



Spotlight on Oil and Gas: “Lower for Longer” No Longer!

Increasingly tight production/consumption dynamics in the oil market will drive higher oil prices in the near to midterm, signaling the start of the next investment upcycle for the industry. We base this forecast on the convergence of three major trends that have developed over the past few years.

- **Sustained high growth in global oil demand**, with more limited growth in production; net demand is expected to continue in the near term (2018-2023E).
- **Limited CapEx investment**, which has impaired the development of larger but challenging oil sources; with few larger, longer-lead-time projects in the pipeline, production will be slower to respond to higher oil prices.
- **Shrinking undeveloped Tier 1 acreage** — a drop in shale-well productivity is coming, driven by steeper shale decline curves as drillers consume the majority of “Tier 1” acreage and find “Tier 2” rock less productive and harder to develop.

Sustained demand growth¹

Since 2015, global oil consumption has shown strong growth, increasing more than 1.5 million barrels per day (bpd) year over year from 2015 (95.3 million bpd) to 2018 (99.8 million bpd) — significantly higher than the longer-term average year-over-year growth of more than 1.3 million bpd during 2010-2018E.

Strong demand growth has been particularly true in OECD regions, as a result of sharp rebounds in the 2015-2018E period — with average year-over-year growth of more than 0.3 million bpd compared with flat demand on average in the 2010-2018E term.

Limited investment and supply impacts

During the downturn, Exploration & Production (E&P) companies sharpened their focus to emphasize production of lowest-cost barrels. As a result, portfolios shifted away from long-cycle production and toward short-cycle sources, effectively creating a gap in long-cycle assets in development (i.e., offshore, onshore conventional and oil sands projects).

The energy pullback removed an estimated \$1 trillion in global CapEx planned for 2015-2020.²

The loss of investment has clearly affected supply. Global production grew at an average of just more than 0.9 million bpd year-over-year 2015-2018E (from 96.7 million bpd in 2015 to 99.3 million bpd in 2018), below longer-term trends of more than 1.4 million bpd during 2010-2018E. This slowing of production, combined with the acceleration of demand, has led to a tightening of the market.³

Shale acreage tier downshift

Finally, E&Ps’ narrowed focus on short-cycle sources (shale and tight oil) during the downturn provided flexibility, although this was possible largely due to the availability of undeveloped Tier 1 acreage.

In the recent past, new Tier 1 wells would more than offset the declining production of existing shale wells and added to

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total production. However, as the inventory of Tier 1 acreage is consumed, we contend that Tier 2/3 acreage will require a greater number of wells relative to Tier 1 to offset production loss declines, let alone add to production. Tier 1 acreage, or "sweet spots," typically account for only 10%-20% of the total play area.⁴ Overall, Tier 2/3 acreage is less productive and more difficult to produce. Given sharp shale-well decline curves, we expect that moving to Tier 2/3 acreage will start to impact productivity in the near-to-medium term, given where wells currently are in their lifecycle.

Although well quality, as measured by initial productivity, has risen due to more aggressive technology and the high-grading of Tier 1 acreage, it has now plateaued in the top counties and is declining in others due to geological limits and the consumption of Tier 1 drilling locations.⁵

As of Q4 2017, a large portion of the Tier 1 Bakken and Eagle Ford acreage has already been drilled (approximately 70%), leaving the Permian as the only likely remaining substantial U.S. growth driver.⁶

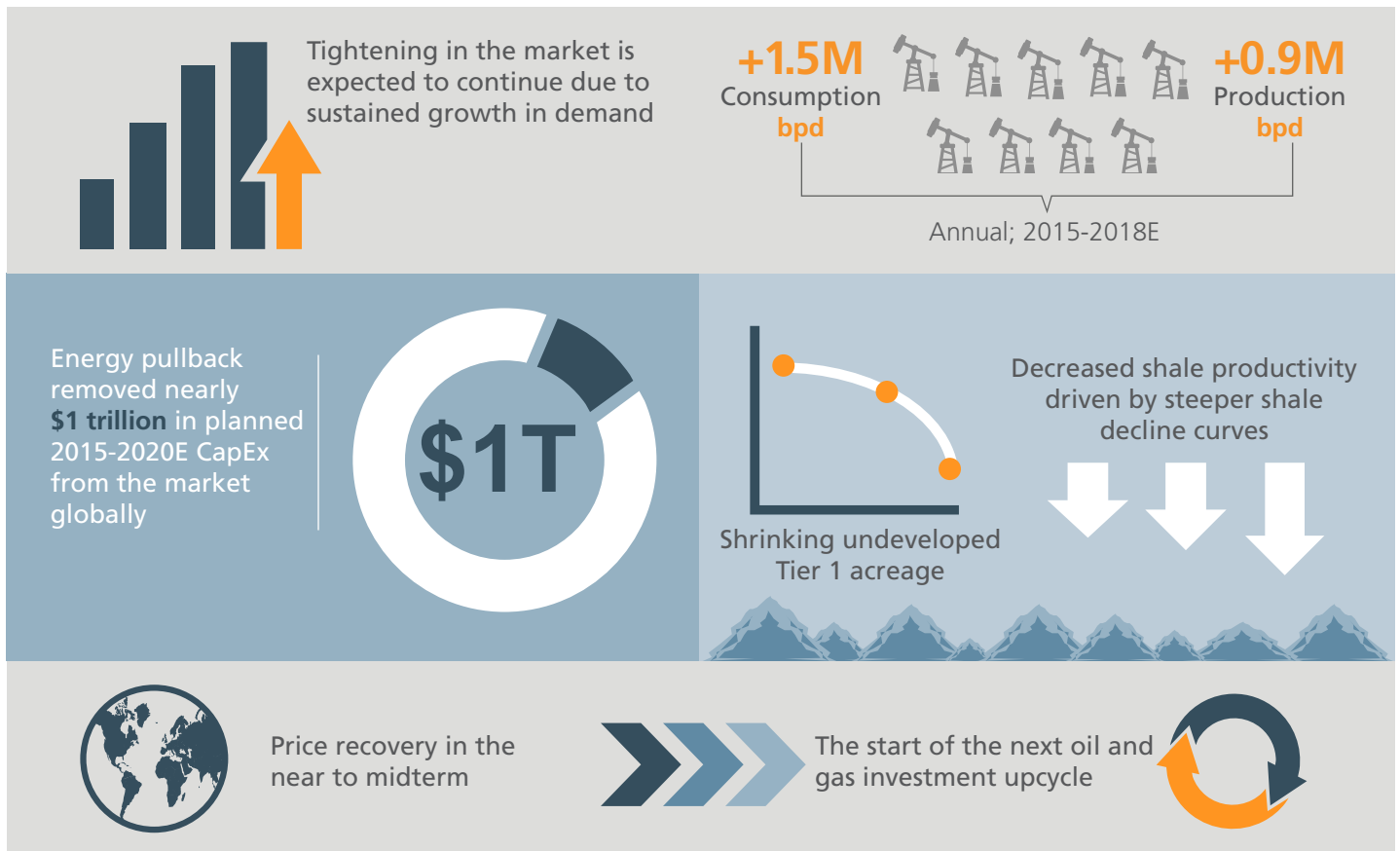
The perfect storm

Market tightening will lead to price recovery; operators indicate two to three quarters at approximately \$75 per barrel will trigger CapEx investment in long-cycle sources.

Time to production for long-cycle sources is typically more than three years; during that time, the industry should experience sustained price recovery given continued demand growth and protracted supply constraints in the medium term. As early evidence of market tightening, total oil inventories in OECD countries were estimated to have declined to 2.8 billion barrels as of February 2018, a decrease of 211 million barrels since February 2017 and the largest annual decrease since 2003.⁷

Upcoming tightening in the oil market will help sustain higher oil prices in the near to midterm, signaling the start of the next oil investment upcycle. Lasting commodity price recovery will restore CapEx investment in long-cycle projects. Asset purchases are expected to continue targeting high-grading portfolios rather than blanket expansion of acreage or reserves. Overall, a positive pricing environment and CapEx growth should lead to expanded merger and acquisition activity.⁸

Figure 1
Market primed for upcycle



Sources: EIA, Wood Mackenzie, Offshore Engineer, Post Carbon Institute

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Who wins and how?

As the industry enters the upcycle, the changing market dynamics will present unique challenges and opportunities along the value chain. Within the upstream, operators will need to balance the need to rapidly add production (and ultimately high-quality reserves) with a degree of cost inflation inherent in more aggressive exploration and production activities. The downturn proved to many operators that they can manage vendor sourcing complexities to drive structural cost deflation; the challenge will be maintaining that discipline in the face of the euphoria typically generated in a high-oil-price environment. Further, as owners of ever-larger datasets, operators will need to reassess (and reimplement) analytics strategies regularly in order to maximize operations ranging from exploration to internal administrative functions — all while guarding against outsourcing data and analytics to an excessive degree or to the wrong parties. Operators with limited or poorly executed data analytics will increasingly be at a competitive disadvantage.

As oil prices rise, the oilfield services sector as a whole will benefit from both increased intensity and volume of activity. The increased utilization will result in cyclical price reflation, and a period of sustained high oil prices will eventually result in some structural price reflation as some E&Ps simplify their operating models. However, these boons will exacerbate the constraints facing the service sector: limited availability of skilled labor and of well-conditioned equipment. Competition for these resources will be fierce, driving up input costs. In unconventional production, the crux will be the evolution of completion design as new areas are developed — which will affect equipment attrition (and hence design), input usage and handling (sand, chemicals, water and associated logistics), and labor utilization. To “win” in the oilfield services sector, clients must adopt a scenario-based strategy that gives them an actionable, responsive approach.

In midstream, constraints in takeaway capacity and associated infrastructure in shale plays fueled activity during the downcycle. As new areas bring production online, players developing infrastructure will benefit from those opportunities. The stable, existing infrastructure typically operated by master limited partnerships (MLPs) is as “cycle neutral” a play as exists; however, the pending tax reform may cause a shift away from the MLP structure.

Downstream will naturally face higher input costs for certain feedstocks, but should benefit from sustained demand for its refined products — and, depending on the product, stable to increasing pricing.

Investors preparing for the coming upcycle must, as in prior cycles, consider targets’ addressable market dynamics, unique value proposition and positioning. In this particular upcycle, assessing technology position, readiness and cost-control discipline will take on additional importance, as energy transition looms on the horizon. L.E.K. Consulting’s expertise all along the niches and sub-niches within the value chain positions our firm to best advise you as you make these decisions.

¹<https://www.eia.gov/outlooks/ieo/>

²Offshore Engineer

³<https://www.eia.gov/outlooks/ieo/>

⁴PostCarbon, David Hughes (http://www.postcarbon.org/wp-content/uploads/2018/02/Hughes_Shale-Reality-Check_Winter-2018.pdf?utm_source=email&utm_medium=email)

⁵PostCarbon, David Hughes (http://www.postcarbon.org/wp-content/uploads/2018/02/Hughes_Shale-Reality-Check_Winter-2018.pdf?utm_source=email&utm_medium=email)

⁶Centennial Resource Development (http://www.cdevinc.com/wp-content/uploads/2017/11/MGP-BOA-111617.Final_.pdf)

⁷https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf

⁸BMI Research (<http://pipexch.com/global-oil-sector-will-shift-upcycle-2018/>)

About the Authors



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