



For professional investors - May 2020

BIG OIL: STARING DOWN THE BARREL OF AN UNCERTAIN FUTURE

Three months is a long time in oil markets. In late February, the attention of oil-industry analysts and investors was fixed firmly on the supply side of the market, with all eyes on the growing power struggle between Saudi Arabia and Russia over the appropriate response to an increasingly over-supplied market as the COVID-19 pandemic cut into oil demand in China, the world's second largest consumer and the biggest source of global demand growth.

- In early March, tensions boiled over when Russia refused to co-operate with other members of the so-called OPEC+ group of oil producers in a renewed round of output cuts, thereby prompting Saudi Arabia to increase supply and slash its export prices in a move designed to re-establish its hegemony as the world's largest oil producer.
- The market reaction to the Saudi move was swift and violent, with crude oil prices dropping by over 30% on Monday 9 March (source Bloomberg), [their second-largest one-day drop ever](#). By this time, however, the impact of the pandemic was no longer restricted to China in particular or even Asia more generally but had spread to Europe and North America. As lockdowns took hold across much of the world over the second half of March and early April, the focus of industry analysts and investors switched to the demand side and the unprecedented drop in oil consumption being experienced.
- Today, after the convulsions of the last three months and with the world now gradually emerging from lockdown, the big question for investors is where does this leave the outlook for the oil industry in general and the oil majors in particular?



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- Our view is that the peak in global oil demand may already have been seen in 2019, and that even if this is not the case market expectations of when the peak will happen have been brought forward by the impact of the pandemic and the behavioural changes in response to it. If so, this could prompt significant structural changes on the supply side going forward, with Saudi Arabia in particular likely to think hard about how best to maximize the value of the cheapest and most abundant oil reserves that lie under its sands in future.

In short, the price volatility in global oil markets over the last two months may just be a foretaste of the drama to come as the end of the petroleum age comes into view. In turn, this means investors are likely to find the visibility offered by the business model of renewable-energy companies all the more attractive in future relative to the volatility inherent in the business model of the oil majors.



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THE PANDEMIC BRINGS THE PROSPECT OF PEAK DEMAND CLOSER

Already under increasing pressure from long-term structural changes in world energy markets, the oil industry has suffered its biggest ever drop in demand in the last two months as a result of the lockdowns introduced across the world to stop the spread of the COVID-19 virus.

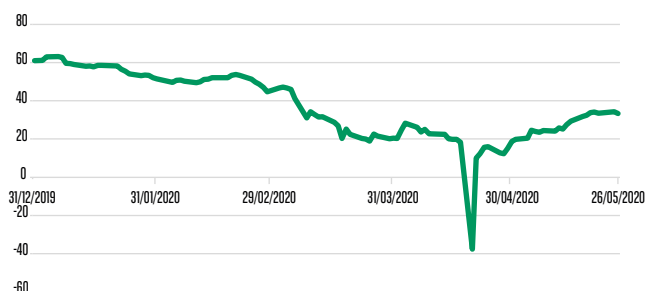
The [United States' Energy Information Administration \(EIA\)](#) estimates a year-on-year contraction in consumption of 25mbd in April and of 8.1mbd for 2020 as a whole, while the International Energy Agency (IEA) [sees a slightly bigger drop both at the trough in April](#) (29mbd) and [for 2020 as a whole](#) (8.6mbd). To put this into perspective, [BP data shows](#) that the largest year-on-year decline ever before this year was 2.6mbd way back in 1980.

So severe has the impact of the demand drop been that for the first time in history [oil prices in the US futures market actually went negative](#), with the front-month contract for West Texas Intermediate (WTI) crude closing at - USD 37/bbl on 20 April (Figure 1).

These unprecedented shocks to an industry used to grow naturally raise the question as to what the shape of the recovery will be like. The EIA sees a V-shaped rebound, projecting 2021 demand at 99.5mbd, 7mbd higher than 2020 and close to the 2019 level of 100.8mbd. Meanwhile, by the end of this year the IEA sees demand back to less than 3mbd below the level at year-end 2019.

Nonetheless, it now seems reasonable to ask whether we might in fact already have seen the peak in 2019. This is because the structural pressures bearing down on global oil demand will still be there once lockdowns start to be lifted but their force will now be compounded by the behavioural changes prompted by the pandemic, some of which look set to endure.

Figure 1: Front-month WTI futures contract, January-May 2020



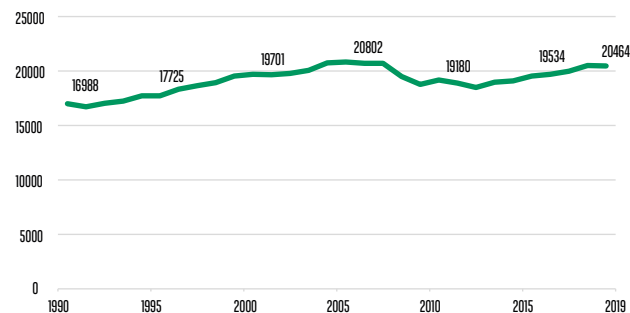
Source: Bloomberg

Consider first the structural side of the vice the oil industry now finds itself in, and what we might call the three 'D's'.

- First, there is the mega-trend of **decarbonisation**. To stand any chance of achieving the goal of [the Paris Agreement on climate change](#) of "holding the increase in global average temperatures to well below 2°C above pre-industrial levels", we have to decarbonise transport and industry as quickly as possible. That means burning less oil.

- Second, there is **deflation**, or more specifically the deflationary impact of renewable energy. The cost of renewable energy has plummeted over the last decade owing to technological improvements *and* economies of scale. According to [a recent IEA study of the impact of the pandemic on energy markets](#), renewables will be the only form of energy to see demand growth this year, and with over 50% of global oil demand accounted for by road transportation the electrification of mobility made possible by the rise of electric vehicles (EVs) poses an existential threat to the oil industry, [as we argued in an in-depth report last year](#). The simple truth is that EVs are much more efficient than gasoline or diesel internal-combustion engines. That is just physics.
 - Indeed, in this respect it is worth highlighting that the structural pressure of efficiency improvements has been clearly visible in US oil demand over the last decade and a half even before the impact of renewables and EVs in tandem has started to be felt.
 - [According to the EIA](#), the highest level of US oil demand to date was registered all the way back in 2005 at 20.8mbd (Figure 2). Despite the US population growing by 20m people over 2005-19, [and vehicle miles travelled \(VMT\) increasing by nearly 10%](#) from 8.2bn miles a day in 2005 to 9bn miles a day in 2019, US oil consumption in 2019 was still below the 2005 level (Figure 2). The increases in population and VMT were outweighed by greater vehicle efficiency and by tighter pollution regulations on fuel emissions.

Figure 2: US oil demand, 1990-2019 (kbd)



Source: US Energy Information Administration, KBD: Thousand of Barrels Per Day (redirected from Thousand of Barrels Per Day)

- Third, there is the pressure for the **detoxification** of air in the world's largest cities, and nowhere more so than in the megalopolises of Asia. According to [the University of Chicago's research on air quality](#), pollution from particulate matter caused mainly by the burning of fossil fuels is now the world's largest killer, cutting average life expectancy globally by nearly two years. This issue was already rising up the global policy agenda before the Coronavirus hit but a striking feature of the pandemic's impact has been the blue skies and clean air registered in large cities around the world as oil-burning traffic has come to a halt. Citizens everywhere will likely now push harder than ever for cleaner air, thereby accelerating the phase-out of petrol and diesel vehicles in the world's largest conurbations.

Then there is the second side of the vice squeezing the future outlook for oil: the behavioural changes caused by the pandemic that have sapped oil demand in the last two months and that may live on in less dramatic form once the lockdowns come to an end.

- First, there has been a dramatic increase in working from home, especially for white-collar workers across the industrialised world, with hundreds of millions of daily commutes eliminated since the imposition of confinement. It seems reasonable to assume that this will give rise to permanently higher rates of tele-working in future, and hence that some of the oil demand lost in the lockdown will never return.
- Second, international air travel — one of the fastest growing sources of oil demand over the last two decades — has evaporated over the last couple of months like the contrails from a jet engine on a hot, dry day. Growth will come back but with businesses reaping cost and efficiency savings from substituting video-conferences for face-to-face meetings many will probably now think twice when it comes to approving long-haul trips in future. Some air travel may therefore never return.
- Third, until a vaccine is found we will continue to see social distancing to a greater or lesser degree, and this will militate against a rapid easing of restrictions on large gatherings such as sporting events and many other forms of collective leisure and entertainment. And many people may remain shy of large gatherings on a permanent basis even when the public-health advice does allow for them again. Once more, this means some oil demand associated with individuals' leisure activities may be lost for good.

In short, the future for oil is now more uncertain than ever before. As the CEO of an international oil company, Ben van Beurden, [said on the company's Q1 earnings call on 30 April](#): "We do not expect a recovery of oil prices or demand for our products in the medium term (...) We live in a crisis of uncertainty at the moment; we don't know what is on the other side."

And then, [in an interview with the Financial Times trailed on 12 May](#), the CEO of an international oil company, Bernard Looney, said of the impact of the pandemic on oil demand: "I don't think we know how this is going to play out. I certainly don't know. Could it be peak oil? Possibly. I would not write that off."

All of this is bad enough but what if there is more disruption to come on the supply side over the medium to long term?

THE PROSPECT OF PEAK DEMAND COULD CHANGE THE STRATEGY OF THE WORLD'S LARGEST EXPORTER

What if Saudi Arabia is already starting to think about the long-term implications of the increasing global policy ambition around decarbonization and the rapidly improving economics of renewable energy, battery storage, and EVs?

- If you are the Kingdom of Saudi Arabia and you are looking at the rapidly changing investment sentiment towards oil owing to the growing traction of the peak-demand narrative and the relentless rise of renewable energy, do you not start to re-appraise your most fundamental assumptions about value optimization. If you see a rising risk that the market will start to

price in peak demand happening by 2030 or sooner, do you not start thinking about significantly increasing your capacity and going for a volume-led strategy over the next 30 years rather than the price-led strategy you have followed for the last 50?

- The point is that with oil having to compete increasingly with the deflationary dynamics of renewables going forward, the long-term Power-Purchase-Agreement (PPA) contract model of electricity markets might start to look attractive to the world's lowest-cost oil producer with the world's largest reserves. If you are sitting on the cheapest and most abundant oil in the world then you have a big incentive to shift as much of it as possible over the next few decades as the global energy system accelerates its transition away from hydrocarbons.
- If Saudi Arabia could offer countries like China and India long-term offtake contracts in significant volumes at a fixed price of, say, USD 40-50/bbl, this could be a win-win strategy both for the Kingdom and the largest importing countries. The Saudis would get long-term visibility on increased volumes at a price that still locked in a huge amount of rent, while the likes of China and India would get long-term security of supply at affordable and stable prices.
- Assuming required capital expenditure of USD 25-USD 30bn per 1mbd of extra capacity (as estimated by UBS), it would cost Saudi Arabia in the region of USD 200bn to add 7.5mbd of extra production over the next decade, which in turn would raise its total potential output to 20mbd (the Kingdom currently produces about 10mbd but sits on about 2.5mbd of spare capacity).
- USD 200bn is a lot of money even for Saudi Arabia, but let us put it into context. Assuming operational lifting costs of USD 10/bbl, and assuming that half of this hypothetical future production were sold at a fixed offtake price of USD 45/bbl to large Asian importers while the other half continued to be sold at merchant prices, the annual operating profit from the incremental 10mbd sold would be USD 130bn a year, or USD 2.6trn over 20 years. In other words, the upfront capex would be covered with only 18 months' worth of extra production.
- At the same time, this hypothetical scenario would allow Saudi Arabia to retain pricing flexibility over the other 10mbd of its capacity and hence the opportunity to benefit from any price spikes that might occur on the downslope in global consumption after peak demand had occurred.

This might sound fanciful but the speed with which the rules of the global energy game are being re-written by the inexorable progress in renewables, batteries, and EVs means that the world's cheapest and largest oil producer has every incentive to game out a scenarios such as this, however far-fetched it might seem against the backdrop of the oil market we are all used to.

CONCLUSION: RENEWABLES VERSUS OIL: VISIBILITY VERSUS VOLATILITY

Against this uncertain backdrop, the impact of the COVID pandemic will likely be to accelerate the energy transition away from fossil fuels and towards cleaner renewable energies, with the depressed returns and volatility in oil markets likely to weigh on investor sentiment for the foreseeable future, thereby boosting the attractiveness of renewable-energy projects offering lower-risk, longer-term visibility of earnings.

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