

Oil Market and Oil Price over the next 5 years

Dr. Peter Wells

February 2017

Strategic Petroleum Insights makes scenario-based integrated forecasts of the supply, demand and price of oil using computer models. We have successfully forecast the oil market and its major movements since 2005.

The scenarios include possible geopolitical and economic developments and disruptions to both supply and demand.

Over the last decade, this approach has consistently outperformed forecasting by the leading investment banks, the consulting groups, the IEA and EIA (Figure 1).

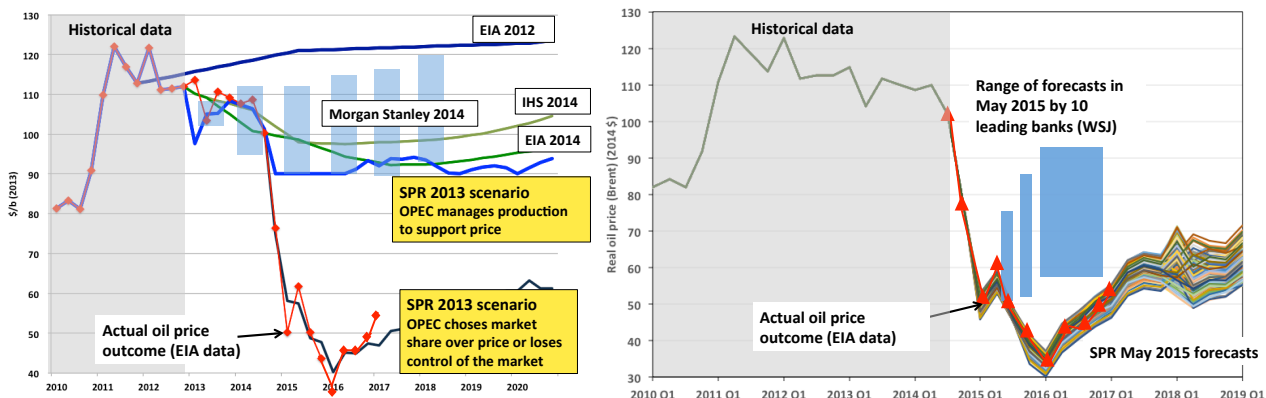


Figure 1: Comparison of forecasts.

The world oil price is mainly driven by the fundamental supply-demand balance and OPEC policies. This balance is subject to short-term conflicts, supply interruptions and recessions. Over the longer term, the oil price is subject to long period cyclical imbalances due to the very different response times of new supply and demand to price signals. Demand responds quickly, within a few months, whereas new supply can take several years (USA light tight oil (LTO) or shale oil) to decades (deep-water) to respond.

USA LTO production can go up or down with the oil price and reacts quite quickly compared with other non-OPEC production. For these reasons it is often cited as a swing producer. However, the production response is entirely price-driven making USA LTO a price taker and not strictly a swing producer. Only OPEC has sufficient spare capacity and low production costs to act as a true swing producer that is also able to influence and stabilize the market over short and long periods of time, regardless of the price.

However, USA LTO has shortened the period of cyclical imbalances and introduced a new element of price instability over 2-5 year time periods. It has also given OPEC an additional challenge in policy making and implementation.

Where is the oil market now and how did it get here?

The period of high oil price, above \$90/b, from 2009 to 2014 caused a rapid rise in USA production, mainly LTO, and an easing of demand. In mid 2014 the price weakened in response to this shift in the balance of supply and demand. In November 2014, OPEC decided not to support the falling oil price but to use the opportunity to move the price to even lower levels to try to throttle the supply of LTO from the USA and other economically marginal producers. The oil price declined rapidly into 2015, further driven by an increase in oil production by Saudi Arabia over and above market demand. The result was a significant build up of oil stocks (Figure 2). By early 2016, whilst there was dynamic balance between supply and demand, oil prices were weighed down by this large stock overhang and touched \$26/b in January 2016.

Rising demand, stimulated by the low price brought some relief to the stockpile in 2016. However, to make sure this stock overhang on the market was eliminated as quickly as possible, OPEC, together with some non-OPEC countries, agreed in November 2016 to trim production. With this action, it was expected that the excess oil stocks would be eliminated by the end of 2017. However, it is by no means certain that the OPEC production cuts will be sufficient and might well be “too little, too late”. Whilst non-OECD stocks are either poorly reported or unknown, we can use OECD industry oil stocks as a proxy for global stocks as a first order approximation. Until the excess stocks are eliminated the linkage between OPEC actions and market response will be indirect and erratic with fluctuations in stock levels and demand.

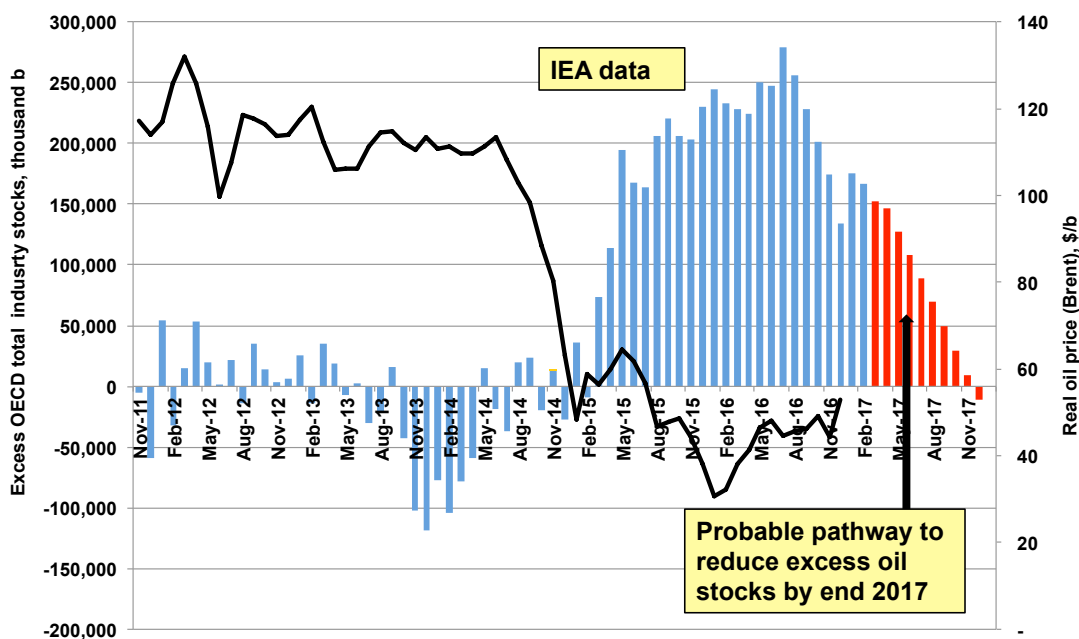


Figure 2: Estimated excess OECD industry oil stocks (based on IEA data) and the likely elimination in 2017.

As the market swings back into a dynamic balance with normal stock levels what are the likely price pathways and what are the potential disrupters over the next few years?

The elimination of excess stocks puts OPEC and Saudi Arabia in better control of the levers of oil market management. The objective is to stabilize the oil price at a level sufficient to ease OPEC member state’s finances, but not so much as to stimulate USA

LTO production. The task of managing the oil price within a range of \$55-65/b for some years will not be an easy one.

Setting aside the possibilities of a significant economic recession in the USA and/or China and/or a major conflict affecting a major oil producing country, the most critical factors in shaping the oil price over the next 5 years are: OPEC policy and compliance; the response of US LTO; the recovery (or not) of production in Libya; the distinct possibility of a decline in supply decline from Venezuela due to under-investment, civil unrest and failure to pay suppliers; the expansion of production in Iraq.

Compliance by OPEC members to reduce production by 1.4 million b/d will be by far the most important factor in reducing the excess global oil stocks. Our analysis indicates that this alone will be enough to eliminate excess oil stocks around the end of 2017. Thereafter price maintenance requires vigilance and prompt action by the main oil producers and complete compliance becomes less vital.

OPEC policy, particularly that of Saudi Arabia, will have a profound impact on the oil market if a decision is made to pursue prices higher than \$55-60/b. \$80/b would be a price that is more in line with the budgetary needs of many OPEC members. The consequences would be to allow marginal oil production, such as US LTO, to increase by 2-3 million b/d over 6-7 years (Figure 3). To sustain this price level, OPEC would have revert to a role as swing producer, reducing production to support the price, and allowing its production to be displaced by higher cost non-OPEC production.

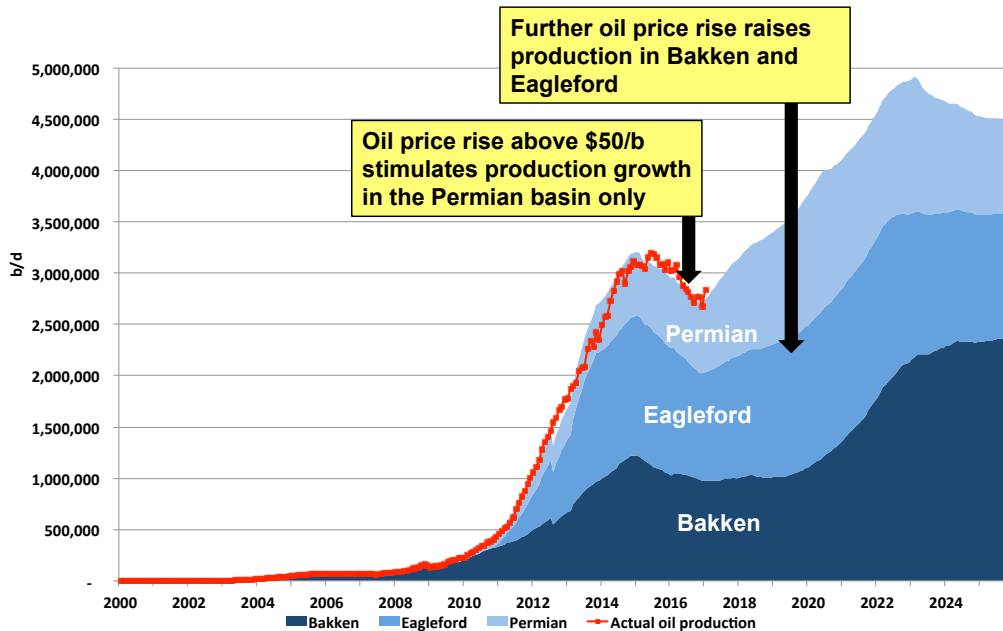


Figure 3: Modeled differential responses of the Permian basin, Bakken and Eagleford light tight oil production to a rise in oil price: to \$60/b in 2016 to 2020 and \$80/b thereafter. Data to January 2017.

USA LTO is a price taker with a high cost of supply and significant time lags, some 6-9 months, between price signal and production response. Whilst most USA LTO areas have similar cost of supply, with a threshold at about \$60/b, the Permian basin has a significantly lower cost of supply with a threshold at \$55/b.



The steady recovery of drilling activity in the Permian basin through the latter part of 2016 and early 2017 will cause a significant rise in USA LTO production in 2017 (Figure 3). Other USA LTO areas are unlikely to see much production recovery until 2018-2020. Depending on the timing and scale of any further rise in oil price, USA LTO production could be back to previous 2015 peak levels before 2020 and on a rising trajectory.

The interaction between higher production levels in Libya and Iraq, oil price and USA LTO is critical to the degree of price volatility in this period. Libya's production has risen sharply from 0.25 million b/d in August 2016 to more than 0.8 million b/d in January 2017, but is still well short of its full production capacity of 1.5 million b/d.

If Libya's production growth slows, the oil price can rise significantly precipitating an increase in USA LTO production. The significant time lag between price signal and USA LTO response means that this additional production can rapidly drive the oil price down again as the market becomes oversupplied. This process tends to produce significant price oscillations. However, a rapid return of Libya to close to full production capacity limits the scope for USA LTO to rise as the oil price is more easily managed within the desired \$55-60/b range.

There is also the risk of significant events disrupting the "smooth" working of the oil market by interrupting supply or impacting demand, such as: worsening of the Iran-US tensions; internal stability of Venezuela; and a major recession in parts of the global economy.

Navigating any desired oil price pathway to meet the objectives of maintaining market share and supporting the financial requirements of OPEC countries will remain a major challenge for OPEC and Saudi Arabia into the next decade.