

COAL

Medium-Term Market Report 2016

EXECUTIVE
SUMMARY

Market Analysis and Forecasts to 2021



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Energy Agency
Secure
Sustainable
Together

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**International
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EXECUTIVE SUMMARY

Is the glass half full or half empty?

Global coal demand growth has stalled. Coal demand in 2016 will be below 2013 levels, confirming a new trajectory since the meagre growth in 2014 after more than a decade of 4% annual growth. In 2015, global coal consumption decreased for the first time in this century. The big decline in the People's Republic of China (hereafter "China") and the United States was not offset by growth in India, Indonesia, the Russian Federation and Viet Nam. In China, coal use declined in the major consuming sectors: electricity, steel and cement. Coal generation dropped, driven by a sluggish 0.5% electricity demand growth and the diversification policy, which led to hydro, nuclear, wind, solar and natural gas power generation growth. In the United States, coal power generation plummeted as a result of low natural gas prices and coal plant retirements pushed by Mercury and Air Toxics Standards (MATS); hence, coal consumption dropped by 15%, the largest annual decline ever, to levels not seen in more than 30 years.

The world is burning more coal than ever. Except for the 1920s and the 1990s, coal use in the world has been continuously increasing since the start of the Industrial Revolution. Now we are witnessing another halt, but, even so, if we consider coal consumption from a historical perspective, the world has never burned as much coal. Our forecast shows a slight increase after a few years of decrease, reaching 2014 levels only in 2021. Such a growth path would depend greatly on the Chinese trajectory. Given the growth in primary energy globally, this means that, according to our forecast, 2011 was the "peak" for coal's share in the energy mix in this century. Thus, whereas coal will continue to be the preferred source of power generation, the share will decline from over 41% in 2013 to around 36% in 2021.

A two-track coal world

Coal's shift to the East is accelerating. The decline of coal in Europe and North America continues as expected, and new policies (such as stronger climate policies) or technology developments (such as the declining cost of renewable-based electricity) may even accelerate such decline. In Europe, the tone of discussion over energy, in particular in the area of electricity, is subtly shifting from low carbon to low carbon and no coal. In the United States, amid all the discussion of the impact of the new political leadership on the coal sector, our forecast is almost 100 million tonnes (Mt) of coal demand decrease through 2021 to be added to 300 Mt from 2007 to 2015. At the same time, we forecast solid consumption to continue in North Asia (Japan, Korea and Chinese Taipei) and strong growth in South and Southeast Asia (India, Viet Nam, Indonesia, etc.), where coal-based electricity is one of the preferred options to increase power generation in growing economies with electricity shortage. China, despite consumption having likely peaked, will continue to be the largest coal consumer by far over the period.

A geographical divide on coal is emerging. Traditionally, coal has been considered less burdened by geopolitical issues around its production and trade, underpinned by easy logistics and reserves widely distributed across the world. However, the move of coal to Asia is accelerating and will continue in the coming years with the bulk of coal plant retirements occurring in Europe and the United States, and construction of new coal power plants happening mostly in Asia. If coal

production, demand, trade and all coal-related technology and finance disappear from Europe and America while they are increasingly concentrated in Asia, a geographical split will emerge. The growing asymmetry related to coal could make coal more controversial and complicate discussions and negotiations on CO₂ emission mitigation.

A relieved industry

The unexpected boost to coal prices has provided the industry with relief. After a sustained decline over more than four years, coal prices have seen a strong rebound in 2016. Supply discipline, high cost mine closures and capital expenditures (capex) reduction have retired some output from the market. However, rather than a big change in the international supply/demand balance, the main driver of the rise has been the policy changes in China to cut coal output, which have pushed domestic prices up resulting in higher prices elsewhere. Spot steam coal prices increased significantly, from around USD 45/tonne (t) in January 2016 up to over USD 90/t in November 2016 (thermal coal imports to Europe). Likewise, with regard to coking coal, the increase was even higher, quadrupling from USD 77/t in January 2016 up to over USD 300/t in November 2016 (coking coal exports from Australia).

Producers' discipline delivered significant cost reductions. Some external factors, such as low oil prices and currency depreciation in major exporters, also played a role in decreasing costs, but the main driver was the cost-cut strategy of most producers forced to do so by the sustained price decrease. Production of high cost mines was suspended or abandoned; productivity was increased through better utilisation of human resources and assets; some bottlenecks in the production chain were eliminated, output from operating mines was maximised and the work of contractors optimised. Higher prices, combined with a healthier, more competitive coal industry, have somehow changed the landscape. Overall perspectives on the coal industry are now much firmer than just one year ago although reasonable doubts persist on the sustainability of current prices, given that climate pressure continues and air pollution is a serious issue which will shape policies in China, India and other emerging countries.

Coal is still a Chinese tale

Regardless of whether its demand has peaked or not, China will be the largest user of coal by far through the outlook period. In our forecast, coal demand in China decreases through 2018 with a slight recovery afterwards, but coal demand in 2021 will be below 2013 levels. The increase post-2018 is mostly driven by coal demand for power, as power demand recovers a pace of growth closer to historical trends after a couple of years of very low increases, while hydro growth will decline at the end of the outlook period. Decline in steel and cement production also pushes coal demand down. The only sector with strong growth through the period is chemicals, with over 100 Mt, despite some slowdown of coal-to-gas and coal-to-liquids projects. Despite this decline, China will still account for almost 50% of global coal demand, over 45% of coal production, and more than 10% of seaborne trade.

China still moves the (coal) world. As has been the most recurrent message of the *Medium-Term Coal Market Report* in the past years, coal market dynamics are determined by developments in China. This proved to be true once again in 2016, when the measures taken by the Chinese

government to curb oversupply, in particular the reduction of working days, gave rise to a spike in coal prices, further exacerbated by disruptions in Australia and Indonesia, which led prices to unexpected levels. But changes arrive very quickly in China: only a few months after the new policy was introduced, the government softened it to cool down coal markets. Import volumes have mirrored the price trajectory as the price increase and coal production cuts in China produced an unexpected increase of imports to China. The subsequent result is that macroeconomic development and policies in China shape coal demand and supply, with implications elsewhere.

Volatility and uncertainty for major importers

Import growth in traditional major importers disappears. Despite declining coal production in Europe through the outlook period, coal imports will also decline significantly owing to a drop in coal demand that is even steeper than that in production. In mature economies in Asia, the growth of coal imports will be curtailed in long-standing big importers, such as Japan and Korea (and, to a lesser extent, Chinese Taipei); sluggish power demand growth; and increasing renewable and nuclear electricity output, despite upside potential coming from new coal power projects and, in particular in Japan, uncertainty about future nuclear production.

Imports will balance out Chinese and Indian markets. In China and India, the forecast will be defined by the volatility of import volumes and by uncertainty about the evolution of volumes through the period. India is somewhat similar to China, although on a smaller scale. Both are big producers and consumers where imports play a balancing role, but, given their size, changes in imports have an impact on the global market, as was proved in 2016 by the changing trend of Chinese imports. We expect steam coal imports to India to grow slightly, with a clear downside potential because the Indian government is trying hard to reduce coal imports, although price, quality and geography make this difficult. The potential to increase domestic coking coal production is, however, limited as a result of quality issues; hence, coking coal imports to India will increase based on growth in steel production.

But some smaller importers will give imports a boost, thus offsetting declines in Europe and elsewhere. As expected, Viet Nam became a net importer after being a considerable exporter for a few years. We expect growing imports to Viet Nam based on the power generation capacity under construction and sound economic growth. A smaller but significant boost is expected in Pakistan and in other countries such as Turkey, Malaysia and Morocco that are already importers. Overall, seaborne trade will grow at the end of the period although volumes by 2021 will still be below 2013 levels, with coking coal volumes slightly higher and thermal volumes lower. Big upside potential resides in Egypt and Bangladesh, where the announced coal power developments combined would require well over 50 Mt of imports; given the slow progress, if any, of most of those projects, our projections do not foresee them in operation in our timeframe.

Quo vadis, coal?

Coal mining investment is drying up. In an environment of low and decreasing prices, capital expenditures (capex) are minimised and very few projects move ahead: this has been the case for the last few years. Current higher prices will create larger output from operating mines or from part of the idled or suspended capacity that may be put into operation. However, as the current price spike is linked more to Chinese policies to cut oversupply than to sustained strong demand, and structural

overcapacity remains in China, we expect prices to decline from the today's levels and to recover a bit by the end of the outlook period, and hence, we do not see the momentum building for new mining investment. The situation is different in coal power generation, where investments have been stable during the last few years, despite the increasing restrictions from many European and North American banks and institutions on coal financing.

Despite the Paris Agreement, there is no major trigger for carbon capture and storage (CCS). To fulfil the goals of the Paris Climate Agreement, CCS will be key, as the Agreement establishes more ambitious temperature targets while providing a framework for climate action that extends beyond 2050, namely to achieve a balance between man-made emissions by sources and removals by sinks of greenhouse gases in the second half of the century. This should provide momentum for refocusing efforts on CCS. Yet, one year on from Paris there is little indication that governments are acting to enforce limits on CO₂ emissions that will allow investment in CCS happen. Without CCS or technological innovation to use captured CO₂ for commercial purposes, coal must be virtually eliminated if Paris targets are to be met, which can be challenging in power generation and even more so in industrial applications.

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Analysis on coal often tends to be one-sided. But to truly understand the important role that coal plays, for better or worse, in the global energy system, it is critical that we examine both sides of the coin. This means understanding the implications of climate agreements on the future for coal while at the same time coming to terms with what coal is doing – and will continue to do – for energy security and energy access in developing and emerging economies.

This means taking a close look at those emerging economies, specifically in South and Southeast Asia. For example, given China's dominance in coal markets, the main problem for the coal industry is adjusting to how Chinese demand and imports will evolve in the future. In India, already the second largest coal consumer in the world, coal use is expected to grow. Will this trigger imports? Viet Nam, a net exporter until 2014, is building coal power plants at a fast pace. How much coal will they need to import? Where will that coal come from?

Meanwhile, despite an increase in the price of natural gas price in the United States, coal consumption continues to drop. Is this decline inevitable? The last coal plants closed in Belgium and Scotland in 2016 while other European nations have announced the end of coal generation. Is coal going to disappear forever from Europe? At the same time, banks and funds are turning away from coal financing. Will this bring a halt to construction of new coal power plants?

The *Medium-Term Coal Market Report 2016* addresses these questions and more, providing insight into the drivers of coal demand, supply and trade through 2021.

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