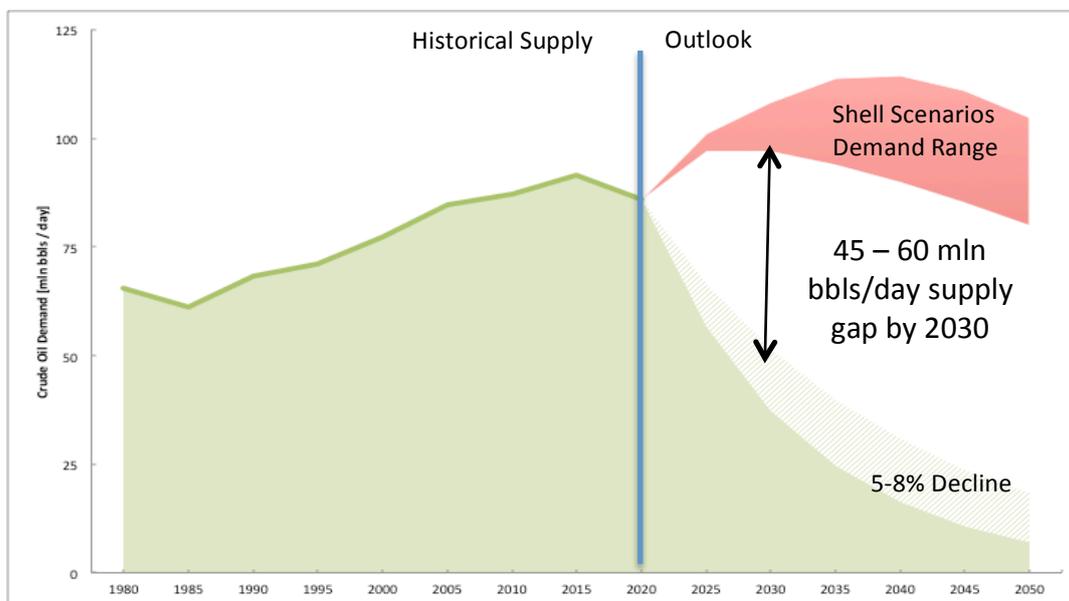


Why we are heading for \$200 oil

John McLaughlin, Principal, Highleigh Group

Based upon the number of press articles and conference invitations for energy transition and the future of renewables it would be easy to assume oil price are only heading down or at best sideways. While it is clear that the transition is underway and political focus on combating climate change is increasing, in the near- to mid-term oil price is heading higher, and here is why.

Natural Decline: Production decline from conventional wells is estimated at 5–8% per annum¹; for unconventional after initial decline rates as high as 50%, long term rates are estimated at 10-15%². Even assuming an aggressive path to de-carbonization, as embodied by Shell’s “Sky 1.5” scenario³, by 2030 45-60 mln bbls/day of new production capacity is required, rising to 70 mln bbls/day if the transition is slower. Equinor⁴ see the same gap emerging.



Source: Shell, IEA

Underinvestment: The antidote to natural decline has historically been continued investment, in new wells and production capacity on the back of successful exploration, and in debottlenecking, infill drilling and life extension of existing fields.

¹ World Energy Investment 2020, International Energy Agency, July 2020

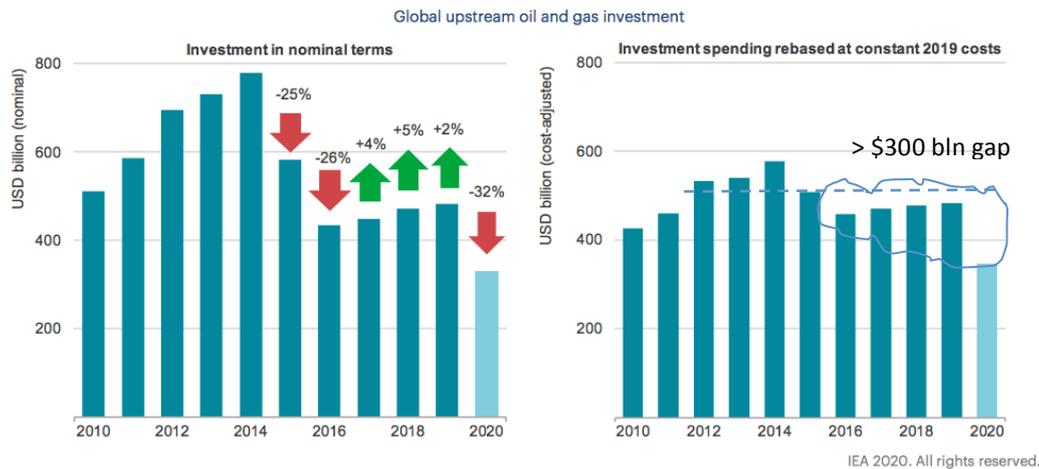
² Life after 5: How tight-oil wells grow old, Journal of Petroleum Technology, January 2020

³ The Energy Transformation Scenarios, Shell International B.V. February 2021

⁴ Energy Perspectives 2020 Long-term marco and market outlook, Equinor ASA, November 2020

According to the IEA, global upstream investment was on average \$700 bln per annum in the 1st half of the decade, which sustained supply growth of about 1% per year in excess of natural decline. However, since the oil price drop in 2015, upstream investment has declined, resulting in a cumulative underinvestment of

Planned 2020 investments in upstream oil and gas have been slashed under pressure from the collapse in oil prices and demand

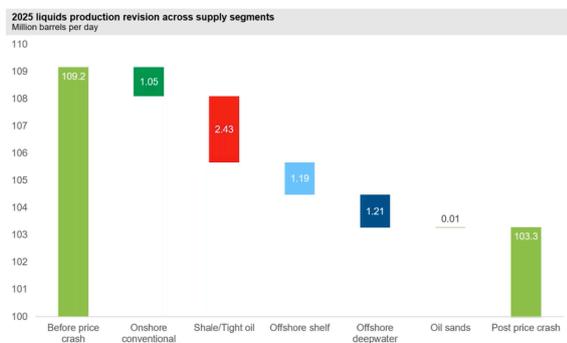


Note: The right-hand figure adjusts the entire time series using 2019 upstream costs; it therefore strips out the effects of underlying changes in costs over this period.

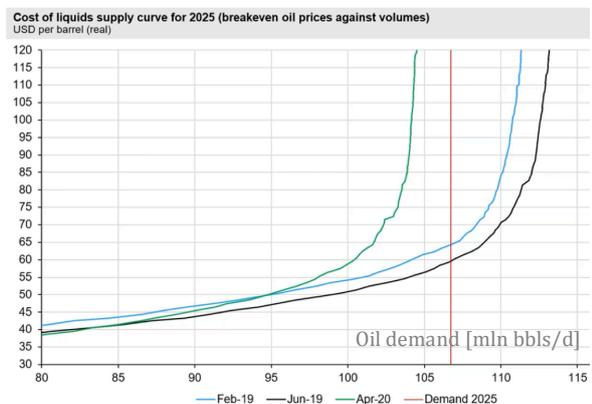
\$1.4 trillion. Even adjusting for the cost efficiency gains achieved in the 2nd half of the decade cumulative underinvestment to 2020 is more than \$300 bln.

Rystad Energy⁵ analysis suggests the underinvestment results in oil production being ~6 mln bbls/ day lower in 2025 than previously forecast. Simply put, today's supply is about a year behind demand and the gap is growing.

Price shock impacts long term liquids supply outlook, shale and offshore are most hit



Equinor, amongst others, highlight the decline in popularity of investment in fossil fuels, suggesting global spare production capacity would be consumed in 2-3 years. Rystad paint the same picture This leaves the petroleum supply chain open to supply shocks and oil price spikes.

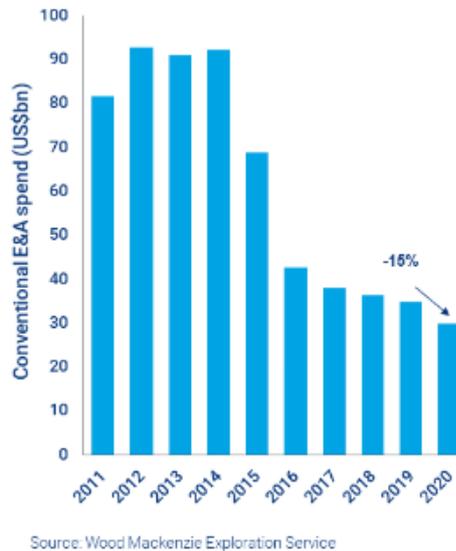
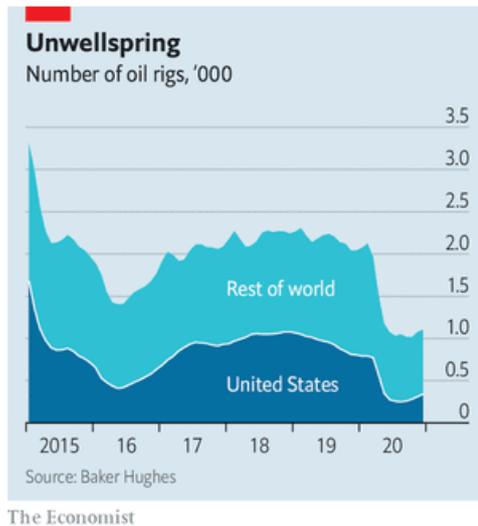


Source: Rystad Energy

⁵ Upstream Overview, Rystad Energy, March 2020

Prompt versus longer-term: The current spending cuts are hitting exploration as well as development drilling. Current exploration investment is $\frac{1}{2}$ to $\frac{1}{3}$ that earlier in the decade.

Lower rig counts points to near-term production decline as well as reduced future development opportunities after exploration success



Lower costs account for some but not all that reduction, and the reduction in rig count points to significantly lower activity. With typical lead times from exploration spend to new production of 4-7 years, expect to see raising concerns about reserves replacement and lack of development “pipeline” in the not too distant future.

No quick bounce back: Service companies and contractors have all had to cut deep, even following the cost reduction and efficiency gains made in 2015-2018. For example Schlumberger laid off 21,000 staff in 2020, $\frac{1}{5}$ of its total workforce, some of whom will leave the industry for good or be redeployed on carbon-capture / new energy / renewables projects. The Economist reckons $\frac{2}{3}$ of N. American service firms, owing more than \$32 bln in speculative-grade debt, are at risk of bankruptcy rather than acquisition⁶. Even as oil prices rise and oil companies begin to consider increased investment, recruiting the staff to perform the work will take time, leading to project delay or increased cost or both. The industry has been here before – from 2000 to 2008 upstream capital cost index increased over 100%, according to IHS⁷.

It's already started: In the 1st quarter of 2020, as Covid-19 decimated demand, the forward market was in steep contango, where future prices are significantly higher than prompt prices. Traders made money by selling crude for future

⁶ Are oil-services companies doomed? The Economist, 30 January 2021

⁷ Upstream Capital Cost Index, IHS Markit, 2021

delivery and crude stocks ballooned, with over 200 mln bbls in floating storage⁸. Currently, as shown for the 6-month spread in Brent futures, the market is in backwardation, where futures prices are lower than prompt price, indicating declining stocks and an increasing premium for prompt supply.



Why \$200? From 1999 to 2008 oil climbed from below \$10/bbl to almost \$150/bbl, settling to above \$100/bbl to 2014, highlighting the disconnect between crude market price and the short run marginal cost. In the late '90s and early 2000's, the idea that crude would trade routinely above \$100/bbl was beyond comprehension, but was commonplace by 2010. Crude demand, at least in the short run, is famously insensitive to price and there is no good reason why crude price would not exceed \$200/bbl in this decade. That is not to say that such prices levels are sustainable or desirable, just that the past has taught us that they are not impossible or implausible.

What next? The stage is set for oil supply shocks as the consequences of sustained underinvestment allows natural production decline to dominate. Buffer production capacity is dwindling and the service sector is shrinking. As economies return to growth after the havoc wrought by Covid-19 stocks have declined. If past experience is any guide, expect oil prices over the next 5 years to be significantly higher and probably more volatile than those over the previous 5 years. There is no good reason why oil prices will not be above \$200/bbl in the mid-term.

However, past events have also shown that such price excursions encourage innovation and could further spur the pace of transformation of the energy system to decarbonize energy supply.

17 February 2021

⁸ Tighter oil market encourages destocking, contract rollover, Reusters.com, 12 February 2021

About the Author:

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John has more than 30 years oil & gas experience, having worked in Europe, UK, Africa, Australia and SE Asia. His initial career was spent with Shell where he progressed through a variety of technical and operational roles into commercial, economics and strategy roles. With Shell and more lately with Mubadala Petroleum and Tullow Oil he has been responsible for new business development, deal delivery and regional commercial management. As well as upstream commercial and joint venture expertise he brings niche expertise in LNG supply and particularly Floating LNG. John has a PhD in chemical engineering and is a chartered engineer.

More from John McLaughlin:

[“Learning from the past – OPECs real strategy”](#), November 2015

[“Do Oil Companies think it is 1999?”](#), September 2015

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