Australian Government

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Ref:

2 October 2008

The Secretary
Select Committee on Fuel and Energy
PO Box 6100
Parliament House
CANBERRA ACT 2600

Dear Sir/Madam

Please find attached ABARE's submission to the Senate Select Committee on Fuel and Energy.

The ABARE submission addresses a selection of the issues on which the Committee is inquiring and reporting, focussing on the areas where ABARE is able to contribute particular expertise. Namely, the submission provides an analysis of farm expenditure on fuel as an input to agricultural production using ABARE's farm survey data and, given the importance of gas as an input to fertiliser production and hence fertiliser prices, it also provides some analysis of expenditure on fertiliser. The submission also provides an overview of the domestic oil and gas exploration and refinement industry and information on major oil and gas projects currently under development.

I apologise for providing this submission after the advertised date for lodgement. Delaying lodgement until now has allowed us to incorporate ABARE's latest oil price forecasts into the farm cost analysis. ABARE's latest commodity forecasts were finalised and released on Monday 22 September in the September Quarter issue of *Australian Commodities*.

Yours sincerely

Phillip Glyde
Executive Director

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ABARE submission to the Senate Select Committee on Fuel and Energy

October 2008

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ABARE is a professionally independent government economic research agency.

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1. Introduction

The Australian Bureau of Agricultural and Resource Economics (ABARE) welcomes the opportunity to provide a submission to the Senate Select Committee on Fuel and Energy.

This submission provides an analysis of farm expenditure on fuel as an input to agricultural production using ABARE's farm survey data. Given the importance of gas as an input to fertiliser production and hence fertiliser prices, some analysis of farm expenditure on fertiliser is also presented. The analysis examines the varied impacts on farm cash costs across the different agricultural industries.

This submission also provides an overview of the domestic oil and gas exploration and refinement industry, presenting information on oil and gas production, trade and domestic use. Information on major oil and gas projects currently under development is also provided.

A collection of statistical tables relating to farm fuel and fertiliser prices, as well as tables on petroleum production, trade and prices, is also appended for the information of senators. The tables are from *Australian Commodity Statistics 2007*, ABARE's statistical compendium published in December each year.

2. About ABARE

ABARE is an Australian Government economic research agency noted for its professionally independent research and analysis. Its objective is to contribute to the competitiveness of Australia's agricultural, fishing, forestry, energy and minerals industries and to the quality of the Australian environment by providing rigorous and independent economic research analysis and forecasting.

ABARE disseminates the results of its research through the media, its website, the national Outlook conference, regional Outlook conferences around Australia and many other speaking engagements. All information on the website is available free of charge.

In its more than 60 year history, ABARE has amassed a wealth of expertise in applied economic research. ABARE uses the latest innovative modeling techniques and its extensive corporate databases contain data not available elsewhere.

ABARE research contributes to some of the most important items on the Australian and international policy agendas:

- multilateral trade negotiations and more open agricultural markets
- greenhouse gas emissions and climate change response policies
- water policy reform
- energy
- minerals exploration and policies
- issues in regional Australia
- Australian farm performance
- Australian farm surveys

ABARE also produces regular quarterly forecasts for a wide range of export commodities, so that industries can plan their future better, based on sound research. Its commodity analysis covers agriculture, minerals, energy, fisheries and forestry. ABARE is one of the few agencies to produce medium-term and regular quarterly forecasts for Australia's major export commodities.

3. Impact of higher petroleum, diesel and gas prices on rural Australia

ABARE's farm surveys provide a broad range of information on the current and historical economic performance of farm business units in the rural sector. Each year ABARE interviews producers from the broadacre and dairy sectors of Australian agriculture. The information collected provides a basis for analysing the current financial position of farmers in those industries and expected changes in the short term. Data from ABARE's Australian agricultural and grazing industry survey (AAGIS) and Australian dairy industry survey (ADIS) are used in this analysis to determine the contribution of expenditure on fuel to total farm costs up to 2006-07, the latest year for which survey results are available. The price of fertiliser is also influenced by energy prices, given natural gas is an important input into the manufacture of fertilisers, so farm expenditure on fertiliser as a proportion of total cash costs is also examined. To reflect more recent rises in fuel and fertiliser prices, ABARE indexes of prices paid by farmers are analysed later in this section to estimate farm costs for the Australian agriculture sector as a whole.

Farm expenditure on fuel

Farm survey results show that the share of total cash costs per farm outlaid for fuel and lubricants has been relatively stable over the ten year period from 1997-98 to 2006-07, ranging in the order of 6 per cent to 9 per cent (figure 1).

In 2006-07, average expenditure per farm on fuel accounted for just less than 8 per cent of total cash costs (table 1).

Expenditure on fuel as a proportion of total cash costs varies considerably, however, between different agricultural industries. Fuel as a proportion of total cash costs is highest for grain producers as diesel fuel is a major input into the planting, spraying, harvesting and transportation processes. In 2006-07, fuel accounted for around 10 per cent of total cash costs for the wheat and other crops industry and 8.5 per cent for the mixed livestock–crops industry. For livestock producers, a smaller share of their costs was accounted for by fuel and lubricants with sheep specialists allocating 7 per cent of their total cash costs on fuel, beef specialists only 6 per cent and sheep–beef producers just less than 6 per cent. Dairy farmers on average allocated only 4 per cent of their total farm input expenditure to fuel and lubricants (table 1).

Figure 1 Farm cash costs, average per farm

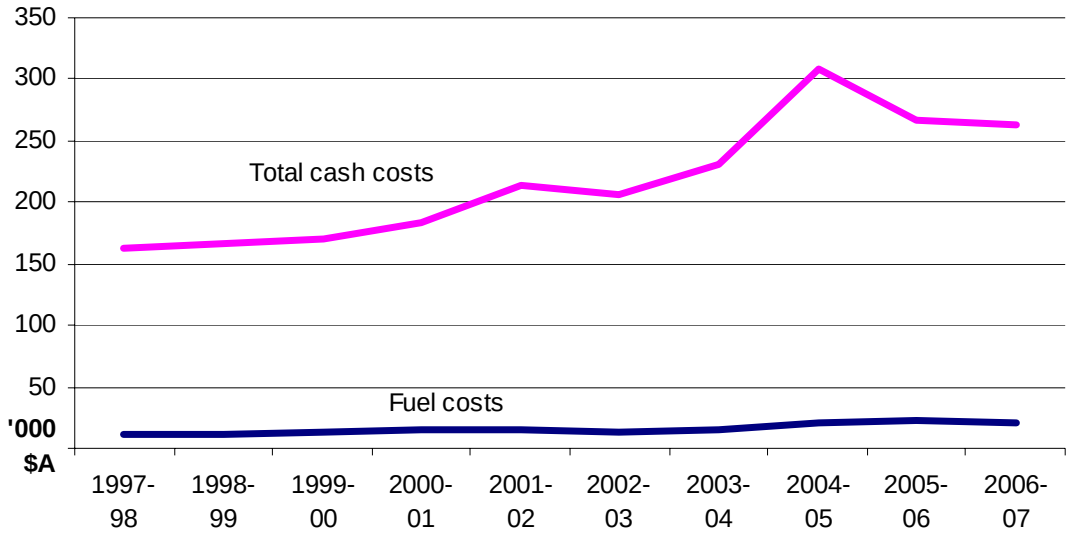


Table 1 Average cash costs per farm and expenditure on fuel, by industry, 2006-07

	Fuel, oil and grease	Total cash costs	Fuel as a share of total cash costs
	$	$	%
All broadacre	20 070	262 290	7.7
wheat and other crops	35 760	373 980	9.6
mixed livestock–crops	21 820	255 870	8.5
sheep industry	13 270	189 160	7.0
beef industry	14 910	247 740	6.0
sheep–beef industry	12 750	229 710	5.6
Dairy	13 680	351 450	3.9

Farm expenditure on fertiliser

One factor that has affected fertiliser production costs, and therefore prices of fertiliser globally, is higher natural gas prices. The price of natural gas accounts for 70 per cent to 90 per cent of the cost of producing ammonia, which is either applied directly to crops or used as an input to other nitrogenous fertilisers such as urea, ammonium nitrate, ammonium sulphate and water-based liquid nitrogenous fertilisers.

Producers with the highest exposure to changes in fertiliser prices are wheat and other crops and mixed livestock–crops producers for which fertilisers accounted for around 15 per cent and 12 per cent of total cash costs in 2006-07, respectively (table 2). For the livestock industries, the share of fertiliser costs as a proportion of total cash costs was greater in the sheep and dairy industries than in the beef industry, with a proportion of beef producers more likely to graze cattle on unimproved or native pastures.

Table 2 Average cash costs per farm and expenditure on fertiliser, by industry, 2006-07

	Fertiliser	Total cash costs	Fertiliser as a share of total cash costs
	$	$	%
All broadacre	22 810	262 290	8.7
wheat and other crops	51 800	373 980	13.9
mixed livestock–crops	28 750	255 870	11.2
sheep industry	15 610	189 160	8.3
beef industry	6 930	247 740	2.8
sheep–beef industry	12 780	229 710	5.6
Dairy	22 580	351 450	6.4

World fertiliser indicator prices have increased significantly, particularly for diammonium phosphate (up 168 per cent in the year to April 2008) and monoammonium phosphate (up 138 per cent), placing increasing cost pressures on agricultural producers.

Index of prices paid and total farm costs

While the farm survey provides useful information on the proportion of average per farm expenditure allocated to fuel and fertiliser and the variances across the different agricultural industries, it does not provide an indication of the effects of the more recent fuel price rises. ABARE's index of prices paid by farmers takes into account estimates of current year fuel prices and forecasts for future years. Over the five years to 2006-07, ABARE's index of fuel and lubricant prices showed an average annual growth rate of 11 per cent. In 2007-08 the index increased by 17 per cent. In 2008-09 the fuel prices paid by farmers are forecast to rise further, with the index increasing a further 23 per cent. For fertiliser, prices paid over the five years to 2006-07 rose by 3 per cent a year on average. In 2007-08 the fertiliser price index jumped by more than 80 per cent and is forecast to rise a further 20 per cent in 2008-09 (figure 2).

Figure 2 Indexes of prices paid by farmers for fuel and fertiliser

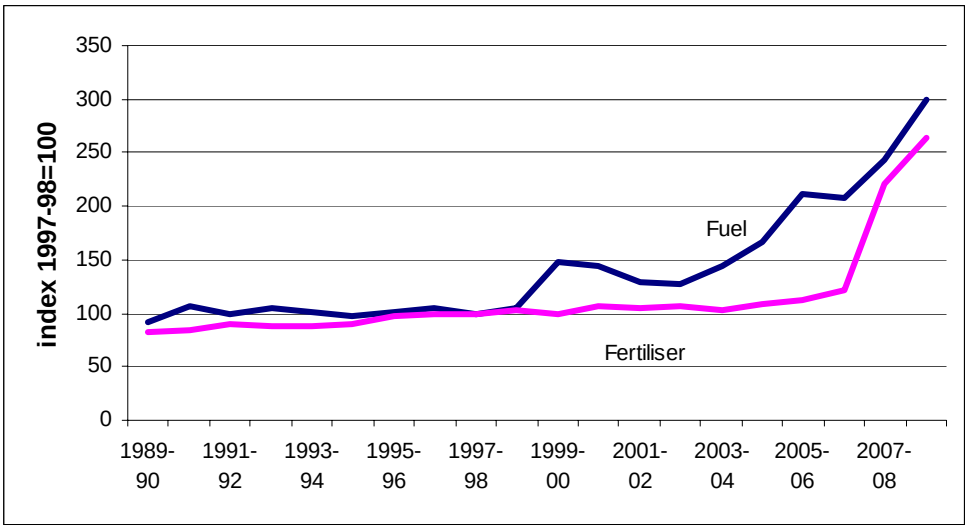


Table 3 Farm costs, Australia ($ million)

	2003-04	2004-05	2005-06	2006-07	2007-08 s	2008-09 f
Costs						
Materials and services						
chemicals	1 649	1 691	1 749	1 545	1 872	2 175
fertiliser	1 827	1 851	1 843	1 659	3 172	3 884
fuel and lubricants	1 702	1 765	2 223	2 199	2 573	3 169
marketing	3 567	3 433	3 612	2 674	2 834	3 546
repairs and maintenance	2 453	2 493	2 602	2 466	2 572	2 642
seed and fodder	4 317	4 267	3 827	4 921	5 960	5 761
other	3 378	3 473	3 692	3 543	3 702	3 826
total	18 893	18 974	19 548	19 007	22 686	24 963
Labor	3 420	3 410	3 778	3 654	3 779	3 911
Overheads						
interest paid	2 238	2 306	3 249	3 848	4 423	4 319
rent and third party insurance	422	432	446	447	462	478
Total	6 080	6 148	7 473	7 950	8 664	8 708
Total cash costs	24 973	25 122	27 021	26 956	31 350	33 672

In 2007-08, higher fuel prices are estimated to have increased farm costs for the Australian agricultural sector as a whole by $374 million (table 3). Despite this increase,

fuel as a proportion of total cash costs is estimated to have remained at 8 per cent in 2007-08. In 2008-09, fuel costs as a proportion of total farm costs are expected to increase to 9 per cent of total farm costs.

Despite fuel's increased share of total farm cash costs, other input costs such as fertiliser, seed, fodder and interest payments are expected to account for larger shares of total farm cash costs than fuel in 2008-09.

In 2007-08, higher fertiliser prices are estimated to have increased total farm cash costs by around $1.5 billion (table 3). The increase lifted the proportion of total cash fertiliser cost from 5 per cent in 2006-07, to 9 per cent in 2007-08. In 2008-09, fertiliser prices are likely to further increase as the price of gas and the world demand for fertiliser continue to grow. As a result, the share of total cash costs of fertiliser is estimated to be 11 per cent in 2008-09, higher than fuel but still lower than that for seed, fodder and interest payments.

It is important to recognise the ability of farmers to adjust their farming practices in response to significant changes in the price of farm inputs. Precision farming and conservation tillage, for example, provide opportunities for both direct and indirect energy conservation, with reduced tillage involving less fuel consumption and reduced fertiliser requirements. Low rainfall over the past couple of years and failed crops may have also resulted in fertiliser remaining in the ground to be utilised for future crops. In such situations farmers may reduce the amount of fertiliser they apply, therefore reducing fertiliser costs.

4. The domestic oil and gas exploration and refinement industry

Australia is a resource rich country with significant energy resources in the form of liquefied petroleum and natural gas, as well as coal and uranium. It is one of the few OECD countries which is a significant net energy exporter.

Oil

Petroleum production and use

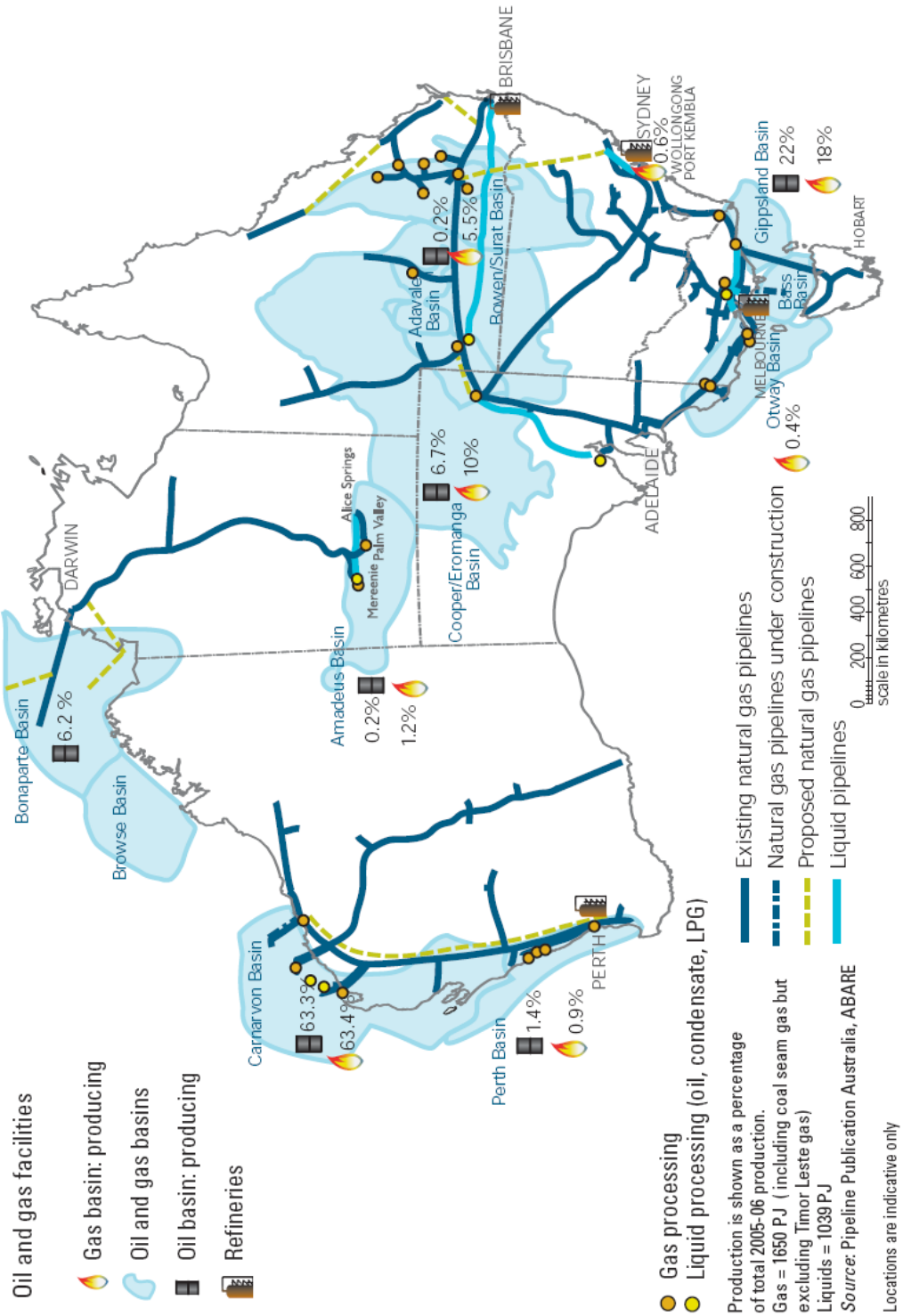
Petroleum liquids comprise all liquid hydrocarbons including crude oil, condensate, liquid petroleum gas (LPG) and refined petroleum products.

The majority of Australia's primary petroleum liquids output (crude oil, condensate and LPG) is produced in the Carnarvon Basin. The region accounts for 63 per cent of Australia's total production of these products. The more mature oil fields located in the Gippsland Basin in Bass Strait have been producing since the late 1960s. However, production from the basin peaked in the mid-1980s and has declined steadily since. The Gippsland Basin currently constitutes 19 per cent of Australia's total production of naturally occurring petroleum liquids.

Crude oil and condensate are also produced onshore from the Cooper-Eromanga Basin, which straddles the border of South Australia and Queensland. Small quantities of crude oil are produced from several other onshore basins, including the Perth and Canning Basins in Western Australia, the Amadeus Basin in the Northern Territory and the Bowen-Surat Basin in Queensland. The Otway Basin, straddling South Australia and Victoria, also produces condensate. The other major liquids producing region is the Bonaparte Basin off the northern coast of Australia, some of which is shared with Timor Leste.

Although much of Australia's current oil production is sourced from mature oil and gas provinces, many prospective areas offshore are yet to be fully explored. There is a possibility of significant undiscovered oil and gas resources in Australia's four major offshore regions, the Gippsland Basin in Victoria, the Bonaparte Basin in the Northern Territory, and the Browse and Carnarvon Basins in Western Australia.

Largely on the basis of increasing production of natural gas, Australian LPG production (principally propane and butane) is expected to rise in the long term.


Oil and gas facilities
Gas basin: producing
Oil and gas basins
Oil basin: producing
Refineries
Gas processing
Liquid processing (oil, condensate, LPG)
Existing natural gas pipelines
Natural gas pipelines under construction
Proposed natural gas pipelines
Liquid pipelines
Production is shown as a percentage of total 2005-06 production.
Gas = 1650 PJ (including coal seam gas but excluding Timor Leste gas)
Liquids = 1039 PJ
Source: Pipeline Publication Australia, ABARE
Locations are indicative only
0 200 400 600 800
scale in kilometres
Bonaparte Basin
6.2 %
Browse Basin
DARWIN
Amadeus Basin
0.2%
1.2%
Alice Springs
Mereenie Palm Valley
Cooper/Eromanga Basin
6.7%
10%
Adavale Basin
0.2%
5.5%
Bowen/Surat Basin
BRISBANE
SYDNEY
0.6%
WOLLONGONG
PORT KEMBLA
ADELAIDE
Otway Basin
0.4%
MELBOURNE
Bass Basin
Gippsland Basin
22%
18%
HOBART
Carnarvon Basin
63.3%
63.4%
Perth Basin
1.4%
0.9%
PERTH

Around 53 per cent of Australia's consumption of crude oil is met by domestic production while, for LPG, Australia produces significantly more than is consumed. In 2006-07, in energy contents terms, LPG represented 8.4 per cent of fuel used in non-diesel automobile engines in Australia. With higher petrol prices and government incentives for LPG use, automotive LPG demand is projected to grow.

Petroleum trade

Australia is a net importer of crude oil and refined products, but a net exporter of LPG, mainly in the form of butane.

Production from the Carnarvon Basin in the north-west of Australia is mostly exported, while production from the Gippsland Basin in south-eastern Australia is predominantly used to feed local refineries. Increasing production in the north-west and decreasing production in the south-east have resulted in an increase in Australian imports and exports of crude oil.

Around two-thirds of Australia's crude oil and condensate exports were shipped to the Asian region in 2006-07, with the Republic of Korea, Japan and Singapore being major markets for Australian crude oil feedstock. Japan is Australia's largest market for LPG, accounting for around two-thirds of the export volume. New Zealand and Singapore are Australia's largest markets for refined products, taking 50 per cent and 33 per cent respectively in 2006-07.

Australia has 11 major deepwater ports which have facilities to export petroleum liquids. Dampier in Western Australia is Australia's largest crude oil and condensate exporting centre, accounting for 36 per cent of all Australian liquid petroleum exports (excluding LNG) in 2005-06.

Since the mid-1990s, Australia's imports of Middle Eastern crude oil have gradually fallen and been partially replaced by crude oil from the South East Asian region.

Liquid fuels refining and pricing

The petroleum refining industry in Australia produces a wide range of petroleum products derived from crude oil and condensate feedstock. Australia's downstream petroleum industry includes seven major operating oil refineries managed by four companies — BP, Caltex, Mobil and Shell.

In 2006-07, automotive gasoline, diesel fuel and aviation turbine fuel accounted for 87 per cent of the total production of refined products in Australia. The ratio of domestic production to gross sales in Australia for gasoline and turbine fuel is relatively high, being 92 per cent and 91 per cent, respectively. Australia is less self-sufficient in the heavier products such as kerosene, diesel, fuel oil and lubricants. Most of the exports of propane and butane come from naturally occurring field production. However, residential, commercial and recreational consumption of LPG in Australia is

predominantly of propane, so the net availability of propane for export is only half that of butane.

In the Asia Pacific region, gasoline and diesel consumption has grown rapidly and many countries have implemented stricter fuel standards for these fuels. This has meant a significant reduction in spare refinery capacity in the region.

Higher fuel quality standards are now in effect in all the major oil refineries operating in Australia, following recent upgrades. The only exception is the Port Stanvac refinery in South Australia, which ceased operating in 2003 and is currently under care and maintenance. Meeting the cost of 2006 standards for fuel quality in Australia was difficult for the local refining industries following several years of low profits as a result of competition from newly built refineries in the Asian region.

Biofuels

There are several producers of fuel grade ethanol and biodiesel in Australia. Liquid biofuels production in Australia is estimated to have been 160 million litres in 2006-07 (83 million litres of ethanol and 77 million litres of biodiesel).

The Australian Government provides incentives for producing ethanol and biodiesel through capital grants, production grants that offset the excise levied on liquid fuels, cleaner fuel grants and grants to facilitate biofuel distribution. On 27 February 2008, the Prime Minister requested the Minister for Resources, Energy and Tourism and the Minister for Agriculture, Fisheries and Forestry undertake an internal government review of existing Australian biofuels policies. The review process is expected to be completed by the end of 2008.

Gas

Australia's identified natural gas resources have increased four-fold over the past two decades, particularly in the western and north-central areas of Australia. Today around 90 per cent of estimated recoverable reserves of natural gas are located off the west and north-west coast of Australia.

Production

In 2006-07, around two-thirds of Australia's natural gas (excluding coal seam gas) was produced in the Carnarvon Basin off the coast of Western Australia.

Victoria accounted for a further 20 per cent of Australia's natural gas production, the majority of which came from the offshore Gippsland Basin. The onshore Otway Basin in south-western Victoria has also contributed small volumes to the Victorian market for many years. Several gas fields off the southern coast of Victoria in the Bass and Otway Basins are currently being developed.

In 2006-07, natural gas production in South Australia accounted for 10 per cent of Australia's total production, the majority of which was from the onshore Cooper-Eromanga Basin.

Natural gas produced in Queensland and the Northern Territory accounts for the remainder of Australian production. Queensland natural gas production is sourced mostly from the Bowen-Surat Basin, with a small amount from the Adavale Basin.

Gas production in the Northern Territory is sourced primarily from the onshore Amadeus Basin in central Australia. Gas from the Bayu-Undan field in the Bonaparte Basin of the Timor Sea is subject to a production sharing contract between the producers and the Timor Sea Designated Authority for the Joint Petroleum Development Area. The designated authority's share of the revenue is apportioned 90 per cent to Timor Leste and 10 per cent to Australia.

Adding to Australia's natural gas production is the growing contribution from coal seam gas. Coal seam gas production in Australia was around 1800 gigalitres in 2005-06, of which 86 per cent came from the Bowen-Surat Basin in Queensland and the remainder from the Sydney Basin in New South Wales.

Domestic market

Historically, two major gas producers have supplied most of the eastern Australian gas market (South Australia, Victoria, New South Wales and Queensland). Almost 90 per cent of natural gas supplied to this market is from the Esso/BHP Gippsland Basin joint venture and the Santos led operations in the Cooper-Eromanga Basin.

The Carnarvon Basin dominates supplies for the Western Australian gas market and there are several producers supplying natural gas to the domestic market from this region.

There are almost 25 000 kilometres of high pressure gas transmission pipelines used in long distance transporting of natural gas and more than 80 000 kilometres of low pressure pipelines distributing gas at the retail level. Natural gas is used by around 3.75 million households and more than 75 000 commercial and industrial enterprises in Australia (Energy Supply Association of Australia).

Trade

Australia exports natural gas in the form of liquefied natural gas (LNG), most of which is currently sourced from the Carnarvon Basin on the north-west shelf off Western Australia. The North West Shelf Joint Venture is in the process of expanding this operation, with a fifth LNG production train due to be completed by the end of 2008.

From the start of 2006, natural gas has also been supplied from the Conoco-Philips Bayu-Undan gas field in the Timor Sea, for the production of LNG onshore near Darwin.

5. Major oil and gas development projects

Australia's ability to continue to supply growing world energy markets in the long term is dependent on the industry's willingness to invest in exploration and new projects. Current energy exploration expenditure in Australia is at near record highs with expenditure totalling $2.5 billion in 2006-07.

In general, decisions to invest in mineral exploration depend on the probability of discovering an economic mineral deposit or extending the resource base of a known deposit. A range of factors influence the decision to invest in mineral exploration; some of these are common to investment decisions across the economy, while others are more specific to the minerals sector. These factors include prevailing and expected mineral and energy prices; existing mining and processing technologies; input costs more generally; and land access and government policies.

ABARE's list of major minerals and energy development projects

ABARE's list of major minerals and energy projects which are expected to be developed over the medium term is updated every six months. Information contained in the list spans the mineral resources sector and includes energy and mineral commodities projects and mineral processing projects. The information comes predominantly from publicly available sources but, in some cases, is supplemented by information direct from companies. The list is fully updated to reflect developments in the previous six months and is released around May and November each year. The energy projects listed here are extracted from the full list released in April 2008.

The following list contains information on 20 advanced oil and gas projects. The full list, which also includes projects at less advanced stages, such as those at feasibility (or prefeasibility) study stage, is available as an electronic product downloaded from www.abare.gov.au (enquiries: abareproducts@abare.gov.au)

Project	Company	Location	Status	Expected Startup	New Capacity	Capital Expend.	Employment
Petroleum — oil and natural gas projects							
Angel gas and condensate field	Woodside/BHP Billiton/BP/ Chevron Texaco/ Shell/Japan Australia LNG	115 km N of Dampier, Carnarvon Basin, WA	New project, under construction	late 2008	310 PJ pa gas, 50 kbpd condensate	US$1.2b (A$1.38b)	
Blacktip gas discovery	ENI Australia	Offshore, Bonaparte Basin, WA	New project, under construction	2009	650 million cubic metres initially; 1.1 billion cubic metres ultimately	$500m	
Henry gasfield	Santos/AWE/ Mittwell Energy Resources	20 km offshore Otway Basin, Vic	New project, committed	early 2009	11 PJ pa	$275m	
Kipper gas project (stage 1)	Esso/BHP Billiton/ Santos	42 km offshore Gippsland, Vic	New project, committed	2011	27 PJ pa gas, 10 kbpd condensate	US$1.1b (A$1.26b)	
Kwinana LNG plant	Wesfarmers	Kwinana, WA	New project, under construction	mid-2008	64 kt LNG	$138m (incl LNG plant, power stations, and other infrastructure)	
Longtom gas project	Nexus Energy	Bass St, Vic	New project, under construction	early 2009	25 PJ pa gas (initally)	$195m	
Montara/Skua oilfield (Phase 1)	Coogee Resources	Timor Sea, 650 km W of Darwin, NT	New project, under construction	late 2008	na	US$700m (A$805m) includes Phase 2	
Montara/Skua oilfield (Phase 2)	Coogee Resources	Timor Sea, 650 km W of Darwin, NT	Expansion, committed	late 2009	na		
North West Shelf project extension (fifth train)	Woodside Energy/ BHP Billiton/ BP/Chevron/ Shell/Japan Australia LNG	North West Shelf, WA	New project, under construction	late 2008	4.2 Mt LNG	$2.6b	1500 20
NWS North Rankin B	Woodside Energy/ BHP Billiton/ BP/Chevron/ Shell/Japan Australia LNG	150 km NW of Dampier, Carnarvon Basin, WA	New project, committed	2013	na	$5.1b (A$5.86b)	
Perseus-over-Goodwyn project	Woodside Energy	150 km NW of Dampier, Carnarvon Basin, WA	New project, under construction	late 2008	nil	$800m	
Pluto (train 1)	Woodside Energy	Carnarvon Basin/ Burrup Peninsula, WA	New project, under construction	late 2010	4.3 Mt LNG	$12b	2000 150
Pyrenees	BHP Billiton/Apache Energy	55 km N of Exmouth, Carnarvon Basin, WA	New project, committed	early 2010	96 kbpd	US$1.7b (A$1.93b)	
Reindeer gas field/Devil Creek gas processing plant (phase 1)	Apache Energy/Santos	80 km NW of Dampier, Carnarvon Basin, WA	New project, committed	late 2010	40 PJ pa gas	$842m	

Project	Company	Location	Status	Expected Startup	New Capacity	Capital Expend.	Employment
Van Gogh	Apache Energy/Inpex Alpha	50 km N of Exmouth, Carnarvon Basin, WA	New project, committed	early 2009	63 kbpd	$700m	
Vincent oil field (stage 1)	Woodside Energy/Mitsui	60 km N of Exmouth, Carnarvon Basin, WA	New project, under construction	late 2008	100 kbpd	$1b	
Woolybutt Oil Field South Lobe	Eni Australia/ Mobil Australia/ Tap Oil	Offshore, Carnarvon Basin, WA	Expansion, under construction	mid-2008	6–8 kbpd	$143m	
Coal seam methane							
Darling Downs development (including Spring Gully Phase V and Tallinga)	Origin Energy	80 km N of Roma, Qld	Expansion, under construction	2009	44 PJ pa (includes wells from Tallinga)	$500m	
Darling Downs development (Tallinga)	Origin Energy	80 km N of Roma, Qld	Expansion, committed	2010	23 PJ pa	$260m	
Lacerta Gas Field	Sunshine Gas	50 km NE of Roma, Qld	New project, under construction	2008	4–8 PJ pa	$69m	

Recently commissioned projects

In the six months ended April 2008, two petroleum projects were completed with a capital expenditure of $1.5 billion. Off the west coast of Australia, BHP Billiton's Stybarrow oil project (capacity of 80 000 barrels a day) was completed two months ahead of schedule at a cost of $874 million. DBP's Dampier-Bunbury gas pipeline Stage 5A expansion, also in Western Australia, was completed at a cost of $660 million. The pipeline is capable of transporting an additional 100 terajoules of natural gas a day.

Advanced projects

At the end of April 2008, energy project developments accounted for 47 of the 97 advanced projects on ABARE's list and around 55 per cent (or $38.8 billion) of committed capital expenditure. Estimated capital expenditure on energy projects has increased by 23 per cent since October 2007, reflecting the addition of 15 projects, worth a combined $10 billion, to the advanced list.

In terms of capital expenditure, Woodside's Pluto LNG project, which has an announced capital cost of $12 billion, is the largest commitment to a single project in Australia's mining and energy industry.

This project will have an annual production capacity of 4.3 million tonnes of LNG and is scheduled for completion in late 2010. The gas has been purchased under long term contracts with Tokyo Gas and Kansai Electric in Japan.

Six large petroleum developments, four operated by Woodside, account for a further $14 billion or around 36 per cent of the total value of advanced energy projects. The largest of these projects is the $5.9 billion North West Shelf North Rankin B project in Western Australia. A fifth train is being built at the North West Shelf project which will have a gross annual capacity of 4.4 million tonnes of LNG and will increase the project's total annual production to 16.3 million tonnes. The project is expected to be completed toward the end of 2008 at a capital cost of $2.6 billion.

The other four petroleum projects are the $1.9 billion Pyrenees oil field, located 50 kilometres north of Exmouth in Western Australia, scheduled for completion in 2010; the $1.4 billion Angel gas and condensate field in the Carnarvon Basin, scheduled for completion in 2008; the $1.3 billion Kipper gas and condensate field off the coast of Gippsland, scheduled for completion in 2011; and the $1 billion Vincent oil field in the Carnarvon Basin, scheduled for completion in late 2008.

As at the end of April 2008, there were six natural gas pipelines at an advanced stage. Epic Energy has committed to constructing the 180km QSN link which will connect the existing south-western Queensland network to the Moomba gas hub in northern South Australia. When the $140 million pipeline is completed, gas will be able to be piped from Queensland into the southern and eastern Australian gas markets.

Less advanced projects

Projects in the less advanced category are either still undergoing a feasibility study (in some cases, prefeasibility study), or not subject to a definite decision on development following the completion of a feasibility study. Some of these projects may not proceed for several years. Some may confront changes in economic or competitive conditions, or may be targeting the same emerging market opportunities, necessitating rescheduling. In addition, securing finance for project development, even for high quality projects with a high probability of success, is not guaranteed.

Also, with an exceptionally large number of minerals and energy projects currently committed or under development in the next few years, competition for skilled labour and materials and the associated cost pressures are unlikely to be relieved in the short to medium term. This makes it likely the feasibility of many less advanced projects will need to be re-examined. This may also imply, from a commercial perspective, some project developments may be deferred beyond their scheduled startup dates.

Despite the uncertainty inherent with projects at these earlier stages of consideration, the significant number of large scale projects at less advanced planning stages under active consideration for development is expected to provide a firm platform for future growth in Australian mineral and energy production in the medium term and beyond.

Among the more notable large scale projects in ABARE's April 2008 list still undergoing feasibility studies are eight proposed LNG developments that, collectively, could add around 58 million tonnes of annual LNG production capacity in the medium to longer term (compared with the 15.2 million tonnes in 2006-07).

These projects include the Browse, Gorgon, Icthys and Sunrise projects off the coast of Western Australia and two coal seam methane based LNG projects in Queensland being proposed by Santos, Queensland Gas and BG Group.

Another two less advanced LNG projects are to be based in Gladstone, Queensland. Queensland Gas Company and BG Group are proposing to build a 3 to 4 million tonne LNG plant and 380km pipeline to coal seam methane fields at a cost of $8 billion. Sojitz and Sunshine Gas are proposing to build a 0.5 million tonne LNG plant in Gladstone at a cost of $500 million which will also be based on coal seam methane.

Statistical Appendix

97 Australian fertiliser prices, by type a

	Single superphosphate b $/t	Diammonium phosphate b $/t	Ammonium sulphate c $/t	Potassium chloride c $/t	Urea c $/t	Index of prices paid for fertiliser d
1970	na	na	na	na	na	9.4
1971	16.18	na	40.41	69.10	79.24	11.6
1972	16.87	na	40.09	69.32	80.62	11.6
1973	16.99	na	40.79	68.80	81.44	11.6
1974	19.20	113.00	61.00	83.80	87.20	13.7
1975	54.60	na	103.00	103.40	120.60	30.8
1976	55.60	215.40	105.00	128.60	140.60	27.3
1977	53.16	135.00	91.80	109.45	153.95	28.0
1978	59.04	na	104.32	111.89	175.21	29.4
1979	56.76	247.80	112.06	117.54	185.16	32.1
1980	70.74	296.60	128.71	145.14	245.64	39.0
1981	83.40	337.60	149.14	176.42	274.23	46.5
1982	92.84	337.60	156.53	187.02	269.18	51.3
1983	101.42	334.00	155.64	180.50	261.11	52.6
1984	105.11	322.95	175.92	206.60	286.30	56.0
1985	118.46	342.17	218.19	267.29	321.50	62.2
1986	131.00	378.00	209.00	271.00	280.00	68.3
1987	128.00	339.00	211.00	279.00	276.00	67.0
1988	132.70	379.00	212.20	294.15	303.00	68.3
1989	155.40	396.00	229.40	328.70	339.70	76.9
1990	165.80	364.70	259.50	341.00	324.00	82.4
1991	177.10	389.00	276.00	361.80	390.00	85.0
1992	180.00	385.20	289.60	368.70	380.70	90.3
1993	173.00	368.80	293.10	367.50	389.70	88.7
1994	174.50	343.80	298.40	373.50	382.90	87.1
1995	179.10	417.30	319.20	372.30	455.90	89.6
1996	184.20	449.30	325.90	369.20	479.60	98.2
1997	179.17	460.25	317.88	362.75	434.80	99.2
1998	196.50	497.83	343.00	409.17	380.60	100.0
1999	197.00	487.83	339.25	437.50	333.80	102.7
2000	197.80	441.50	361.00	474.75	371.60	99.8
2001	209.83	475.25	377.25	511.25	443.60	106.4
2002	220.00	462.00	404.00	402.00	378.33	104.3
2003	240.00	454.33	399.00	412.50	363.33	106.9
2004	227.33	466.67	395.00	387.00	377.33	102.8
2005	226.67	477.33	393.00	434.00	445.00	108.8
2006	235.90	532.40	425.00	445.10	478.17	111.6
2007	241.25	657.25	440.00	479.75	519.08	114.3

a Average price paid by Australian farmers at 30 June. b Bulk. c Bagged. d Based on a 4 quarter average for the year ending 30 June. **na** Not available.

Sources: Department of Primary Industry, *Chemical Fertilisers in Australia*, AGPS, Canberra; The Land, *Farm Costs Guide*; Farm Weekly, *Budget Guide*; Stock Journal, *Farm Budget Guide*; ABARE.

108 Australian farm fuel prices

	Petrol			Index of prices
	Lead replacement [a]	Unleaded [b]	Off-road diesel [c]	paid for fuel [d]
	c/l	c/l	c/l	
1970-71	8.70	na	4.39	11.5
1971-72	9.24	na	4.65	11.5
1972-73	9.32	na	4.66	11.5
1973-74	10.31	na	4.74	12.4
1974-75	11.68	na	5.97	15.1
1975-76	13.53	na	7.86	19.5
1976-77	15.73	na	9.02	22.2
1977-78	17.68	na	11.21	25.7
1978-79	20.87	na	14.92	32.8
1979-80	26.77	na	22.22	46.1
1980-81	31.87	na	27.78	57.6
1981-82	36.00	na	29.64	63.0
1982-83	43.81	na	33.22	72.7
1983-84	48.57	na	34.00	78.9
1984-85	49.15	na	36.13	84.2
1985-86	54.32	54.32	33.91	86.9
1986-87	55.11	55.11	30.83	86.0
1987-88	57.19	57.19	31.49	88.7
1988-89	56.24	56.24	27.17	80.4
1989-90	65.41	65.41	30.89	91.6
1990-91	74.44	74.44	36.39	106.0
1991-92	72.54	72.54	33.14	99.6
1992-93	74.53	74.53	35.10	104.1
1993-94	74.72	74.22	32.47	100.5
1994-95	78.42	76.42	38.44	96.6
1995-96	79.83	77.83	38.50	100.4
1996-97	81.89	79.89	40.60	104.9
1997-98	82.19	76.22	36.71	100.0
1998-99	80.44	73.60	32.39	104.1
1999-00	94.11	85.13	41.21	148.6
2000-01	100.26	98.20	53.36	144.1
2001-02	93.11	89.47	46.80	128.3
2002-03	94.97	93.77	44.13	127.0
2003-04	109.54	94.78	55.12	144.3
2004-05	na	106.07	65.51	167.2
2005-06	na	126.89	84.15	208.7
2006-07	na	114.72	81.22	207.6

a Leaded petrol phased out as at 1 Jan 2002. Lead replacement petrol (LRP) introduced as at 1 Jan 2002. **b** Petrol price paid at the pump, excludes farm rebates and subsidies. **c** Average price paid by Australian farmers. Net petrol price including farm rebates and subsidies. **d** Base: 1997-98 = 100. **na** Not available.

Sources; Ampol; Australian Taxation Office; Caltex Australia; Fueltrac; Shell Australia; ABARE.

309 Summary of Australian statistics for primary petroleum a

	Production of crude oil condensate and LPG	Exports of crude oil and other refinery feedstocks b	Exports of liquefied petroleum gas	Imports of crude oil and other refinery feedstocks	Production of natural gas and ethane c	Exports of liquefied natural gas ds
	ML	ML	ML	ML	Gm^3	Mt
1965-66	504	na	na	19 965	0.00	0
1966-67	645	na	na	22 543	0.00	0
1967-68	1 902	na	na	23 013	0.01	0
1968-69	2 236	na	na	23 897	0.06	0
1969-70	4 919	na	na	23 176	0.78	0
1970-71	15 688	241	661	13 913	1.96	0
1971-72	20 266	1 090	1 193	11 174	2.63	0
1972-73	22 464	330	1 672	10 004	3.74	0
1973-74	25 223	305	1 984	10 469	4.45	0
1974-75	25 306	234	2 000	10 171	4.88	0
1975-76	26 059	243	1 950	9 702	5.45	0
1976-77	27 128	206	2 253	10 116	6.50	0
1977-78	28 287	221	2 855	11 214	7.18	0
1978-79	28 067	371	3 031	10 407	8.01	0
1979-80	26 823	127	2 764	11 263	9.24	0
1980-81	26 077	86	2 569	11 450	10.66	0
1981-82	25 419	44	2 622	12 460	11.80	0
1982-83	24 978	61	2 334	11 780	11.92	0
1983-84	29 960	1 056	2 851	8 553	12.49	0
1984-85	34 820	5 819	2 620	7 294	13.37	0
1985-86	35 750	5 051	2 977	6 186	14.69	0
1986-87	35 431	5 702	2 675	7 724	15.08	0
1987-88	35 187	6 453	2 402	9 577	15.68	0
1988-89	32 080	4 789	2 177	12 058	16.15	0
1989-90	36 003	7 202	1 983	11 603	20.27	2.01
1990-91	35 755	8 830	1 507	13 389	21.23	3.40
1991-92	35 171	8 967	1 568	15 332	23.49	4.66
1992-93	34 776	10 098	1 483	19 421	24.61	4.98
1993-94	32 960	9 538	1 290	20 296	26.76	6.03
1994-95	35 158	11 445	1 189	20 639	29.47	7.02
1995-96	34 365	10 899	1 469	23 703	30.24	7.48
1996-97	35 302	12 401	2 421	24 768	30.66	7.49
1997-98	38 862	14 785	2 824	25 017	31.92	7.65
1998-99	32 265	14 291	2 486	29 729	32.78	7.82
1999-00	42 279	20 877	2 857	26 936	34.04	7.92
2000-01	44 398	24 044	2 785	26 489	34.82	7.53
2001-02	42 467 s	23 936	3 211	27 308	36.20	7.60
2002-03	39 704 s	20 950	3 194	27 958	37.22	7.83
2003-04	35 352 s	17 526	2 916	23 498	37.41	7.91
2004-05	31 939 s	15 731	2 844	26 054	41.68	10.59
2005-06	29 037 s	13 026	2 800	24 416	42.63	12.50
2006-07	33 105 s	15 963	2 824	25 341	44.10	15.20

a Export volumes for primary petroleum up to June 1977 are direct from ABS overseas trade reports. As a result of changes in ABS classifications from July 1977, other statistics are taken from Department of Resources and Energy and ABARE publications. **b** Before 1983 exports were principally semiprocessed and re-export feedstocks. **c** Includes ethane, methane and noncommercial natural gas. **d** 1 million tonnes (Mt) of LNG is approximately equal to 1.31 billion cubic metres (Gm^3) of gas; production began in 1989-90. **s** ABARE estimate. **na** Not available.

Sources: ABARE, *Australian Mineral Statistics*, Canberra; ABS, *International Trade, Australia*, cat. no. 5465.0, Canberra; ABS, *Overseas Trade, Part 1 – Exports and Imports*, cat. no. 5409.0, Canberra; DITR, *Australian Petroleum Statistics* (previously *Major Energy Statistics*), Canberra.

310 Summary of Australian statistics for refined petroleum products [a]

	Production	Domestic consumption [b]	Imports		Exports [c]		Bunkers [d]
			Volume	Value	Volume	Value	
	ML	ML	ML	$m	ML	$m	$m
1963-64	17 514	17 479	2 066	na	2 285	na	na
1964-65	18 821	19 268	2 013	na	1 459	na	na
1965-66	20 353	20 953	1 899	na	1 099	na	na
1966-67	23 110	22 734	1 227	na	1 365	na	na
1967-68	25 229	24 837	1 123	na	1 374	na	na
1968-69	26 651	27 423	1 741	na	970	na	na
1969-70	27 884	29 317	2 860	na	1 440	na	na
1970-71	28 846	30 355	3 256	63	1 740	23	43
1971-72	29 524	31 754	3 978	78	2 321	46	44
1972-73	30 575	32 518	4 126	75	1 846	42	42
1973-74	33 853	36 587	4 422	133	2 488	96	70
1974-75	34 066	36 637	4 083	247	1 954	146	136
1975-76	34 106	36 991	4 009	290	2 192	144	137
1976-77	35 744	39 042	4 193	347	1 904	190	190
1977-78	36 992	39 813	4 104	360	1 956	224	na
1978-79	36 671	38 921	4 215	450	2 344	306	na
1979-80	36 654	39 315	4 540	710	1 882	427	na
1980-81	35 292	37 937	3 748	770	1 990	577	na
1981-82	35 877	37 676	2 939	629	1 955	539	na
1982-83	34 692	35 511	2 666	608	2 427	707	438
1983-84	35 586	36 929	2 526	559	2 925	803	394
1984-85	35 924	37 204	2 823	683	2 207	641	460
1985-86	35 171	36 260	2 761	712	2 383	673	437
1986-87	34 826	37 713	4 078	732	2 270	459	338
1987-88	37 579	39 395	3 319	629	2 738	563	406
1988-89	38 210	41 173	3 342	664	2 769	520	371
1989-90	39 424	41 678	3 621	930	2 422	520	416
1990-91	40 487	41 468	1 819	727	2 952	787	631
1991-92	41 440	41 804	2 146	455	3 819	769	522
1992-93	42 933	43 349	3 940	634	3 711	830	568
1993-94	43 104	44 561	3 057	606	3 507	747	512
1994-95	44 421	46 746	3 479	676	3 289	719	511
1995-96	46 343	48 193	3 522	765	4 101	933	586
1996-97	46 872	47 829	4 286	955	5 041	1 147	547
1997-98	47 400	48 395	3 263	766	4 941	1 097	505
1998-99	47 030	48 973	4 129	868	4 236	866	397
1999-00	47 630	50 450	4 632	1 375	4 116	1 202	666
2000-01	47 690	50 010	4 746	1 845	4 564	1 844	899
2001-02	46 677	51 260	4 655	1 625	3 415	1 234	760
2002-03	46 723	51 906	5 497	2 050	3 159	1 198	775
2003-04	43 486	52 906	10 542	3 595	2 488	918	696
2004-05	44 555	54 017	11 188	5 123	1 864	844	951
2005-06	40 679	55 151	15 124	8 761	2 102	1 195	1 322
2006-07	43 652	na	18 268	8 584	1 762	1 098	1 295

a Export and import values up to June 1977 are direct from ABS overseas trade reports. As a result of changes in ABS classifications from July 1977, other statistics are taken from Department of Industry, Tourism and Resources and ABARE publications, with ABARE estimates of import values used from 1977-78 to 1980-81. **b** Includes fuels not marketed commercially and domestic sales of all ships and aircraft stores. **c** Excludes LPG. **d** Ships' and aircraft stores. **na** Not available.

Sources: ABARE, *Australian Mineral Statistics*, Canberra; ABS, *International Trade, Australia*, cat. no. 5465.0, Canberra; ABS, *Overseas Trade, Part 1 – Exports and Imports*, cat. no. 5409.0, Canberra; ABS, *International Trade, Australia*, cat. no. 5465.0, Canberra; DITR, *Australian Petroleum Statistics* (previously *Major Energy Statistics*).

313 Australian consumption of petroleum

	Unit	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Crude oil and other refinery feedstock									
Stock	days **a**	23	24	29	26	26	23	23	23
Refinery input	ML	44 500	44 708	42 911	44 548	39 949	40 334	36 895	39 453
Refined products									
Automotive gasoline	ML	18 477	18 168	18 669	18 872	19 962	19 876	19 048	19 251
Automotive diesel oil	ML	13 245	12 952	13 441	13 888	14 462	15 185	15 804	17 028
Aviation turbine fuel	ML	5 023	5 319	4 603	4 250	4 329	4 730	5 359	5 837
Fuel oil	ML	2 200	1 705	1 777	1 423	1 466	1 595	1 586	1 513
Liquefied petroleum gas	ML	4 650	4 746	4 009	4 327	4 253	3 862	4 643	na
Industrial and marine diesel fuel	ML	18	22	46	18	17	15	19	15
Bitumen	ML	781	716	755	671	742	812	805	808
Lubricants	ML	526	532	555	569	618	470	451	421
Aviation gasoline	ML	103	101	97	90	90	91	86	90
Heating oil	ML	81	63	50	48	46	34	25	15
Other **b**	ML	5 429	4 284	5 132 **s**	5 333 **s**	5 835 **s**	7 098 **s**	7 257 **s**	na
Total products	ML	50 533	48 608	49 134	49 489	51 819	53 767	55 083	na

a Days of forward consumption. **b** Includes petrochemical and noncommercial use of all products plus refinery fuel, but petroleum products produced from the conversion of other petroleum products have been netted off. **s** ABARE estimate. **na** Not available.

Sources: ABARE; DITR, *Australian Petroleum Statistics* (previously *Major Energy Statistics*), Canberra.

317 Australian exports of petroleum, by destination [a]

	Unit	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Quantity									
Crude oil and other refinery feedstock									
China	ML	1 675	912	1 160	1 699	2 389	732	404	518
Chinese Taipei	ML	2 561	3 712	1 920	580	125	916	346	446
Japan	ML	3 528	4 068	3 168	3 402	2 079	1 927	2 201	1 957
Korea, Rep. of	ML	4 338	4 358	5 521	4 012	3 778	2 787	2 725	3 873
New Zealand	ML	556	613	1 426	784	722	1 425	465	1 045
Singapore	ML	3 831	6 079	6 215	6 567	3 948	2 861	3 110	3 751
United States	ML	3 462	2 962	2 674	2 944	1 808	1 154	297	190
Other	ML	927	1 339	1 851	962	2 677	3 929	3 478	4 183
Total	ML	20 877	24 044	23 936	20 950	17 526	15 731	13 026	15 963
Liquefied petroleum gas									
China	ML	606	416	441	154	696	598	393	308
Japan	ML	1 841	2 241	2 575	2 783	2 109	2 081	2 142	1 821
Korea, Rep. of	ML	188	61	127	234	0	81	0	384
Other	ML	222	67	68	23	111	84	264	311
Total [b]	ML	2 857	2 785	3 211	3 194	2 916	2 844	2 800	2 824
Refined products									
Fiji	ML	624	748	473	384	122	7	62	4
Japan	ML	67	18	71	26	29	53	74	84
New Zealand	ML	1 245	1 086	1 247	1 250	828	1 113	716	872
Singapore	ML	561	697	367	246	127	471	771	576
Other Pacific	ML	1 296	1 564	921	861	776	156	274	131
United States	ML	254	328	153	99	123	0	37	6
Other	ML	70	123	184	292	482	63	168	90
Total	ML	4 116	4 564	3 415	3 159	2 488	1 864	2 102	1 762
Value [c]									
Crude oil and other refinery feedstock									
China	$m	431	317	316	528	671	309	219	266
Chinese Taipei	$m	629	1 284	508	179	33	372	172	237
Japan	$m	899	1 394	854	1 058	582	782	1 111	1 033
Korea, Rep. of	$m	1 117	1 486	1 490	1 217	1 057	1 091	1 366	1 968
New Zealand	$m	142	213	406	256	238	602	256	583
Singapore	$m	943	1 973	1 597	1 956	1 118	1 080	1 481	1 865
United States	$m	892	1 012	693	883	527	473	149	100
Other	$m	239	458	525	324	828	1 620	1 884	2 266
Total	$m	5 292	8 137	6 390	6 402	5 055	6 330	6 638	8 318
Liquefied petroleum gas									
China	$m	131	125	96	36	159	169	129	107
Japan	$m	432	667	580	755	466	595	766	668
Korea, Rep. of	$m	42	19	30	59	0	18	0	150
Other	$m	43	19	15	6	22	21	107	113
Total [b]	$m	648	830	721	855	647	804	1 002	1 038
Refined products									
Fiji	$m	165	293	161	140	43	8	43	5
Japan	$m	23	9	25	14	13	22	40	43
New Zealand	$m	379	461	437	460	310	516	463	557
Singapore	$m	117	201	112	95	41	170	375	311
Other Pacific	$m	414	669	367	349	294	103	177	119
United States	$m	72	143	56	39	47	0	20	3
Other	$m	31	67	76	101	170	24	78	60
Total	$m	1 202	1 844	1 234	1 198	918	844	1 195	1 098

a Does not include LNG exports or ships and aircraft stores. **b** Includes confidential exports. **c** Actual values are used and aggregated for each category.

Sources: DITR, *Australian Petroleum Statistics* (previously *Major Energy Statistics*), Canberra; ABS, *International Trade, Australia*, cat. no. 5465.0, Canberra: ABARE.

318 Australian imports of petroleum, by source

	Unit	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Quantity									
Crude oil and other refinery feedstock									
Indonesia	ML	4 176	3 788	6 795	5 380	4 012	3 328	3 929	3 391
Malaysia	ML	2 811	2 249	2 290	2 299	4 073	4 761	3 976	3 716
New Zealand	ML	1 251	1 104	1 089	990	708	663	638	636
Other Middle East	ML	985	453	42	334	42	158	199	118
Papua New Guinea	ML	3 549	2 772	2 208	1 683	1 189	1 717	2 386	2 059
Qatar	ML	470	439	646	191	0	77	0	106
Saudi Arabia	ML	3 294	4 016	3 004	3 680	1 517	3 101	1 602	1 147
Singapore	ML	61	287	554	719	596	652	829	846
United Arab Emirates	ML	1 642	3 170	2 305	2 294	2 207	1 917	863	2 971
Viet Nam	ML	6 157	6 282	5 652	6 699	5 778	6 560	6 708	6 710
Other	ML	2 538	1 930	2 724	3 690	3 375	3 122	3 286	3 643
Total	ML	26 936	26 489	27 308	27 958	23 498	26 054	24 416	25 341
Refined products									
Indonesia	ML	41	121	80	57	281	162	98	17
Korea, Rep. of	ML	406	144	289	144	280	237	961	818
Malaysia	ML	69	8	27	45	97	93	220	8
Middle East	ML	555	846	474	140	1 036	588	691	642
New Zealand	ML	83	20	42	17	3	4	84	96
Singapore	ML	1 730	1 692	2 110	2 832	5 904	7 395	8 452	7 667
United States	ML	379	401	462	407	434	423	456	378
Other a	ML	1 368	1 549	1 171	1 855	3 370	2 334	4 163	8 643
Total	ML	4 632	4 781	4 655	5 497	11 405	11 236	15 125	18 268
Value									
Crude oil and other refinery feedstock									
Indonesia	$m	942	1 295	1 846	1 671	1 141	1 335	2 108	1 778
Malaysia	$m	666	770	647	735	1 199	1 924	2 180	2 033
New Zealand	$m	307	379	309	316	212	275	349	350
Other Middle East	$m	227	138	12	101	12	59	103	55
Papua New Guinea	$m	867	974	601	527	347	711	1 283	1 113
Qatar	$m	90	141	191	58	0	24	0	46
Saudi Arabia	$m	751	1 201	758	1 074	408	1 114	775	535
Singapore	$m	13	98	149	225	152	202	368	384
United Arab Emirates	$m	363	1 041	674	664	584	659	446	1 551
Viet Nam	$m	1 454	2 115	1 528	2 095	1 584	2 517	3 493	3 585
Other	$m	633	601	743	1 145	955	1 173	1 714	1 929
Total	$m	6 313	8 753	7 458	8 610	6 594	9 995	12 820	13 361
Refined products									
Indonesia	$m	11	41	23	17	92	75	59	6
Korea, Rep. of	$m	121	67	101	56	108	126	642	541
Malaysia	$m	18	4	11	18	36	49	134	10
Middle East	$m	112	243	94	39	260	165	260	224
New Zealand	$m	19	9	12	6	3	4	37	47
Singapore	$m	481	660	684	1 000	2 061	3 532	5 534	4 961
United States	$m	240	287	321	277	236	250	299	285
Other a	$m	374	534	379	637	799	922	1 796	2 509
Total	$m	1 375	1 845	1 625	2 050	3 595	5 123	8 761	8 584

a Includes confidential imports of refined products. s ABARE estimate.

Sources: DITR, *Australian Petroleum Statistics* (previously *Major Energy Statistics*), Canberra; ABS, *International Trade, Australia*, cat. no. 5465.0, Canberra; ABARE.