

EIGHT TRENDS THAT WILL DRIVE OIL & GAS IN 2020



**Sanctions, Trade Wars,
and Spacing—What You
Need to Know**

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From trade wars between the U.S. and China, to oil & gas attacks in Saudi Arabia, and varying messages on the world economy, the global oil & gas market always has the ability to surprise. With the latest data analytics and research, we can also make future predictions with relative confidence. Here, Enverus' expert analysts take a look at some of the key trends likely to guide the energy market and impact prices during 2020.

1. EARLY 2020 INDICATORS SHOW SIGNIFICANTLY LOWER SPEND

With many operators going through the earnings season, we can now make some confident predictions on CAPEX spend during 2020. The picture is one of significantly lower spend with upstream, midstream, and downstream all impacted. Figure 1 shows data gathered from 24 companies with liquid-weighted producers (in green) averaging a 5% reduction in 2020 CAPEX and gas-weighted producers (in red) a 25% reduction. The standout figures include the US\$2.5 billion (44%) reduction by OXY in the Permian and Rockies as a result of the Anadarko acquisition and significant reductions by EQT and Chesapeake. The five top North East players have collectively reduced CAPEX by \$1.5 billion.

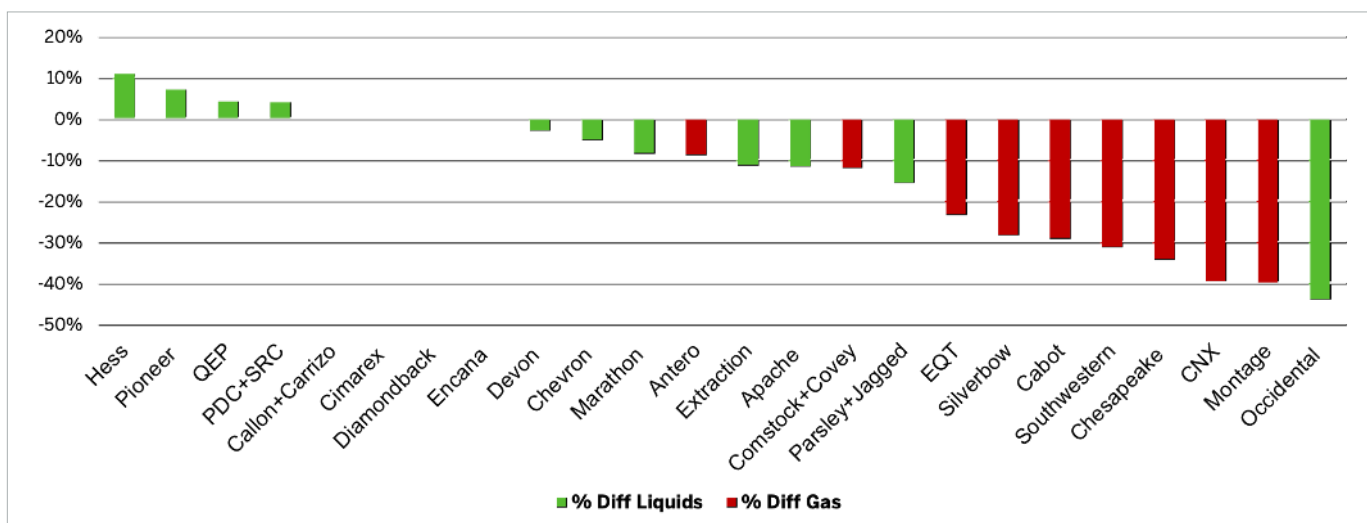


Figure 1: Significantly lower spend predicted with upstream, midstream, and downstream all impacted

2. DON'T EXPECT PRICE INCREASES UNTIL 2022

A key reason for this lower CAPEX is the global supply/demand imbalance. Recent figures from Enverus and the International Energy Agency (IEA) (figure 2) show that 2.7 million barrels were oversupplied this time last year (Q4 2018)—much higher than previous years—with the blue line showing low demand growth. The red bar indicates the September 2019 attack on Saudi Arabian facilities where the world was essentially 732,000 barrels a day (bbl/day) short.

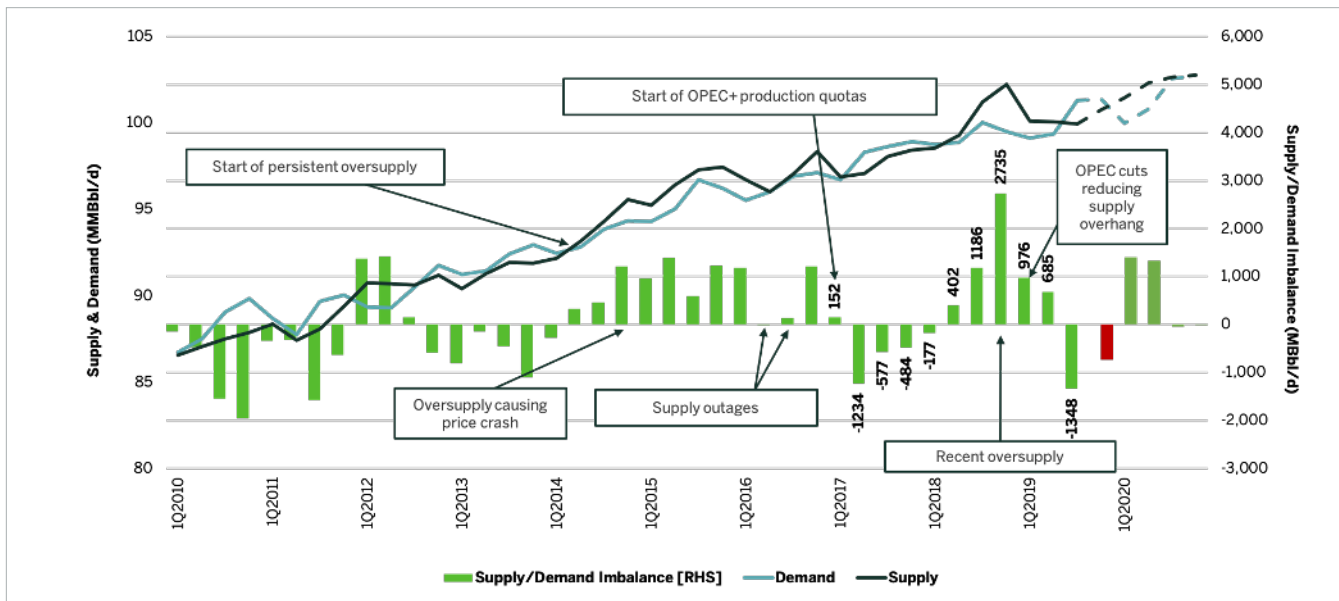


Figure 2: Global petroleum supply, demand, and implied inventory movements

While there is spare capacity of around 4 million bbl/day (according to IEA figures), the fact that three quarters of this spare capacity is from Saudi Arabia shows how crude prices would increase dramatically if there are any more attacks there.

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As for the long-term outlook, we don't expect a significant crude price increase next year while the supply/demand fundamentals remain unbalanced with there likely to be more crude before we see less.

In figure 3, the green bars show a supply/demand imbalance based on a \$70 WTI price and the blue shows the supply/demand imbalance based on the forward curve today. As no big projects and crude discoveries are coming onstream between now and 2022 (with the exception of an extra 400,000 bbl/day in Norway and more investments in Brazil), it is around 2022 that we expect prices to start increasing again with demand finally catching up with supply.

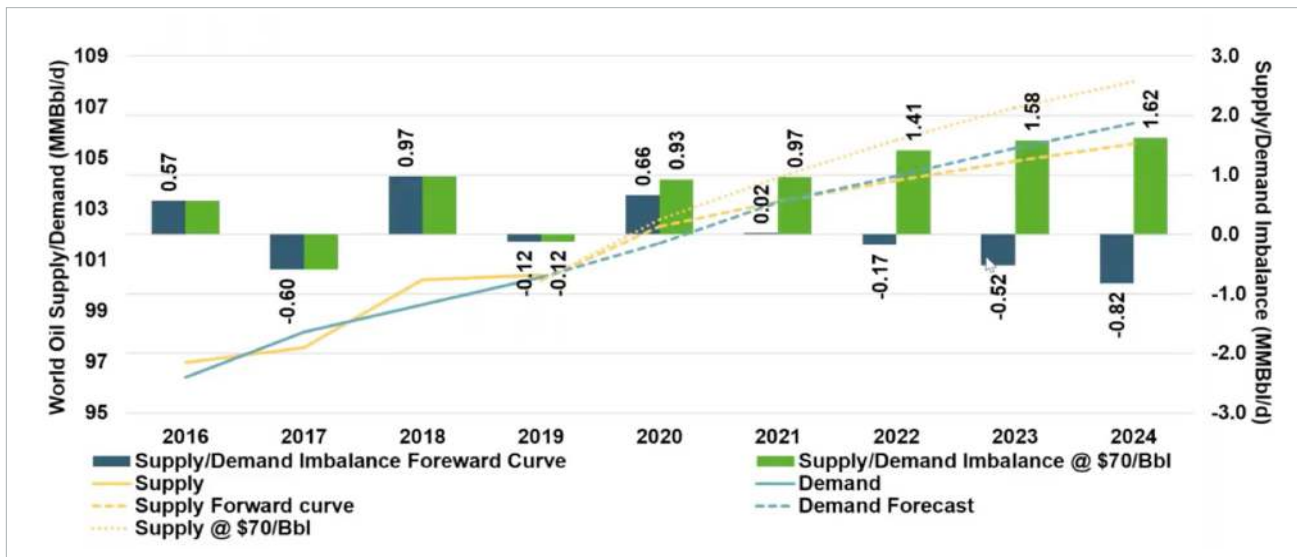


Figure 3: Supply/demand projections

3. THERE'S ROOM FOR U.S. PRODUCTION GROWTH WITH \$60 BEING THE OPTIMAL PRICE

How has this supply/demand imbalance impacted the U.S.? Like the rest of the world, the low prices and oversupply caused the industry to miss an entire investment cycle. Rig counts, according to Enverus data, have declined from 1,200 to 840 in just 12 months.

The fact remains, however, that while the U.S. produces 100 million bbl/day, there is a natural decline of 5% meaning that the industry needs to come up with 6 million to 7 million barrels of incremental crude production a day to remain at the same levels—a figure which cannot be sustained forever without new investments from overseas.

In terms of the different price scenarios for U.S. production, figure 4 shows that there is a big gap between the number of economical wells that will be drilled at a \$40 WTI price and those at \$50. In order to avoid oversupply, the equilibrium price for crude is therefore around \$60. The good news is there are sweet spots and breakeven figures across all U.S. plays at \$60 and significantly below.

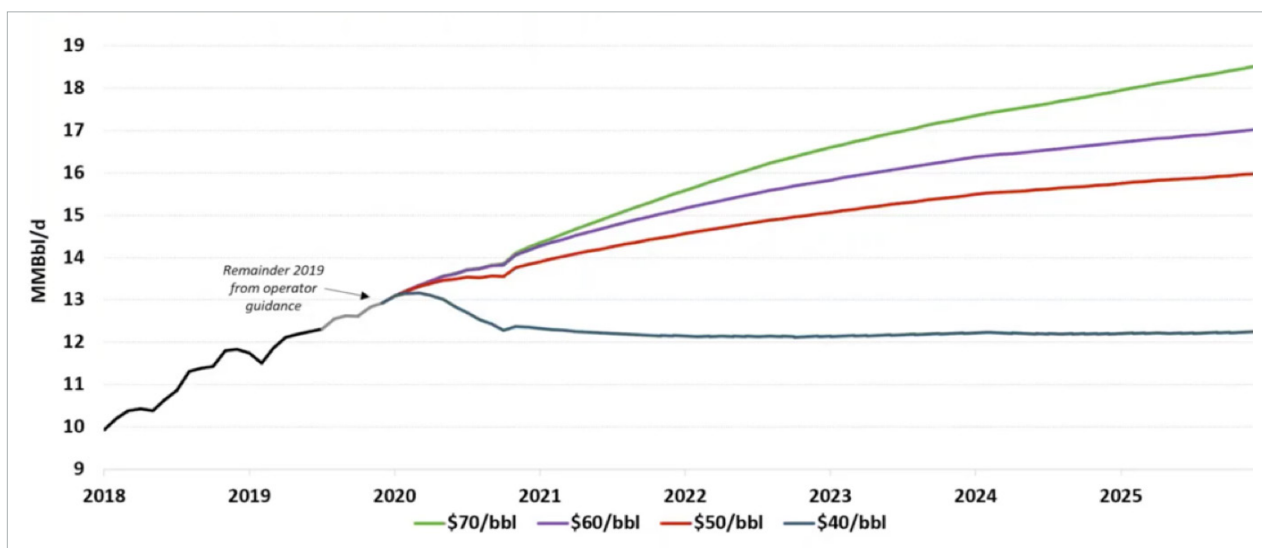


Figure 4: U.S. crude and condensate production under different price scenarios

The ability to grow production in the U.S. is also heavily dependent on the ability to send barrels overseas—especially with U.S. demand on the decline in many areas. While the current trade wars have seen a significant decline in U.S. exports into China, other Asian countries have picked up the slack. The absence of Chinese competition, however, has enabled them to push for price discounts.

4. THE U.S. NATURAL GAS MARKET— ALL EYES ON LNG

The U.S. natural gas market is a tough market with a lot of production, low prices, and forward curves pricing in even more oversupply. Our research shows that this year has seen dry gas production up 5 billion cubic feet per day (Bcf/d) during 2019—a surprise for the market, although we expect growth to slow during 2020 as the demand simply isn't there at present. Where is the growth happening? We are predicting that 50% of incremental gas production will come out of the Northeast and in particular West Virginia with the other 50% from the Permian. The Haynesville has also seen significant growth, driven by private equity-acquired assets.

So, where do Enverus analysts see supply and demand over the next five years? The overall five-year outlook in figure 5 shows LNG exports as the most significant growth area with a record high during the summer of 2019 of 6 Bcf/d—a number which we predict will reach 10 Bcf/d by 2024. Regarding natural gas price forecasts, our research and data are based on how the price of gas needs to meet demand predict average yearly prices of \$2.50 for 2020 (down from \$2.65 in 2019) (see figure 6).

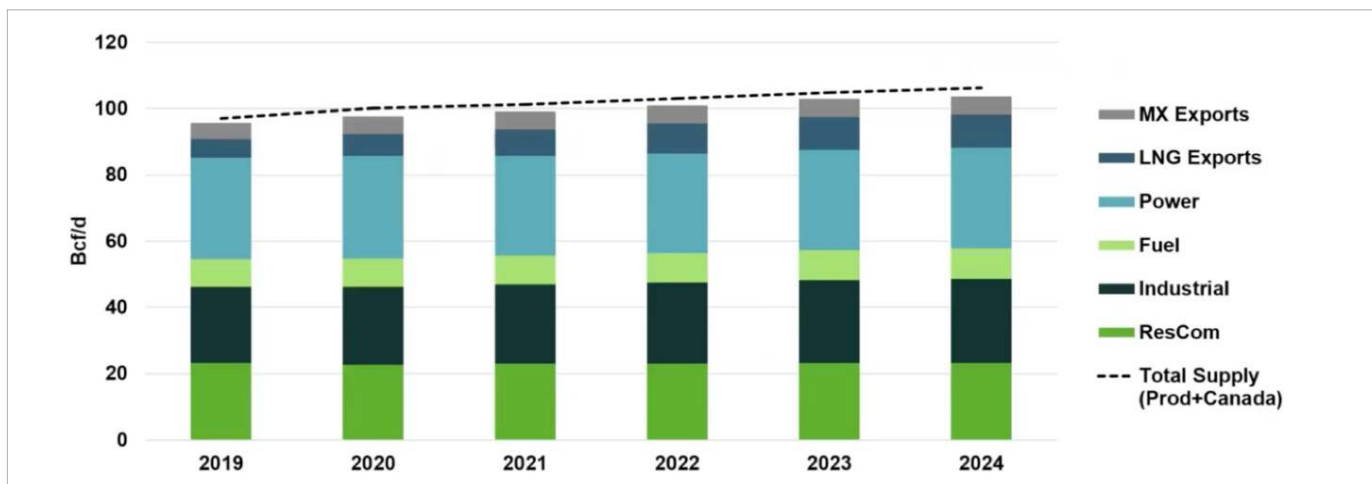


Figure 5: Natural gas supply and demand to 2024

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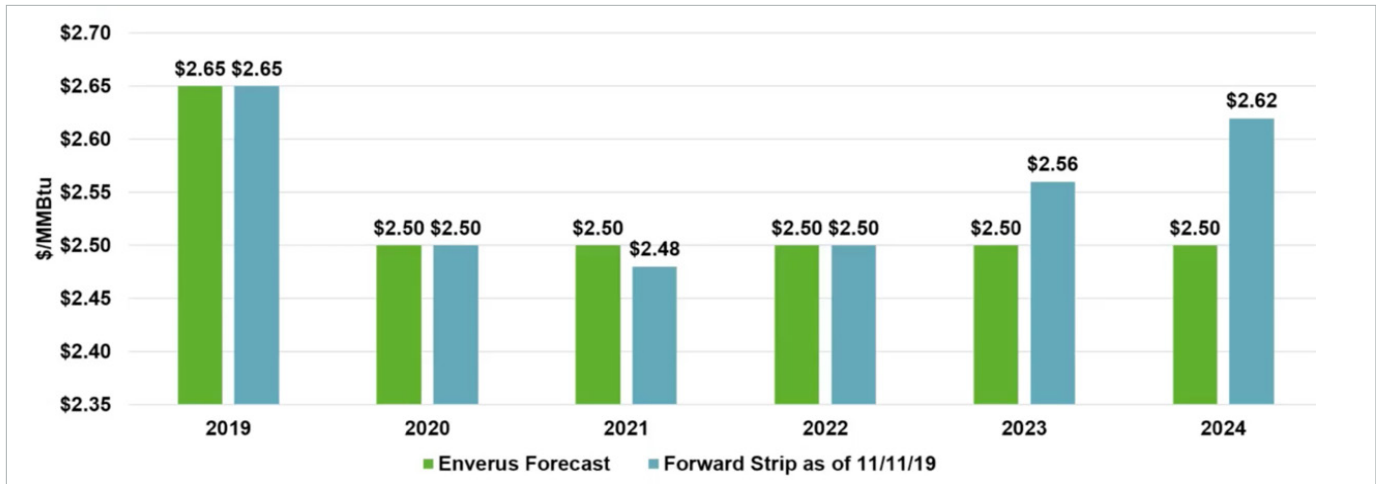


Figure 6: Natural gas price forecast to 2024

5. THE PERMIAN—NATURAL GAS BOTTLENECKS ARE UNLIKELY TO GET BETTER UNTIL 2021, THE CRUDE PICTURE IS BETTER

When it comes to Permian natural gas production and takeaway capacity, we are seeing significant bottlenecks which are unlikely to get better until 2021 with Texas Waha prices remaining lower for longer. Figure 7 looks at natural gas with every colored bar showing individual projects and the black line illustrating production forecasts. Any time you see the black line above, there is a bottleneck where capacity has been surpassed. That is what 2019 looked like with the Gulf Coast Express filling up within a month!

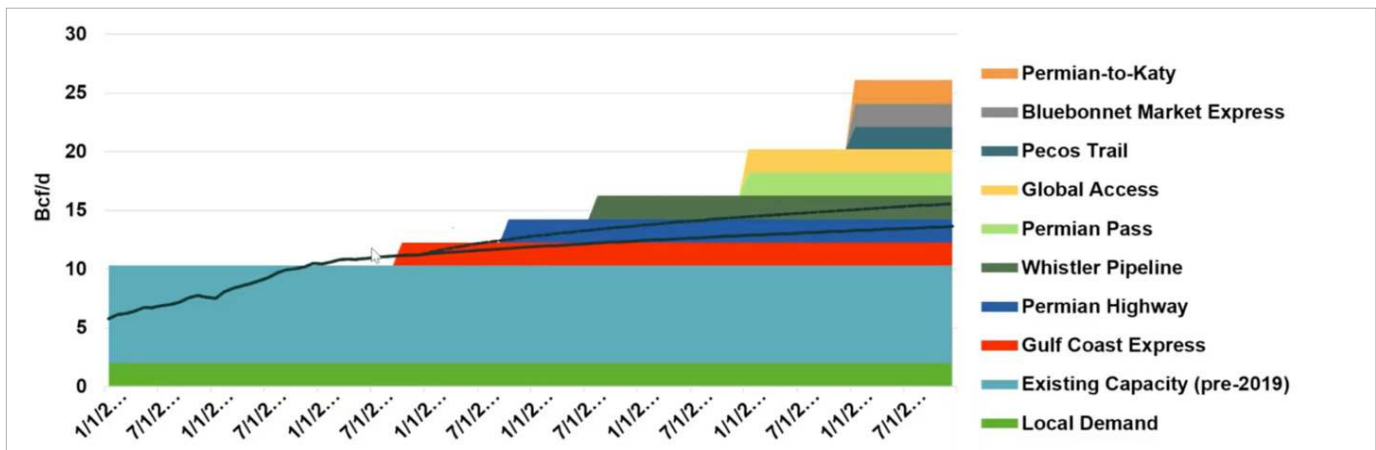


Figure 7: Permian natural gas production and takeaway capacity indicates bottlenecks

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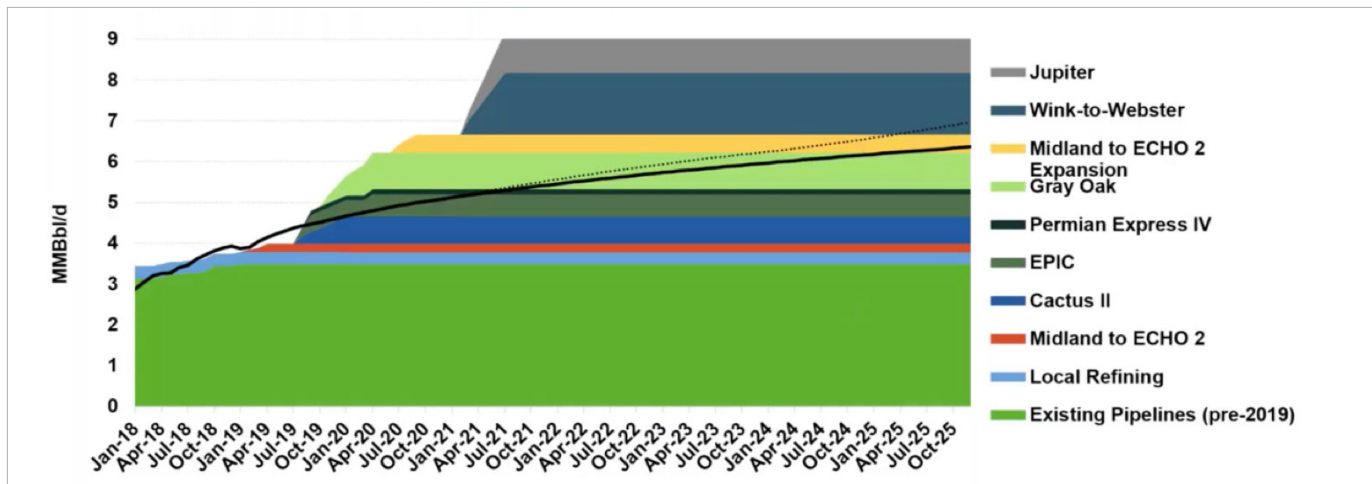


Figure 8: Increased crude capacity is paying dividends

6. WHAT IS THE OPTIMAL SPACING WITHIN A SPECIFIC BASIN?

Spacing continues to be one of the industry's greatest challenges—what is the optimal spacing within a given basin and what variables influence spacing?

To help answer this question, Enverus created well spacing diagnosis software. Here we provide an example of how the software can be used with a dataset based on Parsley Energy's 172,000 Wolfcamp wells and 300 attributes. Per figure 9, in 2015 average spacing was 1,500 ft with exploration and the holding of acreage being Parsley's main objective; spacing tightened to 1,000 ft in 2016 as the appraisal of acreage positions started picking up; and in 2017 Parsley tightened wells to 600 ft due to the acquisition of Double Eagle where spacing was much tighter. In 2018, Parsley upspaced from 2017 and then in 2019 spacing got even wider.

This change is reflected in the efficiency curve in figure 10, where the average Boe type curve during 2017 was worse than in 2016 and 2018, signaling how space tightening is affecting performance. Proppant loading along with upspacing has been increasing since 2017, which correlates with a higher first 6 months of oil production. After finalizing the Double Eagle acquisition, Parsley is now seeing increased productivity.

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Figure 9: Parsley spacing trend over time for Wolfcamp

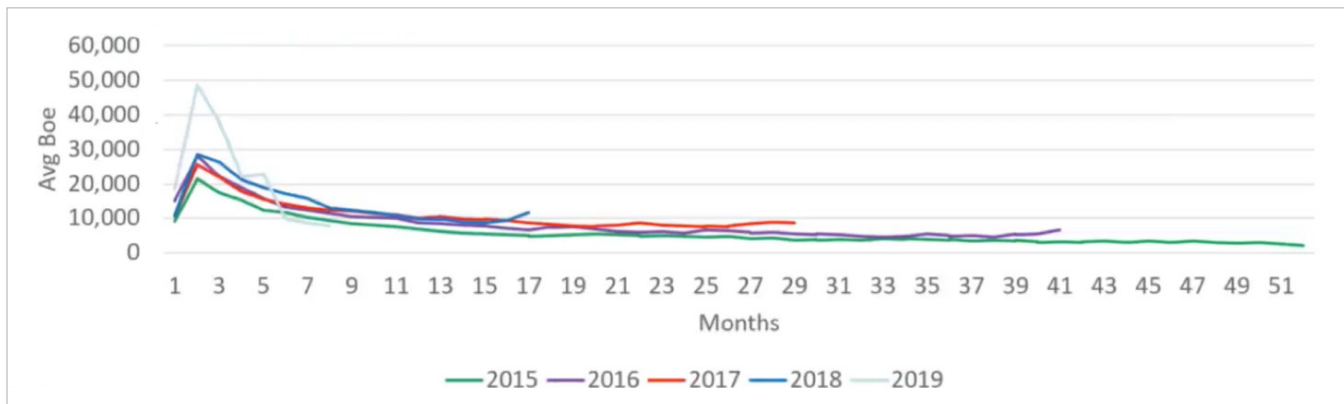


Figure 10: Parsley vintage type curves by year

It is data such as this that can help answer crucial questions like: *What is the right spacing? What is the right completion design and proppant loading? Are there certain areas which should be upspaced?*

Well spacing is likely to remain top of mind during 2020. Get your spacing right and you can look forward to robust development plans, productivity, and an expanding midstream infrastructure.

7. IMO 2020 WILL LEAD TO PRICE INCREASES

On January 1, 2020, the global shipping industry will undergo a radical change, with all ships having to reduce the sulfur content within marine fuels from 3.5% to 0.5%, as mandated by the International Maritime Organization (IMO).

This development is likely to impact the value of refined products, the value of crude, the prices refineries are willing to pay, and pipeline flows on which crude flows where. Every refinery is set up differently and will value a specific crude barrel differently as they re-optimize their crude and product slates. Complex refineries will handle the transition more smoothly than semi-complex and simple refineries, but even the larger, more complex refineries will need price incentives to modify operations.

Based on the simulations we have run, we believe that product prices will rise with ultra-low-sulfur diesel (ULSD) up 29 cents, jet fuel 19 cents, premium gasoline 19 cents, etc. (see figure 11). Prices for all principal refined products are likely to rise with the largest increases for middle distillates. Product compositions will also change as primary distillation fractions are shifted between end products.

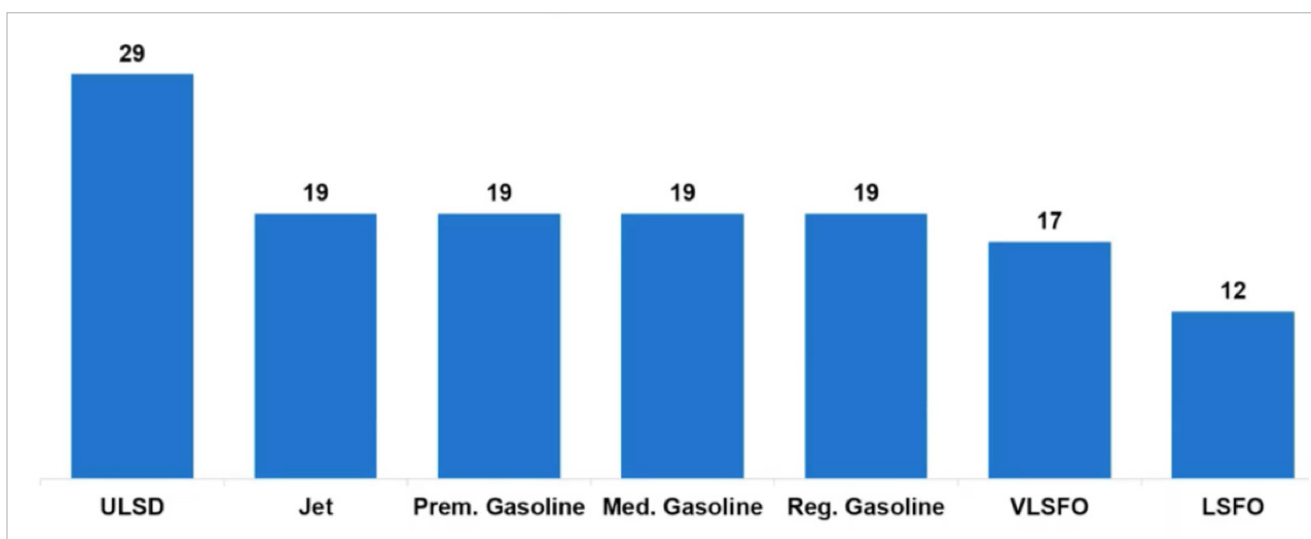


Figure 11: Change in price vs. bond case (cents/gallon)

8. FIXING THE BROKEN EQUITY MARKET

The equity markets are still broken, impacting access to capital and the cost of capital. Q3 2019 saw \$495 million raised through five deals. That's down 79% year-over-year with upstream accounting for the bulk of these deals and no capital raised in midstream. The latter was the first such occurrence in two decades.

Figure 12 shows the yearly equity issuance and this dramatic drop. Furthermore, while there is still access to capital with the bond market hitting \$40.1 billion in sales in Q3 2019, it's very likely that it will be at higher interest rates. Credit-lending is also down 6% year-over-year, and the number of bankruptcies is up to 186%.



Figure 12: Yearly equity issuance

Can these dire figures get worse? We don't think so and believe there will be a recovery, although this is likely to take time.

From freeing up equity markets to lower CAPEX, a possible wait for price increases to alleviating natural gas bottlenecks, optimizing spacing and dealing with the IMO 2020 impact, there's a lot to look out for in 2020. To track the industry's latest high-value data and ensure you stay ahead of the curve, contact Enverus today at businessdevelopment@enverus.com.