

EXECUTIVE SUMMARY

The never-ending story

In 2012, coal once again exhibited the largest demand growth of all fossil fuels, with an additional 134 million tonnes of coal-equivalent (Mtce) compared with 2011. Global coal demand grew to 7 697 million tonnes (Mt) in 2012 – 170 Mt (+2.3%) more than the previous year – despite weak demand from the world's two largest consumers, China and the United States. In China, flat demand for power (largely driven by huge hydro production and lower-than-expected economic growth) led to weak 4.7% growth (+165 Mt), the second-lowest in over a decade. In the United States, abnormally low gas prices led to a 10.7% (-98 Mt) decrease in coal demand, the second-largest in five decades. The United States (US) decline was, however, largely offset by growth in India, Russia and other countries. Global metallurgical coal (met coal) demand, closely linked to iron and steel production and unaffected by hydro and gas competition, grew 4.2% in 2012.

China remains the centre of the coal world. While coal demand grew by 170 Mt globally, China's growth accounted for 165 Mt of this total. Measured in energy units, China used 2 806 Mtce in 2012, representing more than half of global consumption (5 530 Mtce) and 60% of global met coal demand. Chinese production in 2012 is estimated at 3 549 Mt, or 45% of global production (7 831 Mt). Imports to China totalled 301 Mt, the highest figure ever for any country. With the addition of more than 600 Mt of domestic coal shipped from northern ports to the south, China is receiving roughly as much seaborne coal as the rest of the world combined. This makes arbitrage between domestic and imported coal in China's southern coast pivotal to coal markets developments.

Coal is becoming cheaper

Oversupply and lower-than-expected demand have driven steam coal prices down to a three-year low. The shale gas revolution, combined with the mildest winter in decades and United States Environmental Protection Agency regulations, shrank US markets for domestic coal, moving exports to Europe. At the same time, major exporting countries (particularly Australia and Indonesia, but also Colombia, Russia and to a lesser extent, South Africa) saw significant expansions of mining capacity. Despite Chinese and Indian growth and the temporary European coal fever, the market could not absorb so much coal. In 2013, rains, strikes and other disruptions affected major exporters – particularly Colombia. However, these events caused little (if any) price reaction. Overall, there is simply too much coal on the market. Although subject to different supply and demand dynamics, met coal prices have followed the trend, declining to levels below the marginal supply cost. This also indicates a market oversupply.

Low coal prices impact on demand and supply differently. Low international coal prices push gas out of the power generation sector, where competition is possible (except in the United States, where low gas prices are isolated from international levels). Coal prices below marginal supply cost indicate that some exporters are losing money. Export-oriented companies are generally focused on reducing costs, cutting jobs, optimising operations and maximising profits. Many domestic-oriented producers are struggling to survive against competition from international coal. European hard coal producers are a good example of this. In China, while many small and medium-sized producers are losing money, big companies are expanding operations, taking advantage of lower costs stemming from rationalisation and better economies of scale. In principle, met coal producers could react earlier than steam coal producers, as greater concentration on the supply side facilitates production discipline.

Demand: from a quick step to a slow march

International Energy Agency projections show that coal demand will grow at 2.3% per year on average during the outlook period, for both thermal and met coal. This growth rate is slower than indicated in the previous forecast. The more bearish perspective on China has driven down projections compared with last year. Whereas low coal prices could suggest a strong increase in thermal coal use, demand in the regions concentrating growth is relatively inelastic in the short term. Coal plants are capital-intensive assets. Hence, fuel cost is only one component of the levelled cost of the plants, which are largely designed for high load factors owing to growing power needs and frequent power shortages. Met coal demand is more inelastic. It is strongly dependent on iron and steel production, where met coal has almost no possible substitute, apart from scrap recycling. China, which produces roughly 60% of global pig iron, is therefore pivotal.

Many of the new projects announced will be delayed, postponed or simply abandoned. Not only do current low coal prices decrease the cash flow of current operations, but they also shrink the net value of the developing projects. Thus, the huge number of announced capacity expansion and greenfield projects needs rethinking. Every major coal exporter (i.e. Indonesia, Australia, Russia, United States, Colombia and South Africa, as well as Canada for met coal) has expansion plans. The number and size of the new projects announced in Australia is particularly significant. Most involve simultaneous mining, rail and port capacity commitments. Whereas low coal prices have not hindered many expansions from coming online in recent years, their persistency will cause many projects to be put on hold until the coal market improves.

OECD: coal is not over yet

In the United States, a combination of low gas prices, environmental regulation and uncertainty about future carbon policy will keep coal consumption far below the 2005-07 peak. Coal consumption is projected to total 606 Mtce by 2018, close to the 2012 level and far below the 718 Mtce consumed in 2010. While growing shale gas production will push coal prices down, environmental emissions regulation will cause the closure of considerable coal capacity and carbon dioxide (CO₂) policy will prevent investments in new coal plants. International markets can alleviate the situation for US coal producers, but current low coal prices are not helping. Uncertainties surrounding future demand in China and actions by environmental and anti-coal groups will also hamper the growth of US coal exports, despite the existence of promising low-cost production areas, including the Illinois and Powder River basins.

While the gas and coal price differential temporarily triggered coal demand in Organisation for Economic Co-operation and Development (OECD) Europe, we will see a steady decline from now on. Despite the public attention and press coverage received, the increase in OECD Europe 2012-13 coal use is far from the historical peak. In fact, it is only a temporary spike caused by the relative competitiveness of cheap coal compared with expensive gas. Coal consumption will decline during the outlook period. Sluggish economic growth projections, increasing renewable generation and efficiency gains (including from replacing old coal plants with new plants) will shrink demand. However, issues affecting nuclear power plants in Japan and, to a lesser extent, Korea will cause their coal-fired power plants to run at high load factors. In addition, new plants that come online will further drive demand in OECD Asia Oceania. Hence, total OECD coal demand will be basically flat throughout the outlook period.

Coal lights up non-OECD countries

The projected growth in coal demand is driven by non-OECD countries, which account for an additional 817 Mtce, including 500 Mtce of power generation. With 164 Mtce of growth in coal demand by the end of the outlook period, India leads the way behind China. However, lower economic growth and persistent project development difficulties decrease India's average annual growth rate from 6.3%, as projected in the *MTCMR 2012*, to 4.9% in this report. Nevertheless, 1 billion people in India and over 600 million people in the Association of Southeast Asian Nations (ASEAN) countries have per-capita electricity consumption of around 1 000 kilowatt hours per year, versus consumption of more than 8 000 kilowatt hours per capita in OECD member countries. This includes the more than 400 million people without access to electricity. Given the vast coal availability in these regions, China, India, Indonesia, Viet Nam and other countries will rely on coal to provide people with power.

Non-OECD imports will nearly match global imports by 2018 as the growing needs of non-OECD countries, combined with the competitiveness of US and Australian coal, render the OECD close to self-sufficient. Despite a recent cost ramp-up, Australia strengthens its position as the biggest value exporter of coal. It also maintains its position as the (by far) top exporter of met coal, despite some growth in Canada, Russia and Mongolia. Bearish projections for Mozambique continue, due to ongoing issues concerning coal quality and transportation restrictions. Coking coal from Indonesia and Colombia will increase to 2018, but only slightly. Despite its growing domestic market needs, Indonesia will keep its position as the top exporter, underpinned by its low costs and proximity to coal-thirsty Asian markets. Our projections show growth among all the major steam coal exporters, i.e. Russia, Colombia, South Africa and the United States.

In the end, it is all about China

Given China's absolute dominance over coal markets, our projections are strongly subject to Chinese uncertainties. The staunch commitment of the new Chinese government towards more efficient, sustainable and environmentally friendly growth, together with air pollution problems that have exacerbated public and governmental concerns over environmental issues, will accelerate the phasing-out of old facilities, the adoption of cleaner technologies and the implementation of coal consumption cuts in some regions. However, the degree to which curtailed coal demand can prove compatible with high gross domestic product growth is unclear. Two opposing trends appear – a rebalancing of the economy into a less energy-intensive model and the establishment of an urban middle class with increasing power needs. Efforts to diversify the energy supply will face drawbacks, such as domestic gas scarcity and renewable costs. On the supply side, where many coal producers' costs are over price levels, any reaction in any direction will have strong implications on international markets.

Coal conversion emerges as an important driver of coal demand in China. After some years of active debate, a number of coal conversion projects have been approved. If the announced projects are finally completed, conversion will need to be considered not only for coal, but also for the gas market and (to a lesser extent) the oil market. However, there are significant uncertainties, largely related to capital needs, environmental impacts (especially CO₂ emissions) and water issues (since coal conversion is water-intensive). Hence, this report approaches coal conversion cautiously, assuming that 100 Mtce of additional coal will be consumed to make liquids, synthetic natural gas and chemicals by 2018. If the concerns mentioned above can be addressed in the years to come, we may revise this figure upward. Government policy, influenced by the industry's solutions to those issues, will be key.