

Introduction to coal markets

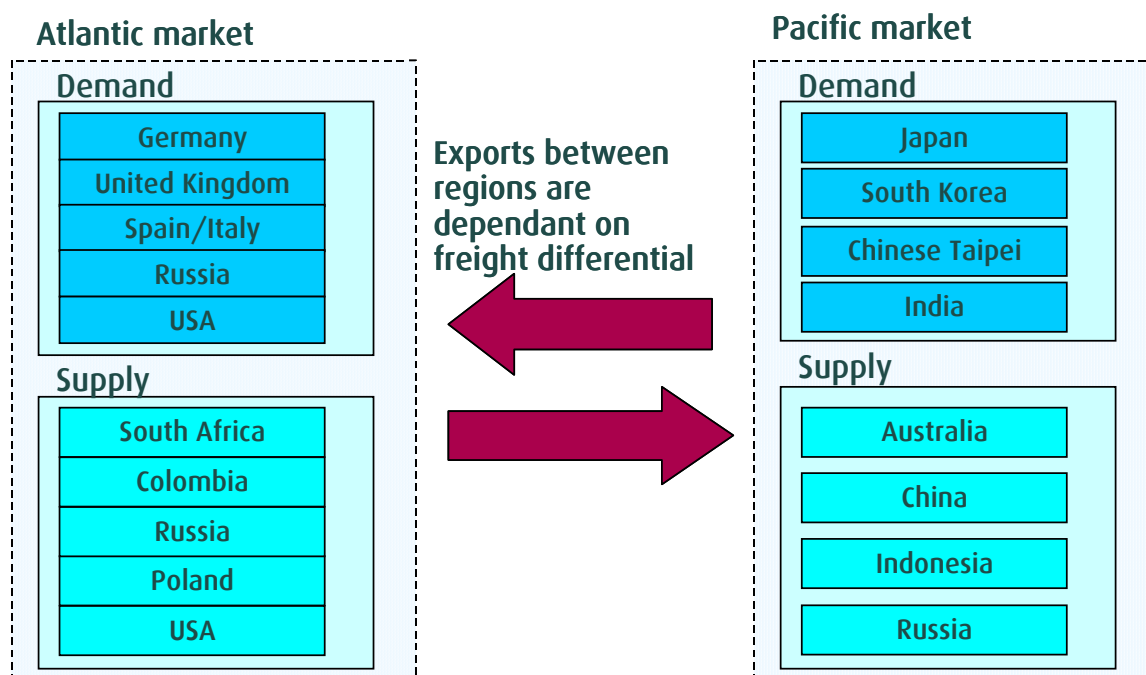
Coal is a truly globally traded commodity and the dynamics of price are influenced by a complex variety of factors ranging from rains in Indonesia, to world demand for steel. This paper is the first in a series of research and analysis papers on coal that will present discussion and analysis on the price drivers and dynamics of the product. The focus of this edition will be to present readers with a general introduction of the main issues to be discussed further in future editions.

Markets for coal

Two main steam coal regional markets can be identified: the Atlantic and the Pacific. Main suppliers of the first market are: South Africa, Colombia, Russia, Poland, Indonesia, Australia and the US, while on the Pacific side the main suppliers are Australia, Indonesia, China and Russia. Import demand comes mainly from EU25 on one side and from Japan, South Korea and Chinese Taipei on the other (Figure 1), with these countries altogether requiring almost 70% of internationally traded coal.

Exchange between the two markets is dependant of freight differentials and volumes can rise or diminish depending on the level of freight prices.

Figure 1: Atlantic and Pacific markets



Steam coal prices are a function of a variety of factors like supply-demand fundamentals, freight rates and other external factors. These are discussed in more detail below

Supply-demand fundamentals

As it is mainly (almost 70% on a global level) used for power generation, coal is competing with other energy sources and therefore strongly linked to their availability (e.g. hydro conditions, nuclear plant outages, wind conditions). Retirements and new

additional coal-fired power plants are also fundamental in determining future changes of steam coal demand.

Production is linked to timely and adequate investments in new expansions, productivity rates and depletion rates of existing reserves, as well as queues at ports, rain, accidents, strikes, availability of mining service equipment and skilled labour, low water levels in inland transportation.

There are also regional regulation factors that influence supply and demand, e.g. the level of hard coal subsidies influencing production and the CO₂ regulation and the Large Combustion Plant Directive influencing demand in the EU.

Freight

Steam coal is traded mainly through 4 types of vessels (handy, handymax, panamax and capesize). Of the total bulk trade, steam coal accounts for 20%, coking coal for 7-8%, iron ore 25% and other commodities account for the rest.

Freight rates are subject to a number of different factors. In particular, as the bulk fleet is used for a variety of commodities, a strong demand in one of these can bring to a tightening of ships availability and a surge in prices. This is what happened with China in 2003, when prices rapidly doubled.

Scrappage of old vessels and new capacity coming on-line play are key in determining the spare capacity, as well as ports congestions or other factors that can lower the availability of vessels, therefore bringing to an increase in prices.

Paper Market

API#2 (CIF ARA, 6000 kcal/kg, NAR) and API#4 (FOB Richards Bay - South Africa, 6000 kcal/kg, NAR) are the main reference prices for the North-West European markets and are the most liquid ones. To European markets, Route 4 (Richards Bay - ARA) and Route 7 (Puerto Bolivar - ARA) shipping routes are of big interest and are available for trading on the paper markets, thus offering opportunities to combine freight and FOB prices.

Figure 2: API# and API#4 history and forwards (including last 20 days range)

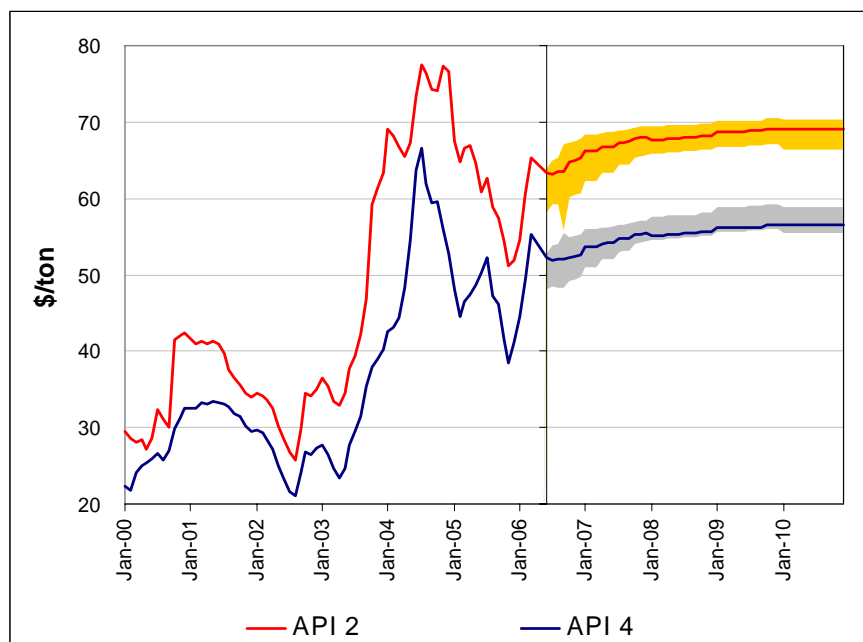
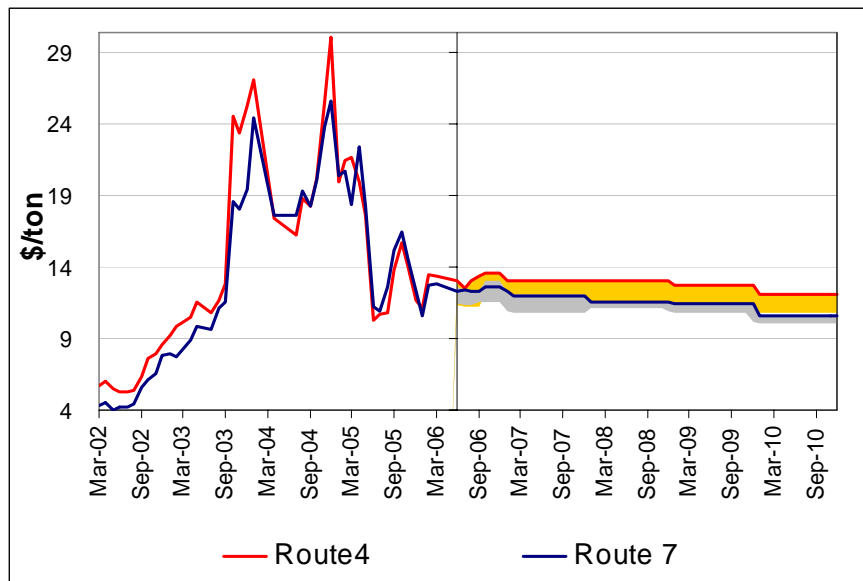


Figure 3: Route 4 and Route 7 history and forwards (incl. 20 days range)



Other drivers

Coal and gas account for almost 60% of global electricity production and are likely to meet the majority of additional power generation. Gas is the main competing energy source for coal, due to lower investment needs for gas power plants with respect to coal-fired power plants. Increasing gas prices can therefore make coal-fired power generation more competitive and allow for increases in coal prices.

The recent drop of the ETS CO₂ price also reduced scope for gas-coal substitution in the EU.

During the last decade there has been a trend to consolidation in the coal industry that might also lead to market power in some cases.

APPENDIX – COAL FACTS AND FIGURES

Coal meets 24% of today’s global energy requirements More than two-thirds of it is used for power generation and coal-fired power plants account for almost 40% of global electricity production. China and the United States account for than half of the world consumption (Figure 4).

Coal reserves are ample, distributed in a variety of countries, sufficient to meet the current coal demand for more than 160 years. Five countries hold three-quarters of total reserves (US, Russia, China, India, Australia), while another four countries (South Africa, Ukraine, Kazakhstan, Poland) account for an additional 14% (Figure 5).

Coal is divided into two main categories: hard and brown coal. Hard coal is divided into steam coal and coking coal. Steam coal and brown coal are mainly used for power generation. About 16% and almost 40% respectively of steam coal and coking coal are traded internationally every year, mainly through maritime routes.

Figure 4: Steam coal main producers and consumers

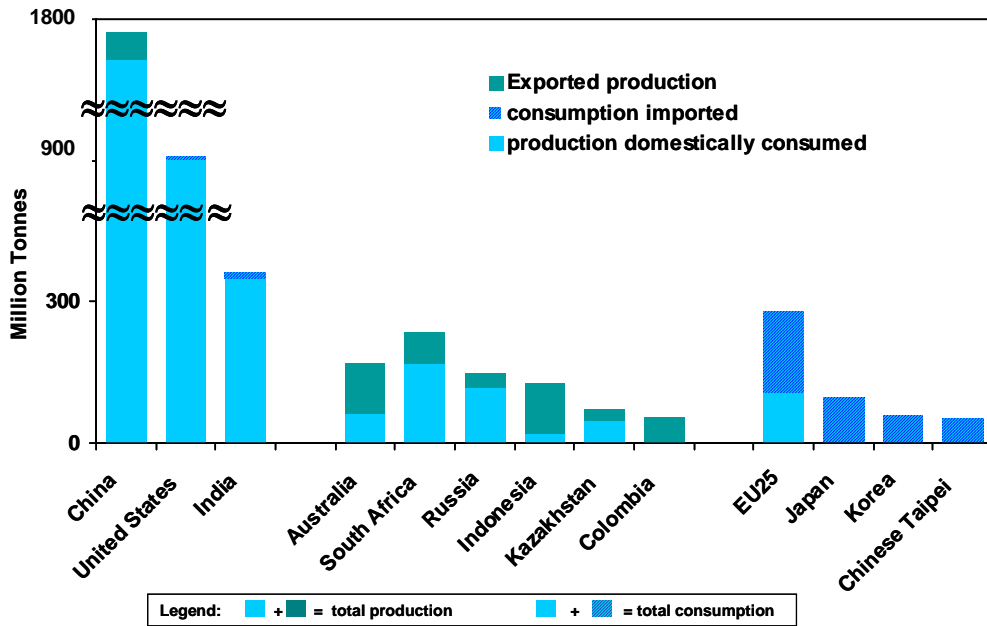
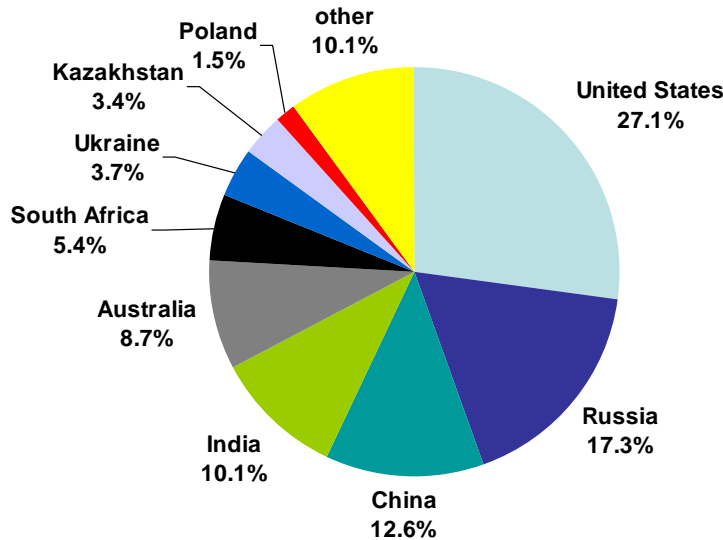


Figure 5: World Coal Reserves (Hard + Brown)



The European Union (EU25) as a whole is one of the top coal consumers in the world and the biggest importer. It requires about 12% of the world coal needs and almost 30% of global hard coal imports. South Africa and Colombia meet almost 50% of the import requirements to EU25 Member States, Russia and Poland for more than one-quarter and Australia and Indonesia for about 15%.

The EU is also a big producer and consumer (38% of global needs) of brown coal, which meets 28% of European coal demand.

Coal meets 18% of total energy demand in the European Union and about one-third of electricity production.