emergency planning and management

Global supply emergencies and the IEA response system

The International Energy Agency (IEA) is the energy forum for 28 industrialised countries, founded in 1974.

IEA member country governments are committed to taking joint measures to meet global oil supply emergencies. They also have agreed to share energy information, coordinate their energy policies and cooperate in the development of rational energy programmes. In Australia, NOSEC fulfils the role of National Emergency Sharing Organisation, which is an ongoing requirement of Australia's membership of the IEA.

The IEA emergency response mechanisms were established under the 1974 Agreement on an International Energy Program (the IEP Agreement).

The IEP Agreement requires IEA member countries — in the event of a global oil supply disruption — to release stocks, restrain demand, switch to other fuels, increase domestic production or share available oil, if necessary.

IEA collective response actions are designed to mitigate the negative impacts of sudden oil supply shortages by making additional crude oil available to the global market through a combination of emergency response measures which include both increasing supply and reducing demand.

Although supply shortages may bring about rising prices, the goal of the response action is to offset an actual physical shortage, not react to price movements.

The IEA has undertaken an international collective action three times in its history. These actions were in September 2011 in response to the Libyan supply disruption, in 2005 after Hurricane Katrina damaged offshore oil rigs, pipelines and refineries in the Gulf of Mexico, and in 1990–91 after the Iraqi invasion of Kuwait.

The IEA also conducts regular exercises and disruption simulations across member countries to test emergency response measures and preparedness, and also conducts in-depth reviews of the emergency response capability of individual member countries.

In previous reviews, the IEA has concluded that security of supply in 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 energy markets.

For more information on the IEA and emergency response mechanisms, see www.iea.org.

How the IEA responds to an oil supply emergency

- In the event of an actual or potentially severe oil supply disruption, the IEA Directorate of Energy Markets and Security assesses the market impact and the potential need for an IEA coordinated response.
- This market assessment includes an estimate of the additional production oil producers can bring to the market quickly, based on consultation with producer governments.
- Based on this assessment, the IEA Executive Director consults with and advises the IEA Governing Board (GB), which is comprised of senior energy officials from member countries who determine the major policy decisions of the IEA. This consultation process to determine the need for an IEA coordinated action can be accomplished within 24 hours if necessary.
- Once a coordinated action has been agreed upon, each member country participates by making oil available to the market, according to national circumstances. An individual member country's share of the total (IEA) response is generally proportionate to its share of the IEA member countries' total consumption.
- Throughout this decision-making process and the implementation stage of a decision, industry experts, through the IEA Industry Advisory Board (IAB), provide advice and consultation on oil supply/demand and emergency response issues.
- To meet emergency coordinated action, member country governments have different options of how best to meet their country's share of additional oil to be made available to the market by implementing a combination of emergency response measures which increase supply and/or reduce demand.

Source: IEA, 'IEA Response System for Oil Supply Emergencies', 2012

IEA calculated stockholdings versus actual commercial stockholdings in Australia

The IEP Agreement requires IEA member countries to hold crude oil stocks equivalent to at least 90 days of net oil imports and, in the event of a global oil supply disruption, to release stocks to the market or reduce demand.

Since joining the IEA, Australia has relied on commercial industry stocks coupled with significant domestic production of crude oil to meet its stockholding obligations, and on market based mechanisms and demand restraint under the NLFERP to respond to emergencies.

The IEA's 90 day stockholding obligation is calculated using a complex methodology developed in 1974 prior to the significant globalisation of the oil market and trade activity. As a result, this IEA methodology is not reflective of the way the Asia–Pacific market works.

In particular, it does not allow 'stock on water' (see page 9) to be counted towards a member country's stockholding obligation, despite this stock being integral to supply chain operations in Australia and in our region. In Australia's case this amounts to more than a quarter of total stockholdings directly owned and controlled by Australian companies.

Australia's compliance position has fallen below 90 days in recent years largely due to a decline in domestic crude production and increased demand. Commercial stocks of fuel held in the domestic supply chain (e.g. stocks of petrol, diesel, jet fuel) have actually increased in response to demand growth and increasing product imports following refinery closures. Consequently, the decline in Australia's 90 day stockholding compliance position raises no heightened risk for the domestic fuels market or for fuel users.

Maintaining supply security and reliability

The role of major fuel users

Current market based mechanisms and industry commercial response strategies are highly effective, but can be further enhanced by the widespread adoption of robust supply management and continuity planning by major fuel users in Australia.

AIP member companies believe that fuel users are best placed to make decisions about their need for liquid fuels, and the way they use those fuels, based on information about the price and availability of fuels meeting their operational requirements.

Major fuel users can also make the best decisions about how they will manage the risks of a disruption so that their commercial and community interests are maintained.

However, there are barriers to more efficient supply chain operation in Australia:

- many larger fuel users only hold limited stocks on the expectation that stocks will be held by fuel suppliers, or indeed governments will intervene to protect the interests of fuel users if supplies are limited
- many business and industry fuel users believe they are essential users and will get preferential supplies during a supply emergency in the same way as police, ambulance and emergency services.

AIP supports government efforts to address these major barriers, and notes that NOSEC is pursuing this through its liaison and education activities.

It is not the role for fuel suppliers to hold buffer stocks to guarantee the ongoing business operations of major fuel users and distributors during a major fuel supply disruption. Therefore, it is in the interests of all fuel users to understand their own fuel use and to consider how best to manage the potential impacts of reduced fuel supply, including:

- identification of current fuel supply management arrangements, the location, capacity and utilisation of supply infrastructure and storage, and demand by fuel type across business operational activities
- categorisation of business activities from highest to lowest priority, with fuel use for each activity clearly quantified and monitored (including differences in fuel use between normal and peak or emergency times)
- assessment of how a significant reduction in fuel supply for a prolonged period would be managed, including the use of different modes of operation during shortages (e.g. cancellation or deferral of non-essential activities).

Following this analysis, a robust business continuity plan should be established with effective response options to deal with the specific (and varying) circumstances of any fuel supply disruption.

Actions should also be taken to address any unacceptable business risks arising from a fuel supply shortage, including investing in extra stockholdings and storage capacity, improving fuel supply management (either on their own or through their major fuel supplier), and changing business operations to avoid or minimise the impact of possible fuel supply disruptions.

The role of governments

There is an important role for governments alongside the Australian petroleum industry in meeting future challenges, strengthening the security and operation of the fuels market, and facilitating the significant infrastructure investment required to meet Australia's growing liquid fuel needs.

Provide a stable policy and investment environment for the industry with a strong market-based approach

Policy stability is key to the delivery of ongoing energy security and attracting the necessary and significant industry investments to meet Australia's future liquid fuel needs. An attractive investment environment and more efficient, timely and consistent national planning, approval and regulatory processes, would support the ongoing investment in the growth and the maintenance of key infrastructure supporting the liquid fuels supply chain.

A strong market-based approach by government will also provide a flexible and robust policy framework capable of responding to the changing global oil market and also to technology developments in the industry. As part of a stable market-based approach, AIP recommends a set of policy principles to guide governments and safeguard liquid fuel supply security in Australia — see page 22.

AIP and its members companies also support multilateral government efforts to ensure that world markets remain open and Australia continues to be well integrated into regional oil and commodity markets. The importance of international engagement is underscored by global supply diversification, shifting demand–supply patterns, and the need to attract investment in a highly competitive capital market.

Conduct robust market monitoring and regular assessment of liquid fuels security and vulnerabilities

Ensuring that Australia's liquid fuels market and settings are resilient and robust to both foreseeable and unforeseeable events is an important role for government. In this respect, AIP supports government actions for ongoing market monitoring and energy security assessments. This includes conducting regular National Energy Security Assessments and Liquid Fuels Vulnerability Assessments using the established assessment approach.

It is also important to ensure the NESA assessment framework remains robust and applies a common methodology across all energy sectors, all relevant technologies, and all transport fuels in the fuels mix.

Critical to these future government security assessments, and to meeting Australia's international obligations, is robust petroleum and stocks data. In this light, AIP supports the development of higher-quality and broader coverage Australian Petroleum Statistics (under the announced Mandatory Reporting Regime) and also coordinated efforts to consolidate petroleum data and analysis across the Australian Government. Access to high-quality and timely petroleum data and analysis is crucial for government, industry and consumers to make efficient and well-informed decisions.

Maintain the current National Emergency Management Framework

Following extensive reviews in recent years, Australia's emergency response framework for liquid fuels is robust and proven, and there are no obvious gaps currently. The framework should be periodically reviewed to ensure its ongoing alignment with market-based principles, market operation and conditions, and the best practice commercial strategies of industry to manage supply disruptions.

AIP agrees with the 2012 Energy White Paper that "Government intervention to manage disruptions should be as a last resort. Decisions to intervene should be based on an agreed transparent and objective emergency framework that ensures cooperation between industry and government to minimise market distortion. In the event of a disruption, energy market participants should be able to make independent decisions in response to price signals and existing or revised contractual arrangements. These decisions are likely to provide the most effective, flexible and timely responses to minimise the impact of disruptions at least cost."

In this regard, state and territory governments need to ensure that the liquid fuels Emergency Management Plans operating in each jurisdiction are aligned with the National Emergency Plan (NLFERP), as agreed by NOSEC and SCER, to ensure a harmonised and certain approach to the management of any fuel supply disruption.

A policy framework for supply security and reliability

A sound government policy framework for liquid fuels security should:

- maintain a strongly market based approach to liquid fuels with minimal regulatory intervention
- recognise the competitive pressures from regional refineries and the impact on the economy of any loss of Australia's competitive advantage as a result of government policies
- facilitate the development of liquid fuels supply infrastructure, including streamlining approvals for new or expanded infrastructure developments such as new storage facilities or port deepening
- place no additional and unjustified compliance, regulatory and cost burdens on the fuels supply industry that reduce the industry's ability to compete effectively in the region
- ensure R&D policy settings are appropriate and encourage the commercial development of transport fuels which can contribute to liquid fuel security in Australia
- seek to identify and address any government policy and regulatory impediments to Australia maintaining a high level of liquid fuel security over the longer term.

This policy framework reflects fundamental industry drivers including the long lead times required for industry investment, the significant capital employed by the industry, and the risk to supply security if any policy changes make an ongoing domestic refining presence unviable in the future.

Within this policy framework, any government actions to strengthen liquid fuels security and reliability should be based on the following policy principles:

- Government policy should be:
  - based on sound science and rigorous economic analysis which indicate a clear net public benefit
  - consistent and transparent
  - aimed at strengthening linkages to regional and international markets.
- Changes in government policy should:
  - allow for a sufficient transition period
  - recognise the considerable investment that has occurred as well as the investment that will be required in the future to maintain the reliability and capacity of the downstream petroleum industry.
- Government regulatory regimes should:
  - clearly define their objectives
  - be regularly reviewed to ensure the objectives are still relevant
  - be harmonised across jurisdictions
  - be enforced, and applied, consistently to all market participants
  - be allowed to lapse when their objectives have been met.
- If governments implement energy security policies, the impacts on Australia's international competitiveness and, thereby, on domestic fuel prices, should be well understood by the community.

Further information

AIP publications and submissions are available on the AIP website (www.aip.com.au), including 'Downstream Petroleum 2011' (see http://www.aip.com.au/industry/facts.htm).

The following independent and government reports provide additional background information and data in support of the key facts and conclusions contained in this AIP publication. For convenience, these detailed reports are available for download at http://www.aip.com.au/industry/supplysecurity.htm.

Australia's Maritime Petroleum Supply Chain (June 2013)
Hale & Twomey Limited (prepared for the Department of Resources, Energy and Tourism)

Report on Australia's Oil Refinery Industry (January 2013)
House of Representatives Standing Committee on Economics,
The Parliament of the Commonwealth of Australia

Monitoring of the Australian Petroleum Industry (December 2012)
Australian Competition & Consumer Commission
See: http://www.aip.com.au/industry/pricemonitoring.htm

Energy White Paper 2012: 'Australia's Energy Transformation' (November 2012)
Australian Government and Department of Resources, Energy and Tourism

National Energy Security Assessment 2011 (December 2011)
Australian Government and Department of Resources, Energy and Tourism

2011 Liquid Fuels Vulnerability Assessment (October 2011)
ACIL Tasman Pty Ltd (prepared for the Department of Resources, Energy and Tourism)

2009 Liquid Fuels Vulnerability Assessment (August 2009)
ACIL Tasman Pty Ltd (prepared for the Department of Resources, Energy and Tourism)

Petroleum Import Infrastructure in Australia (August 2009)
ACIL Tasman Pty Ltd (prepared for the Department of Resources, Energy and Tourism)

National Energy Security Assessment 2009 (March 2009)
Australian Government and Department of Resources, Energy and Tourism

Energy White Paper 2004: 'Securing Australia's Energy Future' (June 2004)
Australian Government and Energy Task Force

Australian Petroleum Statistics (2013 editions)
Bureau of Resources and Energy Economics
See: http://www.bree.gov.au

International Energy Agency
Medium-term Oil Market Report (2013)
Monthly Oil Market Reports (2013)
IEA Response System for Oil Supply Emergencies (2012)
See: http://www.iea.org

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