

COUNTRY ANALYSIS BRIEFS

Australia

Last Updated: September 2009

Background

Australia is the world's largest coal exporter and was the fifth largest LNG exporter in 2007

Australia has significant petroleum, natural gas and coal reserves and is one of the few countries belonging to the Organization for Economic Cooperation and Development (OECD) that is a significant net hydrocarbon exporter, exporting about two-thirds of its total energy production. Australia is the world's largest coal exporter and the fifth largest exporter of liquefied natural gas (LNG) in 2007, after Qatar, Malaysia, Indonesia, and Algeria. Australia's prospects for expanding these energy exports in the future are promising as Asian demand for both coal and LNG is rising. While Australia also exports crude oil and refined petroleum products, it is a net importer of oil.

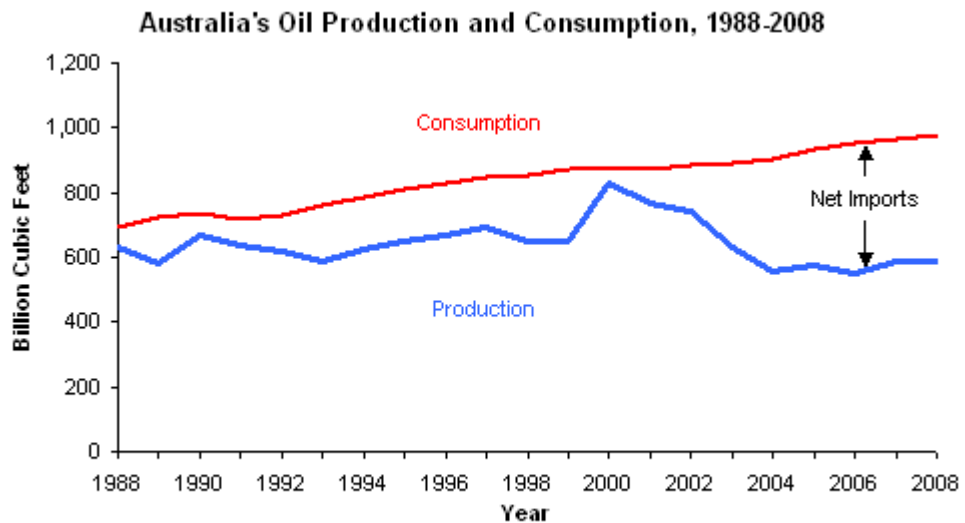
Coal is Australia's largest hydrocarbon export earner, followed by crude oil and LNG. Hydrocarbon exports accounted for 18 percent of total export revenues in the June 2007-June 2008 period.



Oil

With increasing oil consumption and declining production, Australia's dependence on oil imports continues to rise

According to *Oil and Gas Journal (OGJ)*, Australia had 1.5 billion barrels of proven oil reserves as of January 1, 2009. The majority of these reserves are located off the coasts of Western Australia, the Northern Territory, and Victoria. The Carnarvon Basin accounts for 62 percent of Australia's production of crude oil, condensate and liquefied petroleum gas (LPG).



Source: EIA

Sector Organization

Australia's management of oil exploration and production is divided between the state and Commonwealth (Federal) governments. Australia's state governments manage the applications for onshore exploration and production projects, while the Commonwealth Government shares jurisdiction over Australia's offshore projects with the government of the adjacent state or Territory. The Ministry of Industry, Tourism and Resources (MITR) and the Ministerial Council of Energy (MCE) both function as regulatory bodies over Australia's oil sector. In place of a national oil company, the Australian government supports privately held Australian companies, of which the largest are Woodside Petroleum and Santos. ExxonMobil is the largest foreign oil producer; other international oil companies include Shell, Chevron, ConocoPhillips, Japex, Total, BHP Billiton, and Apache.

Production

Oil production in Australia peaked in 2000 at 828,000 barrels per day (bbl/d) and has since been declining. In 2008, oil production totaled 586,000 bbl/d, of which 80 percent (477,000 bbl/d) was crude oil. Australia's onshore remains relatively unexplored and exploration activity has concentrated on the offshore areas. Australia's main frontier for exploration has moved in recent years to the deepwater area of the Timor Sea, although the nearby Carnarvon Basin off the coast of Western Australia is still the busiest area in terms of overall drilling activity. After a spike in drilling activity in the late 1990s, several major discoveries are now in the process of being put into commercial operation. However, the new production that has come onstream has not been able to compensate for the natural decline of the mature fields.

Pipelines

Australia has a well-developed domestic oil and gas pipeline network. The Australian Pipeline Trust, with 6,200 miles of pipeline, is the largest operator. Epic Energy is the second largest, with 2,500 miles of pipeline. Santos operates two major domestic pipelines that are used for carrying oil and oil products, which include the Jackson to Brisbane line that spans 500 miles, and the Mereenie to Alice Springs line that covers 167 miles. Esso Australia Ltd operates the 115-mile Longford to Long Island Point pipeline.

Refining

According to *Oil and Gas Journal*, in January 2009, Australia has 7 major refineries, with a total crude oil refining capacity of 696,000 bbl/d. In 2008, Australia consumed approximately 954,000 bbl/d of crude oil, condensate, and products, of which almost 40 percent was imported. Crude oil feedstock for these refineries primarily comes from oil produced in the Bass Strait offshore southeastern Australia.

Natural Gas

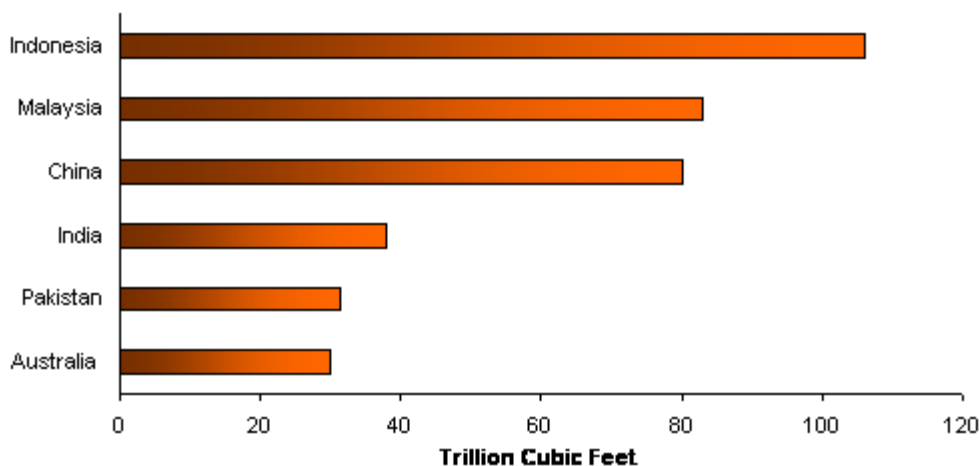
Australia is the sixth largest holder of natural gas reserves

According to *OGJ*, Australia had 30 trillion cubic feet (Tcf) of proven natural gas reserves as of January 2009. Around 69 percent of those natural gas reserves are located off the western coast in the Carnarvon Basin. Other important fields are the Cooper/Eromanga Basin (8 percent) in

in Asia and was the fifth largest exporter of liquefied natural gas (LNG) in the world in 2007

central Australia and the Bass/Gippsland Basin (20 percent) offshore southern Australia. The remainder comes from scattered small fields off the southern coast and in the central regions.

Top 6 Asia-Pacific Proven Natural Gas Reserve Holders, January 2009



Source: *Oil and Gas Journal*

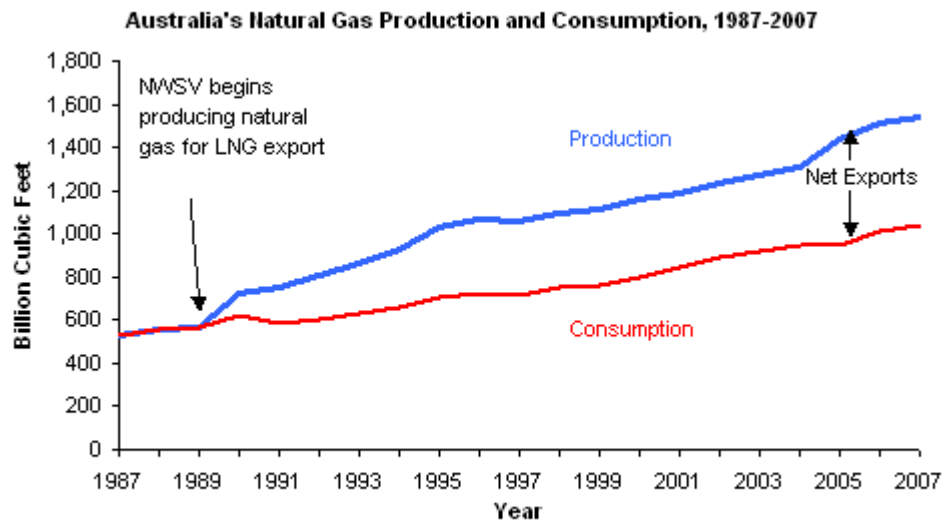
Sector Organization

The Australian government has no ownership stake in the domestic natural gas industry. The industry is regulated by the Ministry of Industry, Tourism and Resources (MITR) and the Ministerial Council of Energy (MCE). The Australian government created the MCE in 2001 in order to build policy coordination between the Commonwealth Government and the state governments. The MCE functions as the director of natural gas policy. Major domestic and foreign players operating in Australia include Santos, Woodside, Chevron, ConocoPhillips, ExxonMobil, and Shell.

Production

Natural gas production in Australia continues to increase steadily, reaching 1.54 Tcf in 2007. Although consumption is increasing as well, reaching 1.04 Tcf in 2007, production is growing twice as fast, according to the Australian Department of Resources, Energy and Tourism. Exploration expenditure has increased significantly since 2007 and recent natural gas exploration in Australia has resulted in several important discoveries. Western Australia is the source of the greatest production increases and the largest producing basin in the country, increasing by an average of about 7 percent per year in the past 7 years.

Coal seam methane (CSM) production has increased significantly in the past 7 years, from a 2-percent share of total natural gas production in 2001-2002 to 7 percent in 2007-2008. CSM is only produced in Queensland and New South Wales (NSW), where production is expected to continue to grow with 5 projects planned for Queensland and 3 for NSW. Accompanying these projects are 5 planned LNG plants in Queensland with a combined capacity of 794 Bcf per year.



LNG Exports

The distances between Australia and its key natural gas export markets prevent any pipeline trade; instead all exports are in the form of liquefied natural gas (LNG). Over the past decade, Australian LNG exports have increased by 48 percent and they are expected to continue to increase over the medium term. In 2008, Australia exported 744 Bcf of LNG. Japan is the primary destination, but other purchasers include China, South Korea, Taiwan, and India.

Australia currently has 2 LNG facilities. The largest is the North West Shelf Venture (NWSV), a consortium of six energy companies (Woodside, Shell, BP, Chevron, Japan Australia LNG, BHP Billiton), which operates 5 offshore LNG trains with a total capacity of 761 Bcf per year. It relies on natural gas supplied from nearby fields in the Northwest Shelf (NWS). The majority of LNG produced by the NWSV is exported to Japan by long-term contracts. Darwin LNG is the second facility, a consortium of ConocoPhillips, Santos, Eni, SPA, and INPEX. It has 1 production train with a total capacity of 140 Bcf per year and supplies LNG under contracts to Tokyo Gas Corp. and Tokyo Electric. Darwin is located on Australia's northern coast and is supplied with natural gas from fields in the Timor Sea.

Two major new LNG projects are in advanced planning/construction stages:

The Pluto project is under construction near Karratha offshore Western Australia. Woodside Energy owns 90 percent of the venture supported by 15-year contracts with Kansai Electric and Tokyo Gas at 5 percent each. The project includes an offshore platform connecting 5 subsea wells and a 112-mile pipeline to an onshore LNG facility on the Burrup Peninsula. The first train is expected to come online in 2010 with estimated new capacity of 200 Bcf of LNG per year.

The Gorgon project is in the planning phase, led by Chevron (50%), with Shell and ExxonMobil (25% each). The Gorgon gas field, which is 80-124 miles off the northwest coast, is believed to contain 40 tcf of natural gas and is currently the largest known natural gas resource. The project proposal includes: development of the Gorgon gas fields involving subsea pipelines to Barrow Island; a gas processing facility on the island consisting of three, 234 Bcf per annum LNG trains; LNG shipping facilities to transport products to international markets; greenhouse gas management via injection of carbon dioxide into deep formations beneath Barrow Island. It has been reported that both the Western Australia Environmental Protection Authority and the Australian Environmental Ministry have approved the project as of August 2009. A final Investment Decision was made on September 14, 2009 and the project is expected to be completed in 2014.

Coal

Australia is the world's fourth largest coal producer but the largest net exporter.

As of 2008, Australia contained 84 billion short tons (Bst) of recoverable coal reserves. Australia is the world's fourth largest coal producer, after China, the United States, and India, but it is the largest net exporter.

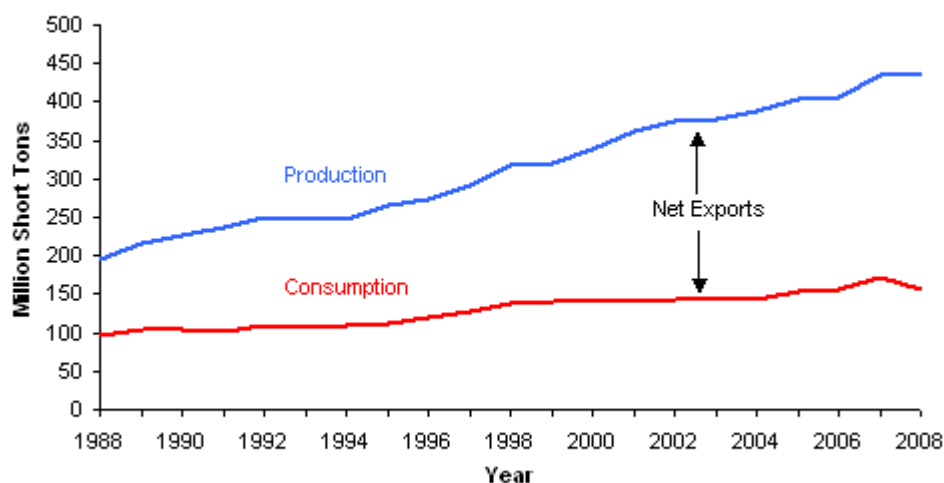
Sector Organization

Australia has around 107 privately owned coal mines located throughout the country. About 74 percent of Australia's coal production comes from open pit operations, with the remainder coming from underground mines. International companies such as BHP Billiton, Anglo American (UK), Rio Tinto (Australia-UK), and Xstrata (Switzerland) play a significant role in Australia's coal industry.

Production

In 2008, Australia produced 437 million short tons (MMst) of coal. Over the last 2 decades, coal production in Australia has grown by 34 percent, with new projects continuing to come online every year. In June 2008, the states of Queensland and New South Wales (NSW) together accounted for 95 percent of Australia's black coal production. Black coal production increased by an average of 3.2 percent per year between 2003-04 and 2007-08, supported by the addition of new capacity, and is expected to continue to increase over the medium term. Australia also has brown coal deposits in South and Western Australia, Victoria, and Tasmania, where it is used for domestic electricity generation.

Australian Coal Production and Consumption, 1988-2008



Source: EIA

Exports

Australia exported about 60 percent of its annual coal production in 2008, or about 268.5 MMst, accounting for 25 percent of global coal exports. According to the Australian Coal Association, Japan was the destination for over 46 percent of Australia's coal exports during the period from June 2007 to June 2008. Other important export markets included South Korea (12.8%), Taiwan (10%), and India (8.9%).

The export coal industry is serviced by 9 coal loading terminals located in Queensland and NSW. These terminals in June 2008 had handling capacity of 364 cubic feet per year. Seven port infrastructure projects are now in advanced stages of development and will add 127.8 million short tons to annual coal export capacity in the near to medium term.

Profile

Energy Overview

Proven Oil Reserves (January 1, 2009E)	1.5 billion barrels
Oil Production (2008E)	586 thousand barrels per day, of which 80% was crude oil.
Oil Consumption (2008E)	954 thousand barrels per day
Crude Oil Refining Capacity (January 1, 2009E)	696 thousand barrels per day
Proven Natural Gas Reserves (January 1, 2009E)	30 trillion cubic feet
Natural Gas Production (2007E)	1.54 trillion cubic feet
Natural Gas Consumption (2007E)	1.04 trillion cubic feet

Recoverable Coal Reserves (2008E)	84 billion short tons
Coal Production (2008E)	437 million short tons
Coal Consumption (2008E)	157 million short tons
Electricity Installed Capacity (2007E)	49.7 gigawatts
Electricity Production (2006E)	237 billion kilowatt hours
Electricity Consumption (2006E)	220 billion kilowatt hours
Total Energy Consumption (2006E)	5.6 Quadrillion Btus*, of which Coal (44%), Oil (34%), Natural Gas (19%), Hydroelectricity (3%)
Total Per Capita Energy Consumption ((Million Btu)(2006E)	278 million Btus
Energy Intensity (2006E)	8,969 Btu per \$2000-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2006E)	417 million metric tons, of which Coal (56%), Oil (30%), Natural Gas (14%)
Per-Capita, Energy-Related Carbon Dioxide Emissions ((Metric Tons of Carbon Dioxide)(2006E)	20.6 metric tons
Carbon Dioxide Intensity (2006E)	0.7 Metric tons per thousand \$2000-PPP**

Oil and Gas Industry

Major Oil/Gas Ports	Sydney, Melbourne, Geelong, Fremantle, Hastings, Brisbane, Darwin, Dampier
Major Oil Fields	NSWDP, Gippsland, Laminaria/Corollina, Enfield, Mutineer/Exeter
Major Natural Gas Fields	Gippsland, NSWDP, Cooper/Eromanga, John Brookse, Linda
Major Refineries	Kwinana (130,388 bbl/d), Altona (78,000 bbl/d), Geelong (92,000 bbl/d), Kurnell (105,500 bbl/d), Lytton (108,609 bbl/d), Bulwer Island (96,850 bbl/d), Clyde (85,000 bbl/d)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA - Australia Country Energy Profile](#)

U.S. Government

[CIA World Factbook - Australia](#)

[U.S. Embassy in Australia](#)

[U.S. State Department's Consular Information Sheet - Australia](#)

[U.S. State Department Background Notes on Australia](#)

Associations and Institutions

[Australian Coal Association](#)

[Australian Gas Association](#)

[Australian Greenhouse Office](#)

[Australian Institute of Petroleum](#)

[Australian Petroleum Production and Exploration Association](#)

[Australian Pipeline Trust](#)

Foreign Government Agencies

[Australian Department of Resources, Energy and Tourism](#)

[Australian Embassy in the United States](#)

[Geoscience Australia](#)

[North West Shelf Venture](#)

[Gorgon Project](#)

[ConocoPhillips Australia](#)
[Epic Energy](#)
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Coal

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Electricity

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[Pacific Hydro](#)

Sources

Asia Pulse
Australian Bureau of Agriculture and Resource Economics (ABARE)
Australian Coal Association
Australian Department of Resources, Energy and Tourism
Australian Petroleum Production and Exploration Association Ltd.
Australian Financial Review
Canberra Times
Chevron
Daily Telegraph
Dow Jones Newswire Services
Economist Intelligence Unit
ExxonMobil
Financial Times
Global Insight
Northwest Shelf Group
Oil and Gas Journal
Petroleum Intelligence Weekly
PFC Energy
Platt's International Coal Report
Shell Oil
U.S. Commerce Department, International Trade Administration
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Contact Info

cabs@eia.doe.gov
(202)586-8800
cabs@eia.doe.gov