

# Oil market faces production capacity challenge

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As the WPC meets in Astana, Kazakhstan, the global oil market is entering a challenging new phase. Long standing observers are sometimes too quick to spot a supposed new “normal” and often there is nothing really new at all. However, this time, we really could be in a new era because as we leave 2018 and enter 2019 global oil production capacity could be challenged as rarely before. This is because we face a combination of major supply shortfalls: the level of Iran’s oil exports could fall drastically if the US succeeds in persuading customers to cease purchases; oil production in Venezuela might be on the verge of collapse; stability in Libya is far from certain; infrastructure bottlenecks restrict US production growth.

Before we look at the shorter term challenges to the market, it is worth looking at the factors that are expected to influence the demand and supply of oil in the next few years. In March, the International Energy Agency published its latest five-year outlook for the oil market. In *Oil 2018 – Analysis and Forecasts to 2023*, we noted that demand for oil has been growing strongly and we expect this to continue for the next few years. Since the recovery from the financial crisis began in 2010, demand has grown on average by 1.5 mb/d each year. This pace, or something close to it, is likely to be maintained in the next few years, assuming solid economic growth. As has been the case for some years, China and India together will contribute nearly 50 per cent of global oil demand growth in the near future.

At least for five years, and probably for well beyond that time, peak oil demand is nowhere in sight, although the pace of growth will likely slow to about 1mb/d by 2023. There are signs of substitution of oil by other energy sources in various countries. A prime example is China, which has some of the world’s most-stringent fuel efficiency and emissions regulations. Efforts are intensifying to tackle poor air quality in large parts of the country. Sales of electric vehicles are rising and there is strong growth in the deployment of natural gas vehicles, particularly into fleets of trucks and buses.

In the meantime, the fastest-growing source of global oil demand growth is petrochemicals, particularly in the United States, where the shale revolution has opened up a major source of cheap domestic feedstock and China, where economic growth is lifting more people into the middle class and stimulating demand for consumer goods and services. About 1.7mb/d, or 25 per cent, of total demand growth to 2023 is taken up by ethane and naphtha.

Another major factor that will affect the make-up of global oil demand in the next few years is the implementation at the

beginning of 2020 of major changes to marine fuel specifications mandated by the International Maritime Organisation. The new rules loom ever closer and the maritime and refining industries face a huge challenge to implement them. From the vantage point of late 2018, it is not clear how successful they will be, especially as demand for non-marine gasoil grades is growing steadily. The new regulations will cause a massive switch out of high sulphur fuel oil demand and into marine gasoil or a new very low sulphur fuel oil. The total demand for oil products will not be dramatically altered, but the impact of the changes on the product mix is a major uncertainty.

With global oil demand rising steadily, the response from the supply side is crucial. Each year the world needs to replace 3 mb/d of supply lost to natural declines in mature fields while also meeting robust demand growth. That is the equivalent of replacing one North Sea each year. Investment in maintaining current production is one challenge, investing in future supply growth is another. Our analysis shows that discoveries of new oil resources fell to another record low in 2017, with less than 4 billion barrels of crude, condensate and NGLs found. The recovery from the historic drop-off in investments by 25 per cent in both 2015 and 2016 has barely started. Investment was flat in 2017, and early data suggests only a modest rise in 2018. This is potentially storing up trouble for the future. An added concern is that investment is overwhelmingly focused on the light tight oil (LTO) sector in the United States. As a result, upstream investment may be inadequate to avoid a significant squeezing of the global spare capacity cushion by 2023, even as costs have fallen and project efficiency has improved.

In the past three years we have seen oil production from China, Mexico and Venezuela fall by nearly 2 mb/d as a consequence of lower investment. In the first two countries, there are signs of a turnaround. China’s decline has slowed; in Mexico, reform proposals are being developed and production could return to growth by 2023. However, Venezuela remains a wild card and has become a major threat to the stability of global oil markets. In the twenty years since former President Chavez came to power, oil production has collapsed from 3.5mb/d to 1.2mb/d today. It is not inconceivable that by the end of this year production could fall below 1mb/d.

With Venezuela in crisis, the net growth in total OPEC production capacity to 2023 will be only 750kb/d, and this number includes an assumption that shut-in production of around 500kb/d from the Neutral Zone is finally re-started. It also depends on some degree of stability in Iraq, Libya, and Nigeria. The number does not take into account sanctions



against Iran being implemented and maintained for a significant period of time.

With OPEC capacity growing only modestly, more attention is focussed on the non-OPEC countries led by the United States, which is becoming ever more dominant in the global oil market. Driven by LTO, by 2023 United States output grows by 3.7mb/d, more than half of the total global production capacity growth of 6.4mb/d expected by then. Brazil, Canada and Norway will also contribute to supply growth. Along with the United States, they provide nearly all of the non-OPEC increase. Production of conventional crude oil in non-OPEC countries will actually decline to 2023.

The upshot of our analysis is that the market could go through two phases in the next five years. Through 2020, record supply from non-OPEC countries is likely to cover expected demand growth. But by 2023, if investments remain insufficient, the effective global spare capacity cushion, held only in OPEC countries falls to only 2.2 per cent of demand, the lowest number since 2007. This raises the possibility of oil prices becoming more volatile until new supplies come on line. The IEA estimates that in mid-2018, total spare production capacity in the group was estimated to be 3.2mb/d, of which 1.7 mb/d is found in Saudi Arabia.

The main conclusion in our report *Oil 2018 – Analysis and Forecasts to 2023*, that the oil market is likely to tighten in the next few years, was made before the supply challenges mentioned at the beginning of this article became apparent. The likelihood that oil exports from Iran will fall sharply after the imposition of sanctions by the United States is a complicating factor. During an earlier round of sanctions imposed in 2011 exports fell by 1.2 mb/d and this time the impact could be greater. At the same time, in Venezuela the political, economic and social situation is dire and it is not impossible that oil production could collapse. Currently, oil production is struggling to stay above 1.2 mb/d. A third factor is ongoing strife in Libya. In mid-2018 a fresh outbreak of fighting saw oil production collapse from a fairly steady level of 1 mb/d to only 0.3 mb/d at one point. There has been a recovery since but the fighting reminds us that production from Libya should not be taken for granted. In other countries, there are political problems that inhibit production, with Iraq's dispute with the



***The Paraguaná Refinery Complex, Punto Fijo, Venezuela: It is not inconceivable that by the end of this year production in Venezuela could fall below 1mb/d***

Kurdistan Regional Government being a good example.

With global oil demand due to grow by 1.5 mb/d in 2019, the potential loss of, possibly, 3 mb/d of production from the trouble spots mentioned above, poses a major challenge to those producers capable of providing offsetting barrels. At the meeting in mid-2018 of OPEC and non-OPEC countries party to the so-called Vienna Agreement, it was decided to effectively increase production to lower the compliance rate with the agreement to 100 per cent. In practice, this provided the go-ahead for those countries with spare production capacity – Saudi Arabia and its fellow Gulf producers plus Russia – to raise output. This has already started to happen, however, the biggest test is yet to come when it is revealed how successful the United States has been in persuading Iran's customers to cease purchasing its oil.

At this point, and with Venezuela and Libya in the background, we will see one of the greatest challenges in oil market history in terms of the ability of sufficient spare capacity to be activated and turned into traded barrels. Depending on how the events of late 2018 play out, the challenge to the market will not be just for a few months. It could make a huge difference to the supply outlook for the next five years at a time when demand for oil is strong. Rather than a new "normal" we will be looking at a very abnormal period in oil history. ●