

World Coal Report

**Ed 2
2007**



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Introduction

- Coal is making a come-back
- A relentless increase in world demand for energy, large price increases for natural gas, growing concern about imported energy and security of supply, indecision about nuclear power are all factors which are contributing to the renaissance of coal
- Despite the 'dash for gas' in the last two decades, coal remains the number two source of primary energy
- In 1965 coal accounted for 38.4% of total final energy consumption, by 1999 this had been whittled down to 25.1% but today it has risen to 27.8%
- Production grew 14.3% in the 20 years between 1981 and 2000 but in the last five years it has grown 27.1% in total between 2000 and 2005
- This renaissance is taking place in many countries, but by far the most important driver is escalating demand in China, accompanied by growth in India and by continued strong demand in the USA

Report Scope

- The report provides a global overview of the coal market with production and demand
- The structure of coal rank
- An analysis of the international coal trade - the structure , geographical distribution of international coal production, development of a single coal market and international coal prices in the Atlantic and Pacific markets
- The shipping and freight rates
- The new technologies for coal extraction and the effects on the environment
- Global environmental legislation
- A detailed market review of the 11 key global coal supplying countries and the major coal producing companies

Key Research Findings

- The big international coal mining companies are now rivalling the oil and gas giants in the extent of their energy reserves
- A new coal mining force is entering the global marketplace and moving into the first league on the strength of their vast domestic market, the giant coal producers of China
- A vitally important issue is the development of clean coal technology
- Coal is the largest emitter of carbon dioxide, a major emitter of sulphur dioxide, nitrous oxide, mercury and particulate matter (polluting ash and dust)
- Billions of dollars are being invested in the development of technologies to clean emissions, to capture and store carbon and to generate electricity with reduced carbon emissions. The target is zero emissions generation
- In the last 40 years the global coal market has changed radically
- In 1965, the United States was overwhelmingly the largest producer and consumer of coal, accounting for 20% of consumption, followed by the United Kingdom and Germany
- The US share has increased slightly to 22% but the US has moved from first place into second place quite a long way behind China

- In 1965 China had an 11% share of the global market but this has grown to 36.9% in 2005
- The role of the key exporters was established in the first half of the 1980s
- The main impetus to growth of coal exports came initially from the US and Poland, but Australia and South Africa both expanded their market shares considerably during the 1980s
- More recently Indonesia has become the second largest exporter
- US exports fell under intense price pressure from other suppliers

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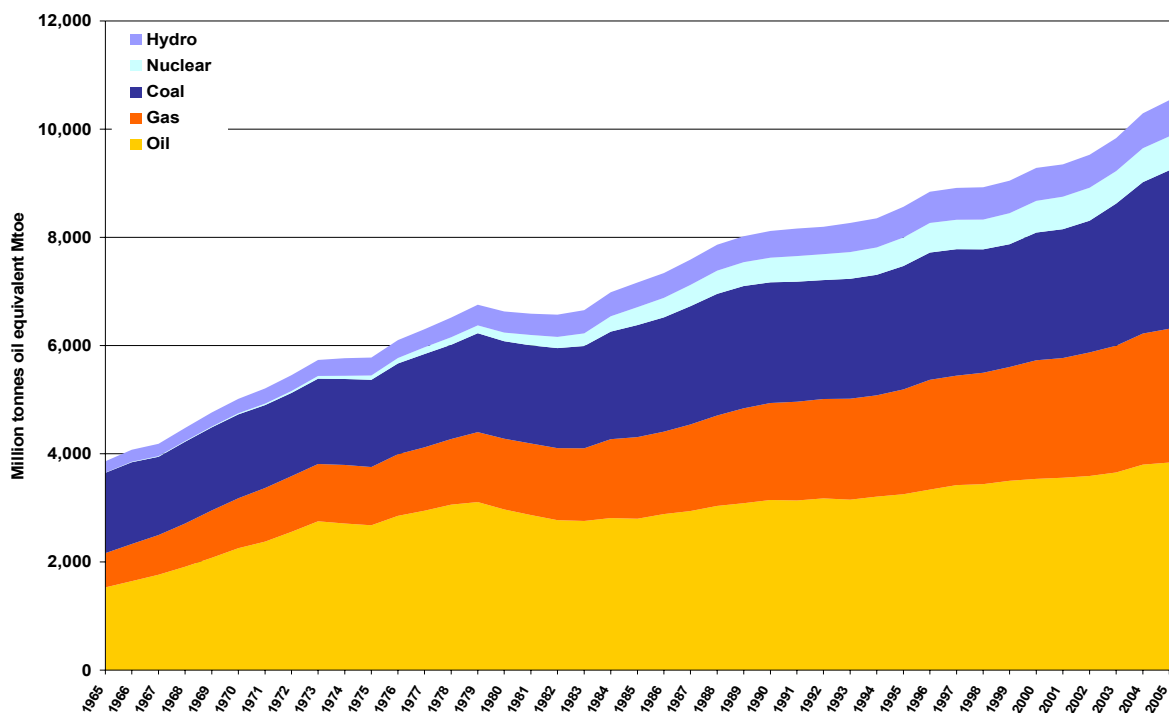
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2. Global Overview

Coal was the dominant source of commercial energy from the start of industrialisation in Europe in the late 18th century until the middle of the 20th century. Coal was slowly replaced by oil and then by natural gas in many applications. Coal has retained its dominant position in two sectors, the generation of electricity and the manufacture of cement and steel, where it is used as a source of energy and a reducing agent. Coal today accounts for over 26% of the world's primary energy supply and consumption. Coal is also the energy source with the largest potential reserves.

Global primary energy demand has risen two and a half times in the 40 years since 1965, from 3,862 million tonnes of oil equivalent (Mtoe) to 10,537 Mtoe in 2005. With the exception of nuclear power, in its infancy in 1965 and with demand rising over a hundredfold since then, the greatest increase has been for gas, demand for which has grown by a factor of 3.9 during his period, from 632 Mtoe to 2,475 Mtoe. Although coal remains the second largest energy source after oil, it is gaining share and accounted for 27.8% of total primary consumption in 2005 compared with 26.5% in 2003. Oil lost share from 37.3% to 36.4% and so has gas, falling from 23.9% in 2003 to 23.5% in 2005. Nuclear power accounted for 6.0% of consumption in 2005.

Figure 2-1: Primary Energy Consumption by Fuel, Mtoe, 1965 to 2005

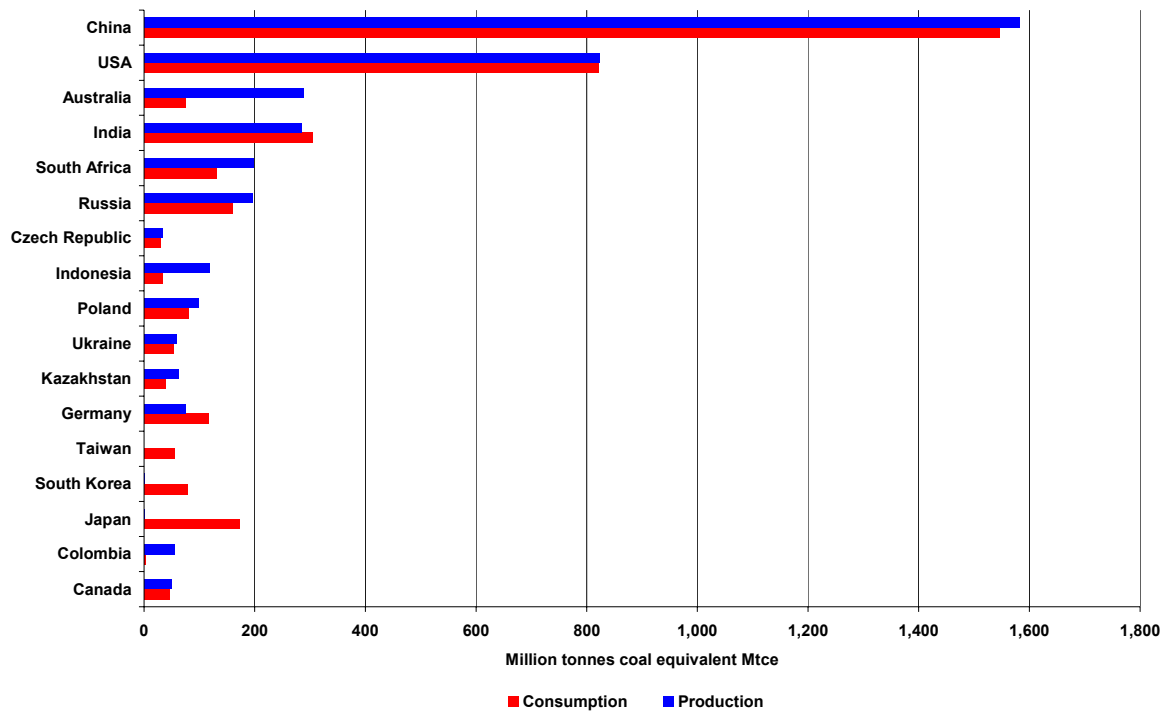


Source: BP Statistical Review of World Energy June 2006

Coal Production

Like oil, the growth of coal production has been interrupted several times in the last two decades. Production increased fairly steadily from 1965 to 1990. It then dipped in the early nineties and again at the end of the decade in 1999 and 2000. In the 24 years from 1981 to 2005 global coal production has increased by 52.8%. Production grew 14.3% in the 20 years between 1981 and 2000 but in the last five years there has been a renaissance of coal production to meet escalating demand in China and it has grown 27.1% in total between 2000 and 2005.

Figure 2-6: Coal Production and Consumption by Country, 2001 British Thermal Units (Btu)



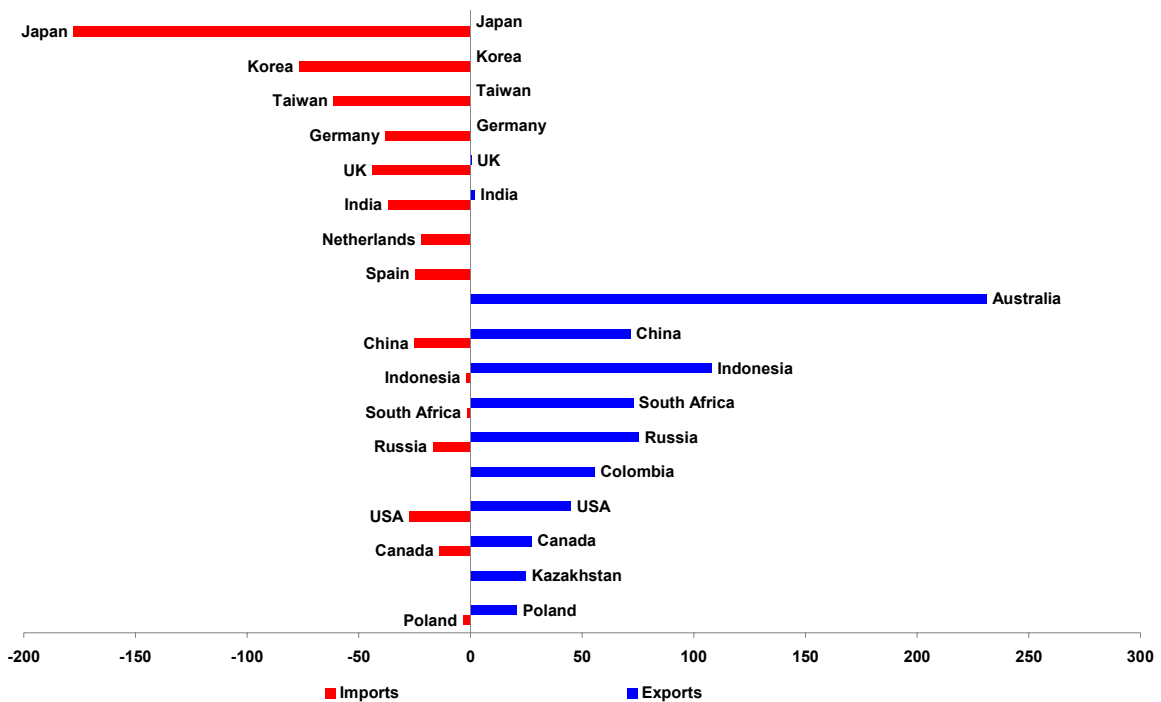
Source: BP Statistical Review of World Energy June 2006

International Coal Trade

14.6% of coal produced is traded internationally. Australia is the largest exporter of coal, accounting for 30% of global exports of 717 Mt in 2005, followed by Indonesia with 14%. Russia is in third place with 9.8%. South Africa which is the largest coal electricity generator, is in fourth place with exports of 9.5%.

Japan is the largest importer with 22.8% of all imports, and two other East Asian countries, Korea and Taiwan account for 9.9% and 7.9% respectively.

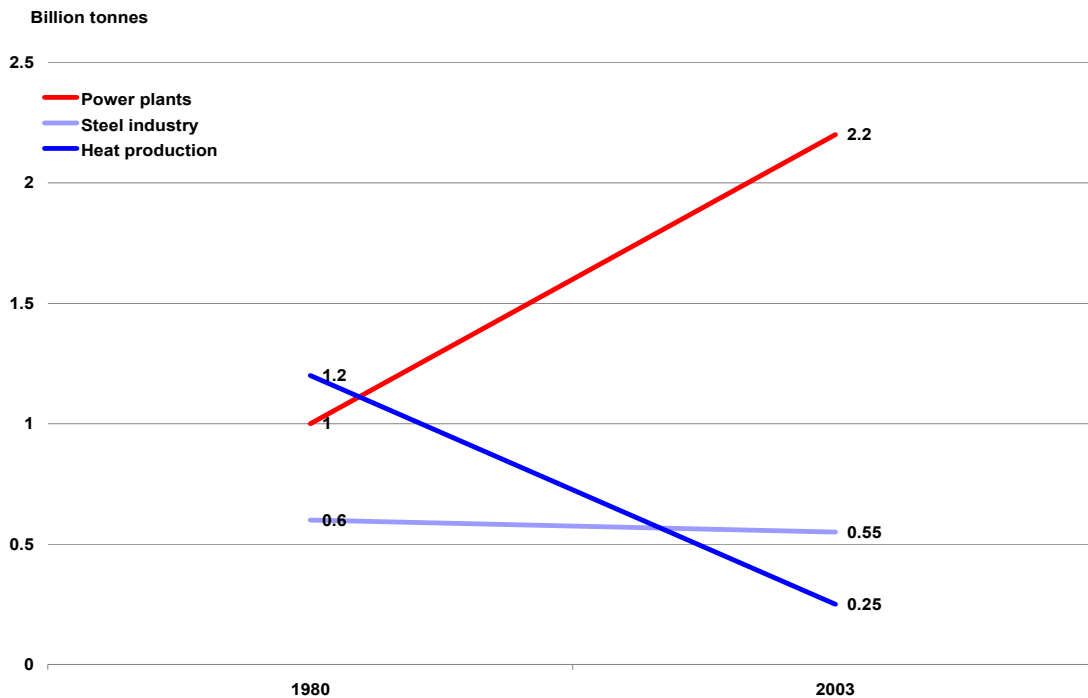
Figure 2-7: Major Hard Coal Exporters and Importers (Mt of coal) 2005



Source: World Coal Institute 2005/IEA

- Mitsui & Co.
- Itochu
- Nichimen
- Nobei

Figure 2-8: World Coal Consumption by Sector, 1980- 2003

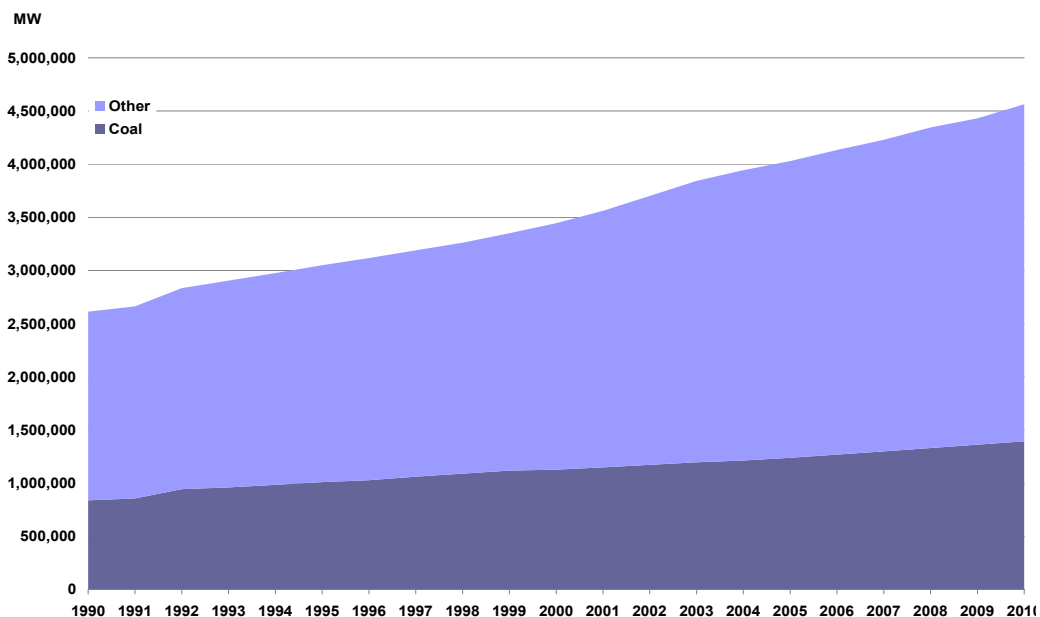


Source: RWE–World Market for Hard Coal

Coal-fired Power Generation

The world coal market has been driven by the escalation of coal-fired power generation, with demand increasing from one billion tonnes (Bt) in 1980 to 2.2 Bt in 2003. Consumption in steel industry has fallen 8% in the same period and in the heating market it has fallen 33%. The coal-fired generating capacity of the world has increased from 1,775 GW in 1990 to 2,781 GW in 2005 and is forecast to reach 3,169 GW in 2010, maintaining a constant share of 32% of total global power generating capacity.

Figure 2-9: The Future of Coal-fired Power Generation

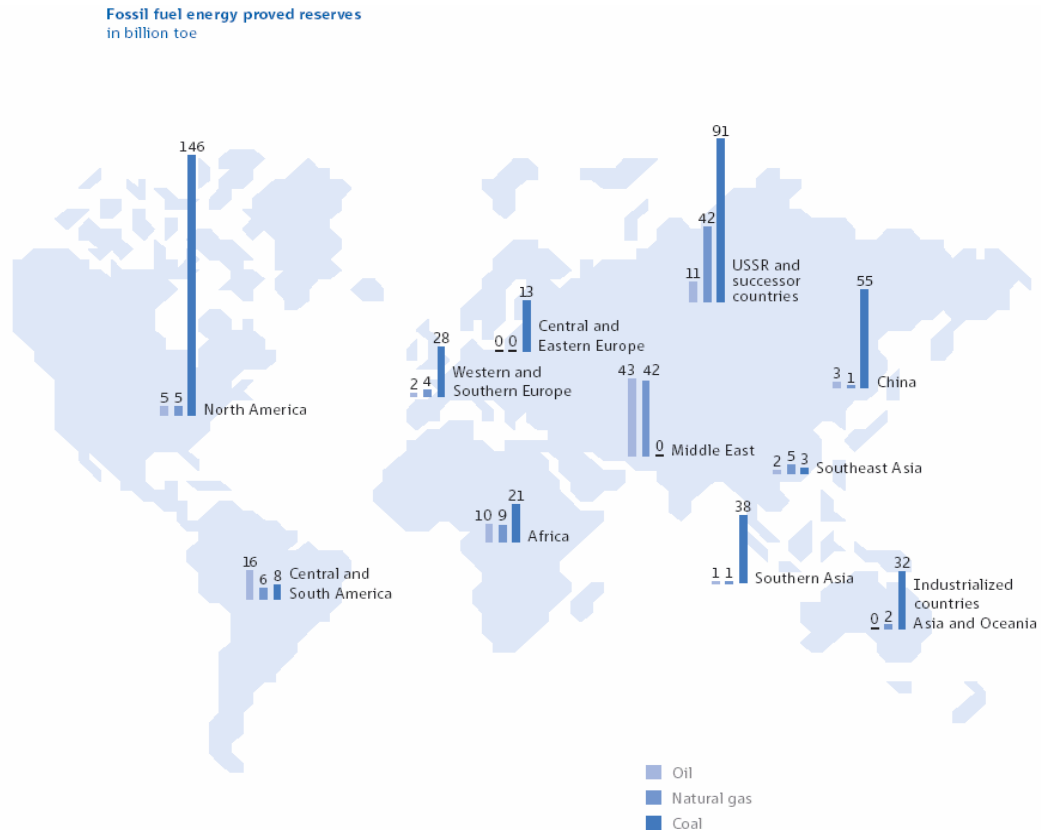


Source: ABS Fuel Forecasts Electricity Generating Capacity Ed 1 2005

Global Energy Reserves

Global coal reserves are vast and widely distributed near to the load centres. The world's oil will last for 41 years at current rates of extraction, gas for 67 years and coal for 192 years.

Figure 2-10: Global Energy Reserves



Source: RWE World Energy Report 2003

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