

FOCUS · Change of pattern in energy consumption: the China effect

Between 2005 and 2015 we witnessed China's rise as a major player in the global energy order. In 2015 China was the world's largest consumer of energy with 23.1% of the total, ahead of the US (17.0%), Europe (14.4%), Russia (5.8%) and India (4.8%).¹ China's importance becomes even more evident, if possible, in dynamic terms as it contributed 59.3% to the growth in global energy consumption between 2005 and 2015.

Before starting to analyse this situation in a little more detail, we should note that there are five primary energy sources: liquid fuels (the vast majority from oil), accounting for 32.4% of total energy consumption; coal at 28.7%; gas, 21.7%; renewable-hydraulic, 11.8%; and nuclear, 5.3%. China's sharp increase in energy demand has had a huge effect on the relative share of the different sources of energy as the Asian giant's energy consumption differs substantially from the rest of the world. In particular, coal consumption in China represents two thirds of its total energy consumption, a figure much higher than the 17.5% it represents in the rest of the world. So coal, a highly polluting source of energy, has been a major protagonist in the last decade: it has been responsible for close to 40% of the increase in the world's energy consumption, substantially ahead of renewables (28.9%), gas (15.3%) and oil (14.7%).

However, the trend in energy consumption in the next 10 years could be very different to the one observed in recent years with coal losing relative importance. This could be helped by China's desire to change its pattern of growth with a greater focus on consumption and services, which will lead to a reduction in capital expenditure (capex) in favour of operating expenditure (opex). Energy consumption associated with the latter type of spending is less coal-intensive. China is also prioritising a reduction in its use of coal now that it is more aware of the associated environmental problems and, in fact, protecting the environment is one of the strategic lines of the new five-year Plan presented at the end of 2015. The relative weight of coal in energy consumption is therefore expected to fall from the current level of 66% to 60% by 2025.

A third element is likely to be added to these two factors: oil prices. Between 2005 and 2015, China's economic surge coexisted with a time of expensive oil whose price went from 44.5 dollars per barrel in 2005 to 74.5 in 2014 (partly due to China's increased demand), undoubtedly limiting the relative weight of oil in the Asian giant's energy mix.

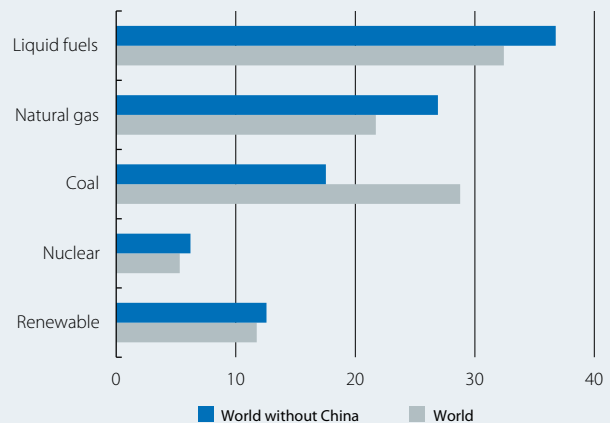
1. According to the IEA, «International Energy Outlook 2013», July 2013. This is the most recent report with a breakdown by region and energy source at the same time.

Within the current context, where the growth in supply will help keep oil prices lower than in recent years, the relative weight of this source of energy is likely to increase.

In fact, if we assume that China's energy use will gradually converge towards sources similar to those in developed countries, the global energy mix may be quite different to the one observed recently. According to the forecasts of the International Energy Agency (IEA) for the world excluding China, the growing importance of energy consumption in the domestic area and trade compared with industrial use, as well as environmental concerns, will help a relatively clean source such as gas to become the maximum contributor to growth in energy consumption (at 32.4%). Renewable sources will be second (24.1%), followed by oil (at 15.1%, although in this case its contribution could be higher if prices remain low), nuclear (14.9%) and coal, which would come last with a contribution of 13.5%.

Primary energy sources

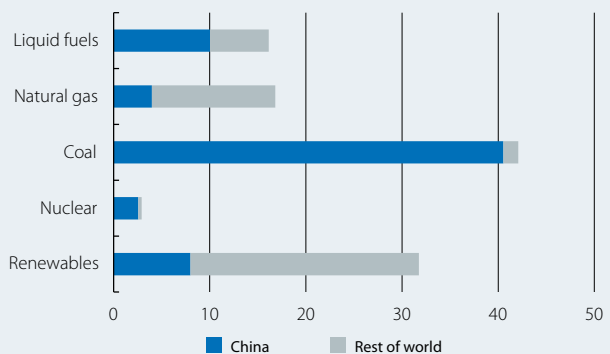
(% energy consumption out of the region's total consumption)



Source: CaixaBank Research, based on data from the Energy Information Administration.

Growth in energy consumption 2005-2015 *

(Quadrillions of BTU)



Note: * Increase in absolute terms of consumption between 2005 and 2015 expressed in quadrillions of British thermal units (BTU). Source: CaixaBank Research, based on data from the Energy Information Administration.