Oil Market, Oil Price and Demand for Saudi Oil to 2030

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In this article we look at the possible directions for oil price over the longer term, to 2030, and the demand for Saudi oil.

Figure 1 summarises the critical factors that we have identified that will play a role in the future oil price.

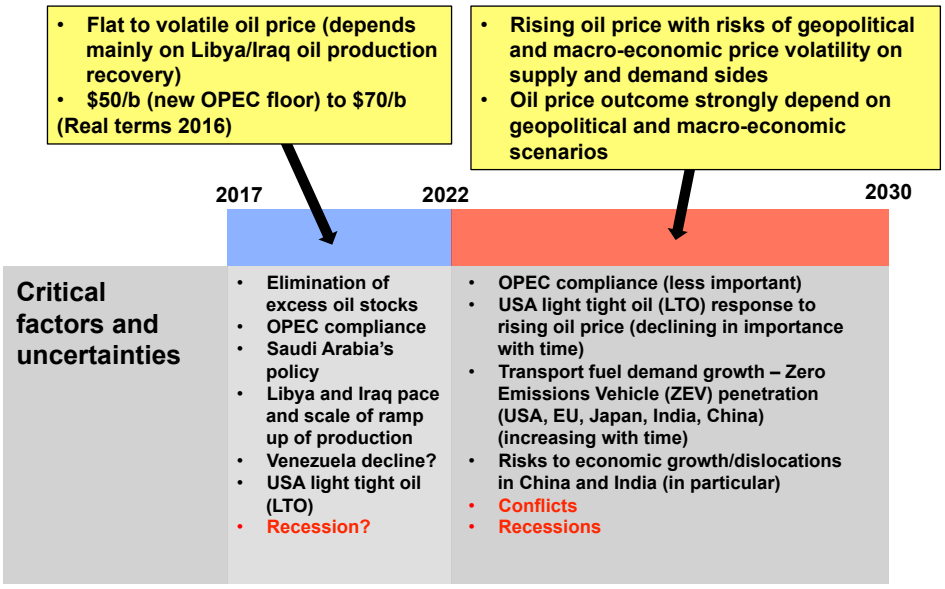

Figure 1: Summary of factors influencing the world oil and USA gasoline prices and the basis for scenario analysis.

Between 2022 and 2030, demand growth is expected to steadily outpace supply growth. The tightening of supply will be exacerbated by the lack of investment and deferred oil development projects and exploration in non-OPEC countries due to the low oil price period between 2015 and 2018. There is a steady erosion of spare production capacity throughout this period accompanied by a rise in price and a degree of price volatility in some scenarios depending on the interaction between OPEC and USA light tight oil (LTO or shale oil). The oil price could exceed $100/b in real terms by 2030.

After 2030, non-OPEC oil production starts a more or less terminal decline at the same time as global demand also peaks and declines. This latter trend is driven by: demographics, economic maturity of major consuming countries, displacement of oil as a transport fuel by the then mature and cost effective technologies and consumer behaviour. Figure 2 shows the outcome from the model for one scenario for USA light duty vehicle (LDV) mix of conventional (gasoline, diesel) and Zero Emission Vehicles (ZEVs such as battery and fuel cell electric vehicles) and the resultant gasoline demand.

The interaction of closely matching supply and demand after 2030 as both decline causes considerable price and economic volatility in some scenarios.

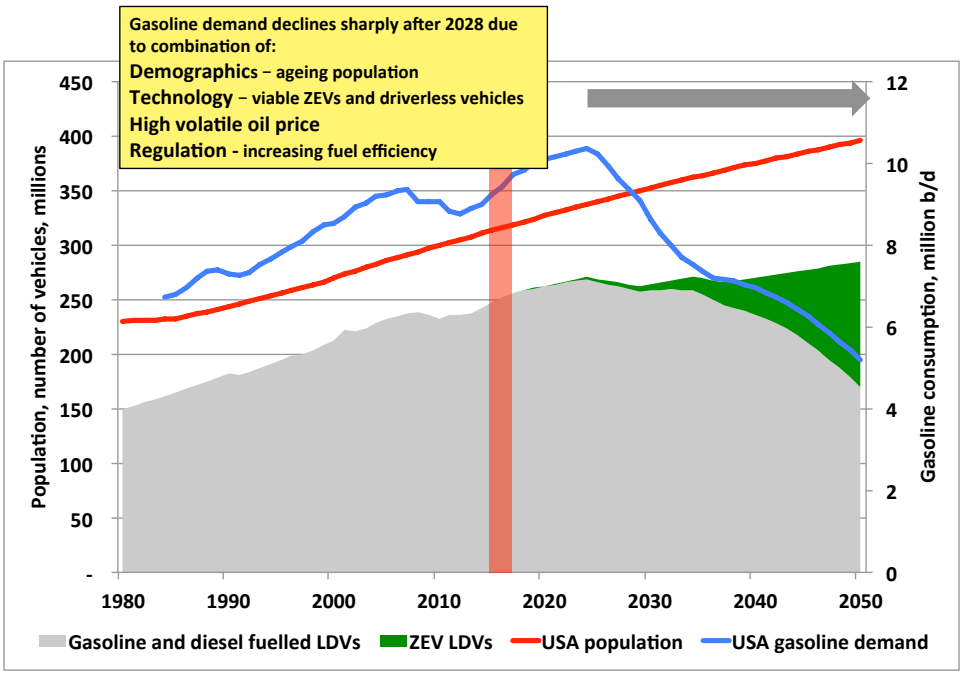

Figure 2: USA LDV, ZEV market penetration and gasoline consumption from a model run for one of the scenarios.

The main demand for imported oil is from the USA, Europe, China and India. For the USA light tight oil production expands steadily through the period to 2030. However, after 2030 US light tight oil is expected to decline. This generates a significant albeit reducing requirement for imported oil in the USA to 2030. Thereafter, the requirement for imported oil stabilizes at around 3-4 million b/d as production declines together with demand (Figure 3).

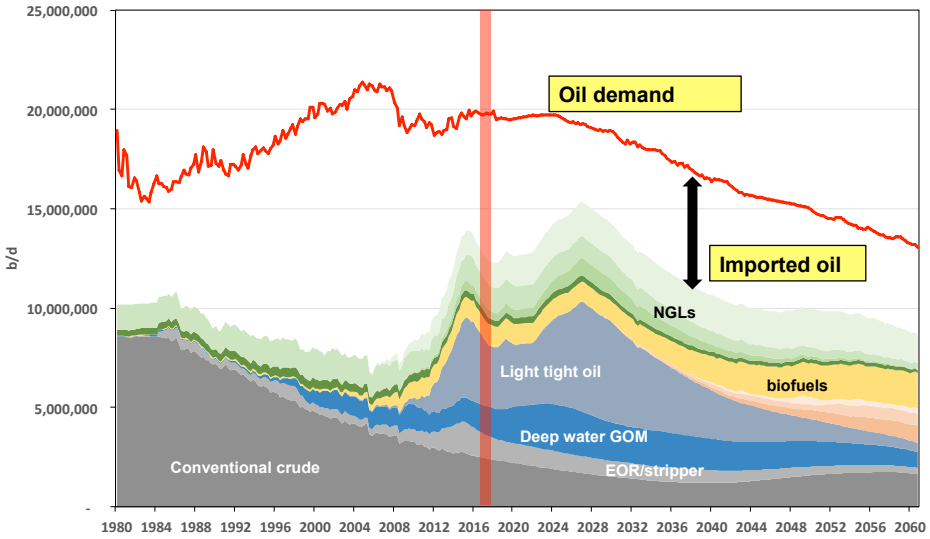

Figure 3: USA oil supply and demand extracted from the model run for one of the scenarios.

Whilst China's crude oil production is expected to fall steadily throughout the period 2017 to 2050, indigenous light tight oil and NGLs, mainly from shale gas, could maintain China's overall production level (Figure 4). Demand from China is expected

to continue to grow with an import requirement of 10 million b/d by the mid 2020s. This assumes some switching from gasoline and diesel in particular to ZEVs. This displacement of oil as a transport fuel accelerates in the post 2030 period. Despite the decline in China's demand, import requirement is likely to remain high throughout the period to 2050. The high level of oil import demand and volatile oil prices are likely to move China more rapidly towards electrification of its vehicle fleet than the USA. Unlike the USA, where a legacy fleet has to be slowly replaced, in China at least some of the expansion of ZEVs can be directly to new vehicle buyers. This will speed up the displacement process, provided adequate vehicle and battery manufacturing capacity can be developed.

Whilst India is a smaller market than China for imported oil, its level of imports in the 2030-2040 period is likely to match that of the USA.

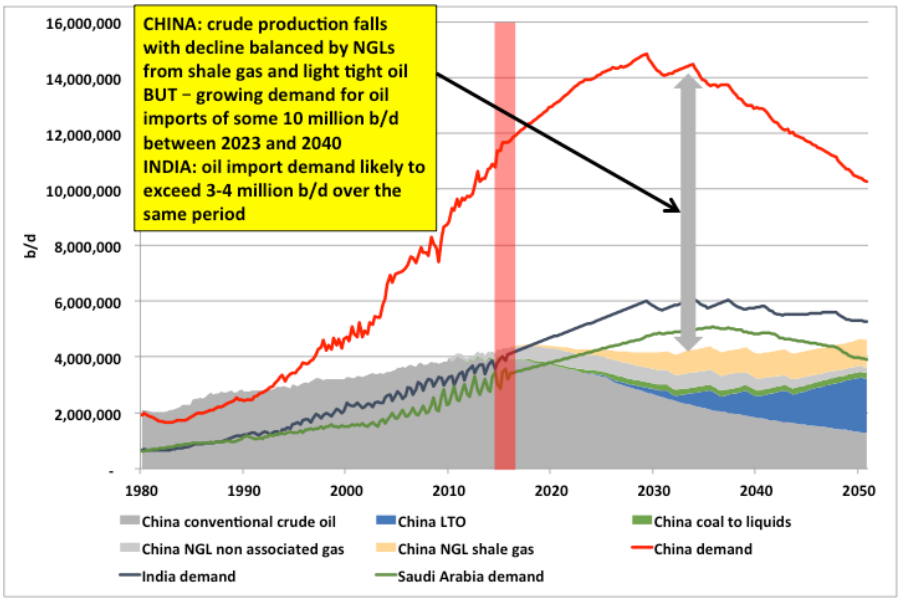

Figure 4: China and India oil supply and demand extracted from the model run for one of the scenarios.

For much of the 2020s and early 2030s, the tendency for the oil market to segment into Atlantic and Indian Ocean/Pacific Ocean markets will be reinforced by the major expansion of production from Brazil, and potentially by oil sands production from Canada and Venezuela. Some 5 million b/d of additional production could be generated by Brazil in the late 2020s. After the mid 2030s, this market segmentation cannot be sustained and Middle East sourced oil will be required to balance the Atlantic segment.

OPEC and Saudi Arabia are likely to remain in control of the oil market, with demand for oil from OPEC and Saudi Arabia likely to remain throughout the period from 2022 to 2030. The pace and scale of the displacement of conventional gasoline and diesel powered light duty vehicles by ZEVs in the USA, Europe, Japan and particularly China and India are the principal factors affecting the demand for oil from Saudi Arabia after 2030. In scenarios where the global ZEV fleet expands rapidly, the demand for Saudi oil falls away after 2030.