THE NEXT ENERGY PROBLEM

Has Shale Oil Peaked?

By Michael Eisenband

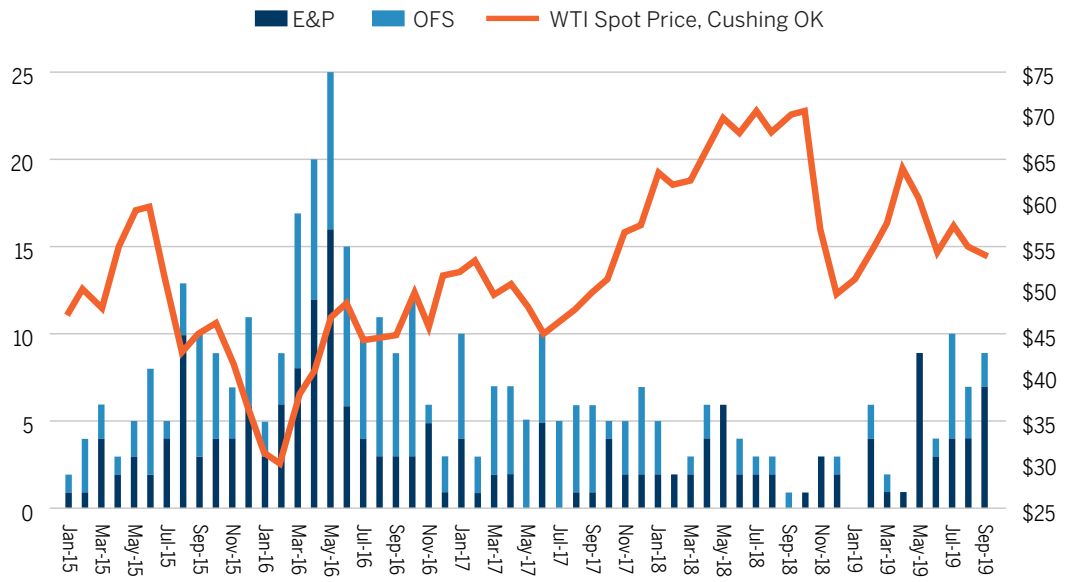
Last month we mentioned that conditions in the U.S. oil patch had turned ugly again in 2019 following a year of relative stability. That's hardly a news flash. Any doubts about whether the domestic energy sector was on the verge of another downturn have been clarified in recent months, as monthly Chapter 11 filings have approached levels of mid-to-late 2016 when the energy bust had just passed its peak (**Exhibit 1**). Already there have been 50 energy-related bankruptcy filings in 2019 through September compared to 40 in all of 2018 — nothing near the horrible numbers of 2015-2016, but clearly a reversal of the progress made after that wipeout. If this pace continues, energy-related filings (excluding coal) will end the year 50% higher than in 2018.

Distressed debt levels in the energy sector have also jumped in recent months, often a reliable indicator of future defaults. Distress in the energy sector has been so widely covered that it's a challenge to add meaningful commentary to the conversation. Still-depressed energy prices have driven most of the recent filing activity; the group includes some Chapter 22 filers who emerged with too much takeback debt in anticipation of a better price environment that didn't materialize, as well as exploration and production (E&P) companies that managed to avoid Chapter 11 in 2015-2017 only to succumb in 2019 under the pressure of persistently low prices.

The prevailing narrative is that the U.S. energy sector is a victim of its own success. In short, soaring domestic oil production — much of it from shale wells with higher breakeven costs than conventional wells — coupled with slowing global demand has caused excess supply, depressed oil prices and reduced rates of return on high-cost wells, which then spilled over to the oilfield services (OFS) sector. Drilling efficiencies and price concessions from OFS vendors alleviated the squeeze on E&P companies since 2017. Meanwhile, oil price stability above $50 per barrel encouraged new drilling and pushed land rig activity more than halfway back to pre-2015 highs — until the latest setback, which in recent months has caused the active rig count to fall 10% year-over-year, and again will impact OFS companies. Moreover, the latest round of challenges comes with some new concerns.

EXHIBIT 1

Monthly Energy-Related Chapter 11 Filings



Source: Haynes and Boone and U.S. Energy Information Administration (EIA.gov)

Soaring U.S. oil production in recent years is largely attributable to the drilling boom in shale rock formations, primarily in the Bakken, Eagle Ford and Permian regions. Domestic oil production now exceeds 12 million barrels per day compared to 7.5 million in 2013 — making the United States the world's largest oil producer, topping even Saudia Arabia and Russia. Approximately two-thirds of our domestic daily oil production (8.5 million barrels) now comes from tight oil formations, with the Permain basin providing just over one-half (4.4 million barrels) of all tight oil production. Shale oil production and improved initial productivity from new wells in the last few years were the result of intensified efforts in the drilling and completion process, including longer laterals, more intense and targeted well fracturing, and tighter well spacing — all of which required considerable investment capital, which flowed in abundance to the industry prior to 2015.

But the buzzword these days for E&P companies is "capital discipline." This means limiting capex to internally generated cash flows and focusing on internal rates of return, rather than expanding proved reserves and retaining lease positions with continuous drilling obligations without some appropriate constraints. Capital providers are no longer supportive of reinvesting most cash flows into new drilling exploits with mediocre or marginal returns; they're favoring debt reduction and returns to shareholders over endless reinvestment in new development efforts. Capital expenditure budgets for most independent E&Ps have been slashed and

are expected to remain depressed at least through 2020. This is problematic for many smaller exploration companies; most shale oil wells are short lived compared to conventional wells, with very large production volumes coming in the first 18-24 months followed by sharp, rapid declines thereafter. Maintaining or growing the operating cash flows needed to service and support debt requires ongoing development of leased acreage. Some have likened the current situation to an ever-turning hamster wheel.

For E&Ps with high leverage levels of 3x-4x EBITDAX, implementing prolonged capital expenditure reductions is a potential threat to long-term viability, as rapidly depleting reserves from older wells cannot be fully and economically replaced. Some operators have chosen to sell off undeveloped acreage in order to raise cash that will finance additional wells in their developed plays.

Most of this story is familiar to industry watchers and financial markets. What has changed of late is increased speculation that shale oil production metrics have peaked, as indicated by the initial production volumes of new wells and the accelerating decline rates of existing wells, especially in the Permian region. There was a time not too long ago when stories that questioned the sustainability of the shale miracle and cautioned that these wells were depleting their reserves more rapidly than acknowledged were relegated to blogs and fringe websites. Now such stories are popping up more frequently in credible news outlets and reports in 2019, including *Forbes*, *Bloomberg*, the *Journal of Petroleum Technology* (JPT), the *Houston Chronicle* and the *Midland Reporter Telegram*. Of note, the energy consulting firm Wood Mackenzie has published several negative or cautionary reports on the Permian basin in 2019.

Not all energy experts agree with the peak shale argument, and it is probably unwise to generalize about shale oil without making distinctions among the large formations and basins that make up this tight oil source. However, one recent event did get the industry's attention: Concho Resources (CXO), a huge, experienced player in the Permian basin, reported that production results from well testing in its Dominator pad drilling program were well short of expections and then lowered its oil production estimates for the balance of the year. Some analysts have faulted the company for spacing wells too closely together in the Dominator project, a one-off development strategy that can be addressed, while others have expressed more general concerns about falling pressure in the basin and its potentially negative impact on production. Investors didn't give the company any benefit of the doubt, however, and voted with their feet: CXO's market cap has fallen by 35% since that August announcement. Moreover, market values of several other large players in the Permian basin also fell sharply following the news from CXO, based on declining optimism related to closer well spacing in the Permian along with price instability and capital constraints. Had this been widely perceived as a company-specific issue for CXO, it's unlikely that equity markets would have sold off other Permian players as well.

There have been several additional announcements of disappointing drilling results by other shale players in 2019. The topic isn't going away, and petroleum engineers, energy analysts and investors will undoubtedly debate over the state of the shale oil cycle for the next few years. It's not yet clear whether the Permian basin shale play is just slowing or approaching a state of decline, or what the implications would be for other shale basins. What we do know for certain is that year-over-year growth in total shale oil production has slowed sharply in 2019 in the Permian basin and in the aggregate across the seven major shale plays, according to recent data from the U.S. Energy Information Administration (**Exhibit 2**). Shale oil producers will need to add nearly 600,000 barrels per day of new production in 2020 just to keep up with declining production from legacy wells.

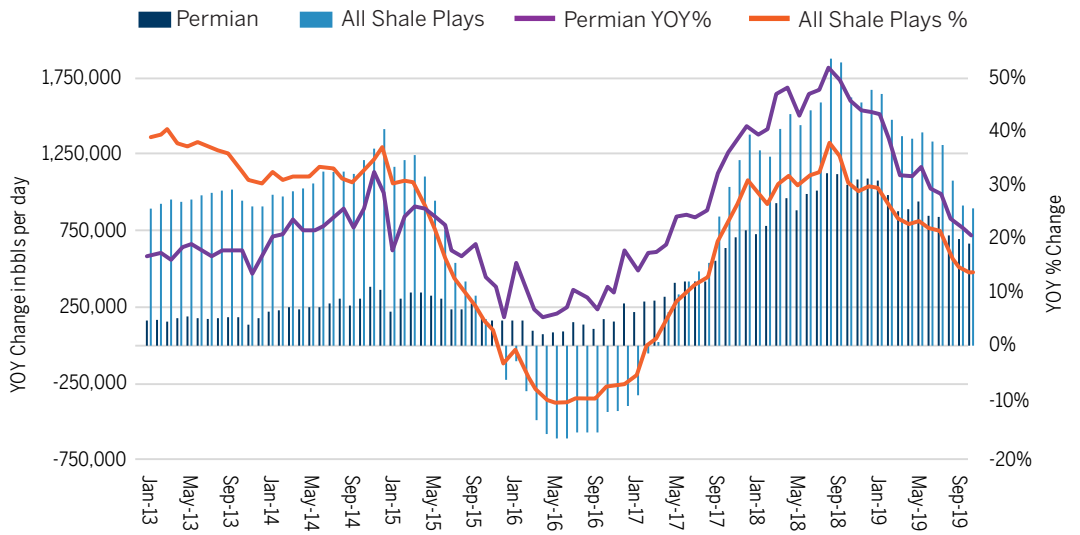
The paradox is that if new well productivity gains abate and reserves in older shale wells are depleted more rapidly than modeled, then the need for independent E&P companies to drill more wells would increase at a time when well economics are under pressure and financial resources are limited. This scenario could lead to elevated levels

of bankruptcy filings for several years as well as an accelerated M&A cycle in the energy sector. Worse still, it might ultimately render America's enormous energy windfall to be a fleeting moment in our history rather than a prolonged period of energy independence. But that's a worry for a distant day; let's just get through 2020.

EXHIBIT 2

U.S. Shale Oil Production

(YOY Change in Daily Production)



Source: EIA.gov

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