
THE ECONOMICS OF MINING IN AUSTRALIA

'Mining in Australia is a significant primary industry and contributor to the Australian economy. Historically, mining booms have also encouraged immigration to Australia. Many different ores and minerals are mined throughout the country.

Mining has had a substantial environmental impact in some areas of Australia. Although mining services, equipment and technology are being exported, the mining sector employs 2.2% of the total labour force

A number of large multinational mining companies including BHP Billiton, Newcrest, Rio Tinto, Alcoa, Chalco, Shenhua (a Chinese mining company), Alcan and Xstrata operate in Australia. There are also a lot of small mining and mineral exploration companies listed on the Australian Stock Exchange (ASX). Overall, the resources sector represents almost 20% of the ASX market by capitalisation, and almost one third of the companies listed.[19]

Mining contributes about 5.6% of Australia's Gross Domestic Product. This is up from only 2.6% in 1950, but down from over 10% at the time of federation in 1900.[20] In contrast, mineral exports contribute around 35% of Australia's exports. Australia is the world's largest exporter of coal (35% of international trade), iron ore, lead, diamonds, rutile, zinc and zirconium, second largest of gold and uranium, and third largest of aluminium.[21] Japan was the major purchaser of Australian mineral exports in the mid 1990s.[5]

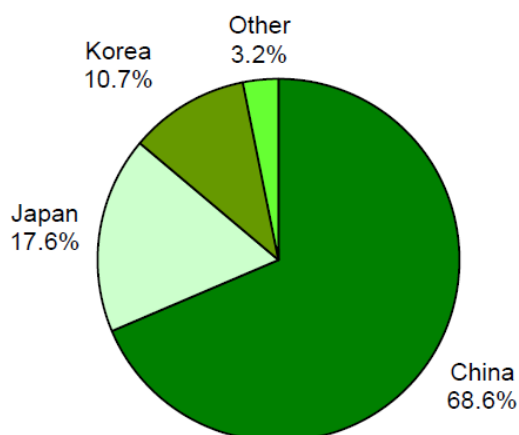
Of the developed countries, perhaps only in Canada and Norway does mining play as significant a part in the economy; for comparison, in Canada mining represents about 3.6% of the Canadian economy and 32% of exports,[22] and in Norway mining, dominated by petroleum, represents about 19% of GDP and 46% of exports.[23] By comparison, in the United States mining represents only about 1.6% of GDP.[24]

Despite its export importance, the mining sector employs only a small proportion of the workforce – roughly 129,000 Australians, representing only about 2.2% of the total labour force.[25]

Australia is in the top five mineral producers and has a large inventory of resources of most of the world's key minerals commodities. Australia is the world's leading producer of bauxite, alumina, rutile, and zircon; the second largest producer of gold, iron ore, lead, zinc, lithium and manganese ore; the third largest producer of uranium; the fourth largest producer of nickel; and the fifth largest producer of aluminium, brown coal, industrial diamond and silver (Table 1). Australia also has the largest identified resources of lead, nickel, rutile, silver, uranium, zinc and zircon, and the second largest resources of bauxite, copper, gold, iron ore, niobium and tantalum. Australia's lithium resources are ranked third, and black coal resources ranked fifth in the world (Table 1).

- Bauxite is used in cement, chemicals, face makeup, soda cans, dishwashers, siding for houses, and other aluminum products. It is recycled so that it can be used over again.
- Uranium is a radioactive element used in creating nuclear fission reactions. It is commonly used in nuclear power plants to generate energy, but also for nuclear weaponry.
 - Applications of uranium:
 - - nuclear fuel for nuclear power reactors
 - - explosive and yield booster in nuclear weapons
 - - material for armor and armor-piercing projectiles
 - - catalyst
 - - additive for glass and ceramics (to obtain beautiful green or yellow colors)
 - - toner in photography
 - - mordant for textiles
 - - additive for the preparation of biological samples for electron microscopy
 - - shielding material (depleted uranium)
 - - ballast (counter weights)
 - and other minor applications
- Iron ore is usually smelted to produce pig iron (metallic iron), which is used to make steel. It is for this reason iron is perhaps one of the most important metals used in developed and developing economies. There is also wrought iron (low in carbon) and cast iron (otherwise known as pig iron), and corrugated iron structural sheeting, a recognisable material in the buildings throughout the Australian outback. The pure iron metal is strongly magnetic, melts at 1528° C. Magnetite ore is used to remove impurities in coal washing, and its magnetic qualities enable recovery and reuse.

Chart 11: Australia's exports of Iron ore by major market, 2011

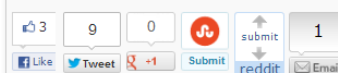


Based on ABS trade data on the DFAT STARS database.

Top Five Facts: Uses of Coal

by Jonny O'Callaghan, 8 May 2011

What can we actually do with this black stuff?



8,124 views 0 comments

Electricity

Coal-fired power stations generate 40% of global electricity. Heat from burning coal boils water, and steam spins a propeller. A machine turns this into electricity.



Iron and steel

About 70% of steel is created using coke, a high-carbon fuel made from coal. It is burned to melt and remove impurities from iron ore during iron and steel production.

Shampoo

The dandruff and head lice-zapping power of some shampoos is thanks to coal tar, a thick, dark-coloured liquid produced when coal is turned into coke or coal gas fuel.

Plant fertiliser

Coal can be turned into ammonia fertiliser by breaking it into carbon monoxide and hydrogen gas. The hydrogen mixes with nitrogen to make ammonia.

Concrete

Concrete is a building material made with cement. Coal is burned to make heat for cement production. Waste ash from coal-fired power stations can replace cement in concrete.

Black coal is Australia's second-highest export commodity and Australia is the world's leading coal exporter.

Over the past 10 years black coal exports have increased by more than 50%.

Japan takes 39.3% of Australia's black coal exports – the largest share, with a total of 115.3 million tonnes exported last financial year.

China is our second largest market with 42.4 million tonnes in 2009-2010, almost double the previous year.

The Republic of Korea accounts for 40.7 million tonnes, India for 31.92 million tonnes and Taiwan for 26.53 million tonnes, rounding out the top five destinations for coal from Australia.

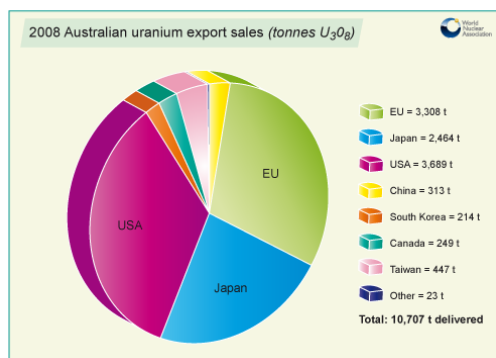
Together these five countries accounted for 88% of all black coal exports with a further 28 countries taking the remaining 12%.

CHINESE bauxite imports from Indonesia fell to zero in June and July.

Yet in 2011, China obtained almost 80 per cent of its imported bauxite from that country. And last year's quantity was double that obtained from Indonesia in 2009.

Stephen Bartrop of Lime Street Capital poses the obvious question: considering that China needs to import about a third of its bauxite requirements, who is going to fill the gap if Indonesia sticks to its guns about requiring minerals to be processed before they are exported? In all, 32 types of raw materials were slapped with the export ban -- to take full effect by 2014 -- along with an interim 20 per cent export tax.

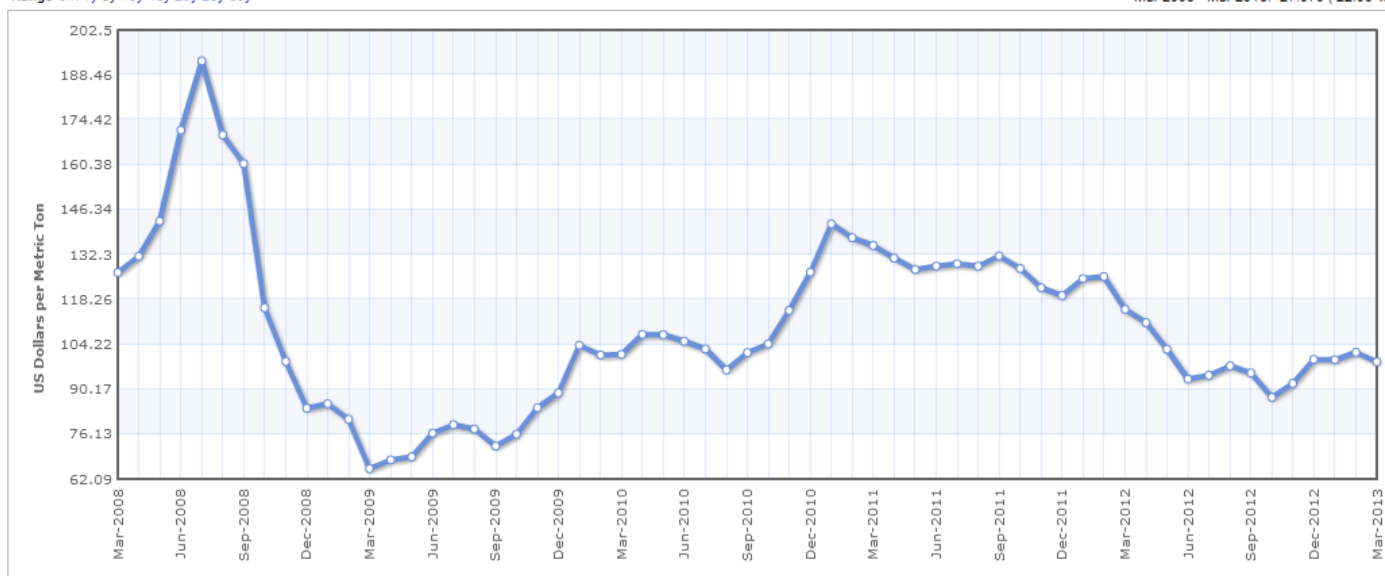
Renewable Resources	Non-renewable resources
Hydroelectricity	Coal
Wind	Oil
Water	Gas
Renewable Forestry	Uranium
	Iron Ore
	Bauxite



Coal, Australian thermal coal Monthly Price - US Dollars per Metric Ton

Range 6m 1y 5y 10y 15y 20y 25y 30y

Mar 2008 - Mar 2013: -27.970 (-22.08 %)



Description: Coal, Australian thermal coal, 12000- btu/pound, less than 1% sulfur, 14% ash, FOB Newcastle/Port Kembla, US Dollars per Metric Ton

Unit: US Dollars per Metric Ton

As of: Tuesday, April 16, 2013

Low: - Prior Day Open Interest: 65

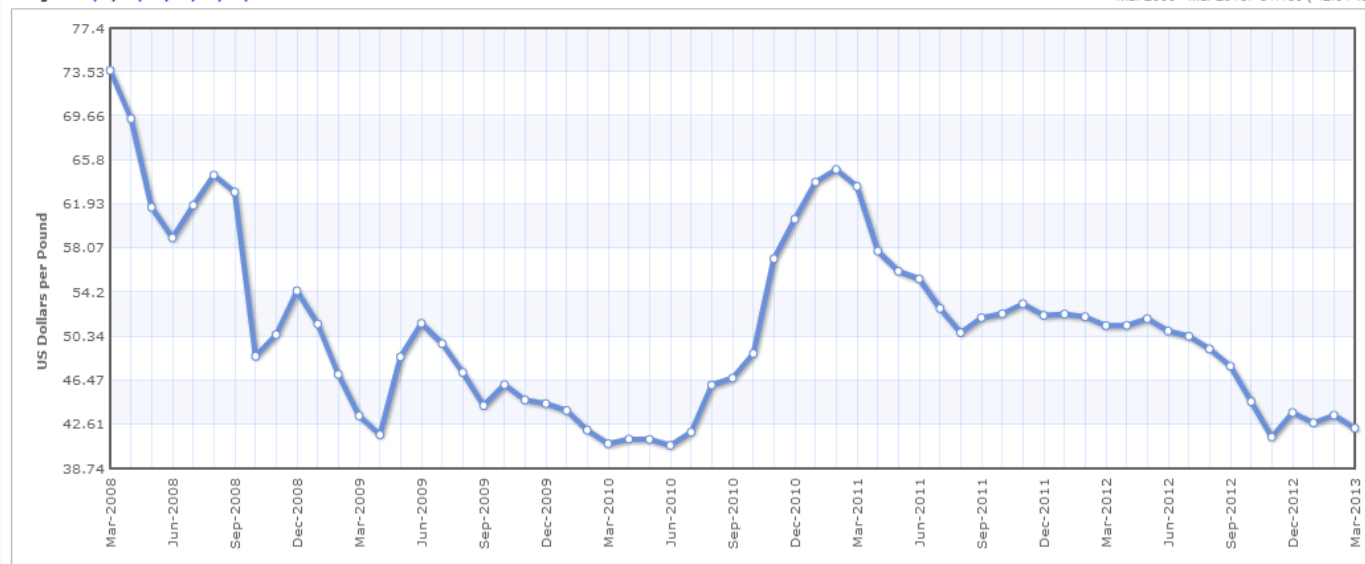
Source: NYMEX - CME Group

Last: - Contract Specifications

Uranium Monthly Price - US Dollars per Pound

Range 6m 1y 5y 10y 15y 20y 25y 30y

Mar 2008 - Mar 2013: -31.430 (-42.64 %)

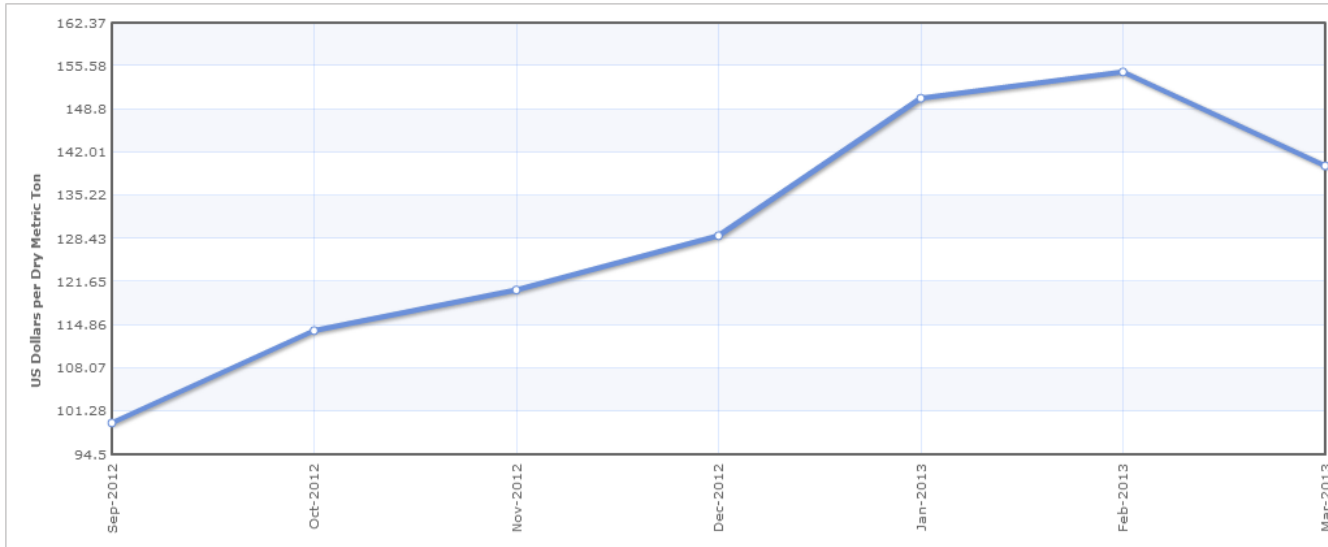


Description: Uranium, u3o8 restricted price, Nuexco exchange spot, US Dollars per Pound

Iron Ore Monthly Price - US Dollars per Dry Metric Ton

Range 6m 1y 5y 10y 15y 20y 25y 30y

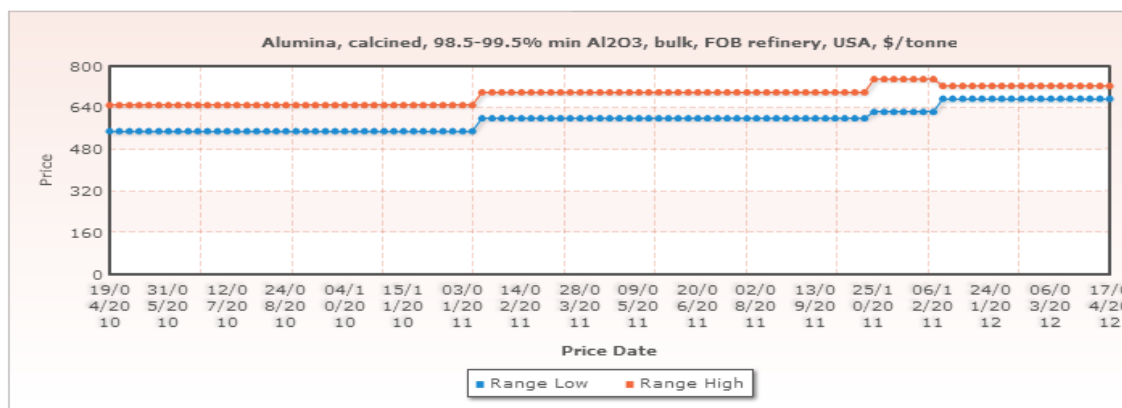
Sep 2012 - Mar 2013: 40.400 (40.62 %)



Description: China import Iron Ore Fines 62% FE spot (CFR Tianjin port), US Dollars per Dry Metric Ton

Alumina/Bauxite

SAMPLE PRICES		PRICE DATE	LOW	HIGH
↓	Alumina, calcined, 98.5-99.5% min Al ₂ O ₃ , bulk, FOB refinery, USA, \$/tonne View Graph	17 Apr 2012	675.00	725.00
↓	Bauxite, Refractory, round kiln 87 Al ₂ O ₃ max 2.0% Fe ₂ O ₃ , BD 3.2 lumps, Shanxi, FOB Xingang, China, \$/tonne View Graph	17 Apr 2012	395.00	430.00
→	Bauxite, refractory, RASC, bulk, FOB Linden, Guyana, \$/tonne View Graph	17 Apr 2012	460.00	510.00
↑	Alumina, brown fused, 95.5% min Al ₂ O ₃ , refractory sized, FOB China, \$/tonne View Graph	17 Apr 2012	700.00	730.00



PRICING NEWS

Price Briefing 4 – 10 January 2013 *10 January 2013*

China makes the grade as graphite and refractory grade bauxite rise [Read More](#)

Price Briefing 14 – 21 December *21 December 2012*

Chinese barite and antimony both see falls coming into holiday period [Read More](#)

Price Briefing 7 – 13 December *13 December 2012*

Prices for zircon, rutile, antimony drop as year-end approaches [Read More](#)

[More Alumina/Bauxite pricing »](#) [More pricing »](#) [Back to top](#)

Renewable Resources

Hydroelectricity

Wind

Water

Non-renewable resources

Coal

Oil

Gas

Uranium

Iron Ore

Bauxite