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Oil & Gas Mergers and Acquisitions Report—Yearend 2017 Working under pressure

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Executive summary

Despite oil prices lingering between \$50 and \$60 per barrel for much of the year, crude prices trended upward through the second half of 2017, and oil and gas companies seem poised to benefit from the potential nascent recovery after having spent three years or more adapting to the "lower-for-longer" business environment.¹ Global and US rig counts remain stable,² and the oil market is closer to balance as lower Organization of the Petroleum Exporting Countries (OPEC) production quotas and increased demand have reduced oversupply.3 However, overall merger and acquisition (M&A) deal value and count remained below 2016 levels in 2017,4 which seems to reflect a higher level of caution. Consolidation and optimization were a major driver of deal flow in 2017, perhaps indicating a push toward the exploitation of existing assets rather than the pursuit of inorganic growth.

Following Q1 2017, there was a significant decline in upstream M&A spend, notably in the Permian Basin and only partially offset by other basins in the United States. A range of asset types changed hands in 2017, including deepwater, oil sands, and US onshore, reflecting the diversity of companies' focuses and comparative advantages.⁵

Oilfield services saw continued consolidation as companies pushed to rationalize capacity and pursue opportunities for organic growth. For example, there were many large offshore rig mergers, likely due to continued utilization challenges. Onshore, the increasing drilled but uncompleted well (DUC) inventory likely indicates the need for more capacity in completion services, which helped drive pressure pumping acquisitions in 2017.

Compared to prior years, M&A activity in the midstream sector seemed relatively muted—mainly due to a lack of very large deals as seen in 2014 and 2016. There was significant private equity activity, mainly involving the Permian and natural gas infrastructure. Gathering

and processing attracted the most attention, but as US exports continue to grow, interest in pipelines and storage may increase. Downstream deal value and count were down modestly over 2016, with deals covering refining to retail. Like midstream, the potential increase in refined product exports may lead to an increase in deal making in the downstream sector. Unlike midstream, there is potential for the growing export market to translate into international spend as well.

Overall, 2017 ended up looking much more like 2015 than 2016. However, as global crude stocks decline and industry investment rises, returning confidence could translate into a return to increased deal flow in 2018 and beyond. Upstream continues to lead, but as production continues to grow, that could unlock interest in oilfield services (OFS), midstream, and downstream.



Notable deals in the second half of 2017

Notable deals in 2017 reflect the challenges the industry faces. Larger exploration and production companies have divested non-core acreage to focus more on locations and assets where they have comparative advantage. For example, Hess sold its North Sea assets to Aker BP and its West Africa fields to Kosmos Energy. This should allow Hess to focus more on North American onshore, the Gulf of Mexico, and Guyana, where both buyers are regionally focused and potentially can derive more value from the assets. In OFS, soft demand and significant pricing challenges have led to some consolidation. In the offshore rig market, we have seen numerous acquisitions including Transocean acquiring Songa Offshore for \$3.4 billion. However, in US onshore services, activity has increased in the major shale plays leading to growth opportunities. For example, C&J Energy Services purchased O-Tex Pumping, becoming the fourth largest US cementing services provider.⁷ This deal could allow the combined company to accelerate the growth of service and product lines in key markets.

The 2017 midstream story was likely driven by increasing pipeline capacity requirements with Permian oil production potentially increasing by 50 percent from 2.8 million barrels per day (b/d) in 2017 to over 4 million b/d by early next decade.8 Global Infrastructure Partners acquired Medallion Gathering & Processing from the Energy & Minerals Group and Laredo Petroleum. With its prime location in the Permian's Midland Basin, the deal reflects expectations for continued growth of the regions low-cost oil.9 Natural gas deals were prominent outside the Permian. Blackstone acquired Energy Transfer Partners's interest in the Rover pipeline, which services the Marcellus and Utica regions, as part of its larger push into the midstream gas sector.10 Riverstone's most recent special purpose acquisition company, Silver Run II, formed Alta Mesa Resources by combining an upstream company, Alta Mesa Holdings, with Kingfisher Midstream to create a \$3.8 billion integrated pure-play company in Oklahoma's Anadarko Basin.¹¹ And while the basin's liquids drive value, it is also a significant source of natural gas—producing roughly 480,000 b/d of oil and 6 billion cubic feet per day (Bcf/d) of natural gas.12

Like the first half of 2017, and previous years, downstream activity seemed muted. There were less than 20 major deals reported globally since July and only two worth more than \$1 billion. Few stood out. In the case of Andeavor Logistics' acquisition of Western Refining Logistics, the deal includes not just an extensive pipeline system, but also a terminalling business, which could benefit from diversification across the midstream and downstream sectors.¹³



The business environment remains challenging across the industry

With oil prices lingering in the \$50 to \$60 per barrel range through most of 2017, the oil and gas industry was more cautious than optimistic last year.¹⁴ However, the extension of OPEC's production cuts and the industry's reduced investment in long-lead projects has drawn down crude oil stocks from recent record highs, and prices seemed to trend upward at the end of the year (figure 1).¹⁵ Headwinds do remain, and the industry

could continue to face challenges in the moderate price environment with potential stock builds through 2019. This can be seen in global deal activity, with a decline in both deal count and total deal value compared to 2016 (figure 2). Despite both midstream and downstream being partially shielded from crude prices, deal flow in those segments remains subdued as well.

2.0 Global production and consumption (million b/d) 102 100 98 96 92 **Q1** Q3 **Q1** 03 01 **Q**3 Q1 03 01 Q3 2015 2015 2016 2016 2017 2017 2018 2018 2019 2019 Implied stock change Liquids production Liquids consumption

Figure 1. Stocks remain elevated, but supply and demand remain balanced

Source: Energy Information Administration¹⁶

In the United States, the rotary rig count has been range bound between 900 and 950. That is more than double its 2016 low point but well under the more than 1,800 rigs drilling at the end of 2014. Nevertheless, production has increased due to improved drilling and completions productivity, which remains well above 2015 levels across the major shale plays. Much of the gains in both rig counts and barrels have been in the Permian Basin in West Texas, though the Bakken, Eagle Ford, and other plays have increased as well.¹⁷ This is certainly true for deal activity, with the Permian representing almost 50 percent of US deals targeting specific plays.¹⁸ And in the case of OFS, US deals focused on drilling companies, completion products (e.g. sand), and pressure pumping could all derive significant revenue from shale plays.

Looking forward to 2018, the Energy Information Administration expects US oil production to grow, potentially putting pressure both on global oil prices and the Brent-WTI price differential.¹⁹ The industry may remain stressed, and upstream M&A activity points toward execution rather than growth. This is evident in upstream portfolio pruning and OFS consolidation. In midstream, gathering, processing, and pipelines remain key to continued production growth, and the limited number of deals may not be indicative of the segment's potential. Opportunity could remain for deals around capacity rationalization, industry consolidation, and vertical integration—particularly given the United States' increasing crude, refined products, natural gas, and NGL exports. Downstream proved more robust in 2017, with deals ranging from service stations to terminals to refineries. Like midstream, downstream drivers seem to reflect the need to handle increasing volumes of both supply and demand along with the continued shifting geography of the business including US exports.

300 -300 250 250 Deal value (\$ billion) 200 200 150 Count 150 100 100 50 20 50 H1 2015 H2 2015 H1 2016 H2 2016 H1 2017 H2 2017 Upstream OFS Midstream Downstream — Count

Figure 2. Global oil and gas M&A deal value and count declined from 2016

Upstream

Following a large increase in deal spend in Q4 2016 and Q1 2017, the rest of 2017 saw value drop to close to its prior quarterly numbers (figure 3). However, the annual number of deals halved, indicating more dollars spent on fewer acquisitions. Three themes seemed to stand out this year: continued portfolio optimization, consolidation, and a Permian transactions slowdown. Broadly speaking, all three focus on execution of a right-sized asset portfolio rather than production growth.

Continued portfolio optimization

Portfolio optimization has mostly stemmed from the need for large companies to reduce debt levels and/or focus on a handful of core areas. Hess's divestments in the North Sea and West Africa were certainly notable, as was Shell's sale of its Canadian oil sands assets to Canadian Natural Resources. With flat oil and gas price expectations, recent upward moves notwithstanding, many companies are choosing to focus more on fewer

key regions or plays. There could be opportunities to achieve economies of scale (rather than scope), plus smaller buyers with deep regional focus are likely to be better positioned to create value in more mature assets. Moreover, sale of non-core acreage or business lines provides liquidity and can be used to reduce gearing, potentially critical for numerous companies considering the negative outlook for the oil and gas debt market.²⁰

While many companies could have been stressed by the lengthy moderate oil price environment, actual distressed selling does not appear to have been a driver of divestment. That may not be surprising considering that 2017 North American bankruptcies, broadly indicative of global trends, were down by 70 percent from 2016.²¹ Still, past bankruptcies did lead to several deals, allowing smaller players to gain scale in a range of plays. However, if prices continue to remain stable, that type of deal flow will likely decline.

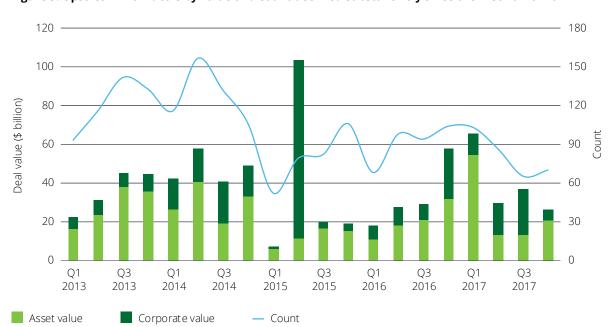


Figure 3. Upstream M&A deals by value and count declined substantively since the first half of 2017

Consolidation

Like portfolio optimization, consolidation appears to fit well with the "lower for longer" perspective. Rather than pursue one-off divestitures or acquisitions, companies can make larger-scale deals to combine portfolios. In this case, companies could develop economies of both scope and scale depending on the levels of portfolio overlap. A large-scale single play merger could allow the combined company to better utilize gathering and transport capacity, wield stronger leverage in OFS and midstream negotiations, and optimize completions strategy across a larger number of wells-all potentially leading to lower capital and operating costs and more productive assets. But even M&A deals combining multiple asset types (e.g. deepwater, shale, oil sands, etc.) could deliver a similar value proposition through the same channels. Plus, combined balance sheets might be better suited to invest in growth in Tier 1 acreage or projects.

One example that stood out in 2017 was EQT's acquisition of Rice Energy. The \$8.2 billion deal combines the two companies' large Appalachian gas-focused holdings. This deal also increased the combined company's contiguous acres, not just total net acres. That could allow for longer laterals, more effective pad positioning, and better optimized use of midstream assets. The company has stated that the deal could boost per well returns by more than 50 percent, generated from operational efficiencies, better market access, and the sharing of data and best practices.²² Potentially, the \$1.6 billion Talos-Stone Energy reverse merger could deliver similar synergies offshore,²³ and the same could be said of the \$5 billion Total-Maersk tie-up internationally.²⁴

Permian transactions slowdown

Lastly, the Permian transactions slowdown likely reflects both concerns over high deal valuation and potentially a need for companies to drill their existing well inventories rather than adding to them. Additionally, increasing levels of acreage held by production and a growing appetite for execution has likely reduced the number of potential packages available. The slowdown in West Texas was only partially offset by deals elsewhere in the United States (figure 4). Deal value in the second half of 2017 was only 10 percent of what was seen earlier in the year or in the second half of 2016.

This reiterates the theme of execution over acceleration. For example, if a company has 50 years of drilling inventory, buying additional acreage at relatively high prices might not be a priority, and in fact it may consider selling the last 10 to 15 years to generate liquidity. That could generate deal opportunities for well-financed players with an appetite for smaller acreage packages, offsetting some of the decline seen in the second half of 2017.

Moreover, the Permian remains expensive, making alternative plays more attractive in comparison. During the previous few quarters, some Permian deals were valued at close to \$60,000 per acre-easily more than triple most other US plays.²⁵ The moderate increase in deals in the SCOOP/STACK, Haynesville, and Bakken in the second half of 2017 likely reflects the shifting opportunity set in the upstream space as companies move away from increasingly expensive acreage.²⁶ However, that pivot represents only a fraction of the Permian decline. More marginal plays might provide avenues for future growth at more reasonable prices, depending on oil and gas price trajectories and continued drilling efficiency improvements. For example, the second half of 2017 saw more than \$2 billion in the DJ Basin with increased interest across the Rockies.²⁷

Appalachian 10.5 Bakken Scoop/Stack 2.1 1.8 0.6 0.1 H1 2014 H1 2015 H1 2015 H1 2017 H1 2014 Н1 Н1 H1 2015 H1 2016 H1 2017 H1 2016 2017 2014 2016 **Permian** 22.1 19.6 **Eagle Ford** Haynesville 7.8 12.7 H1 2017 H1 2014 H1 2017 H1 2016 Н1 Н1 H1 2015 H1 2017 Н1 H1 2015 2016 2014 2014 2015 2016

Figure 4. Slowdown in Permian deal making only partially offset by other US shale plays

Looking toward the future, continued portfolio optimization (and to a lesser degree consolidation) will likely drive deal count, but following recent exploration successes and a re-balancing crude market, companies may consider upping exposure to high-impact exploration acreage. Numerous recent deals in both deepwater Brazil and Mexico, along

with recent successful bid rounds, seem indicative of companies' interest in the region. Moreover, there has been significant activity in Africa, including Tanzania and Mauritania. However, absent significant improvement in oil and gas prices, deals are expected to focus on only the highest profile plays.



Oilfield services

The OFS sector continues to seem stressed. Margins remain low, though increased activity in plays like the Permian have led to regional cost inflation.²⁸ 2017 lacked the handful of large deals that drove value in prior years, such as GE and Baker Hughes (announced in 2016, transaction completed July 2017), but the overall deal count remained above 2015 and 2016 levels and is on an upward trend (figure 5). There were numerous smaller

corporate deals of note, including the Schlumberger-Weatherford pressure pumping acquisition (originally positioned as a joint venture referred to as OneStim) and the Transocean-Songa tie-up. 2017 also saw the tail-end of large-scale engineering, procurement, and construction deals, with the Wood Group and Amec Foster Wheeler deal standing out.

Figure 5. OFS M&A deals by value are down from 2016, but deal count remains strong



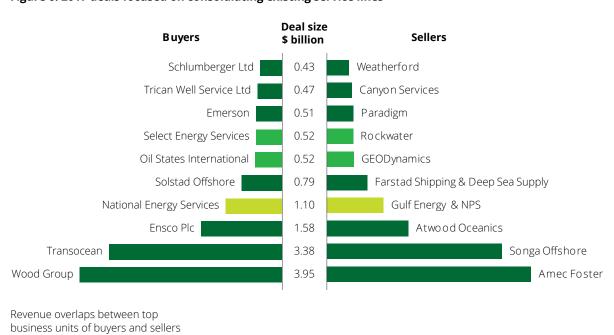
Like the upstream space, consolidation in the OFS sector has been a significant driver in deal activity in 2017 and will likely play a prominent role going forward. In 2016, we reported that numerous large deals focused on pursuing scope rather than scale.²⁹ However, that trend appears to have reversed in 2017 with most of the largest deals taking place between companies with high levels of operational overlap (figure 6). This likely reflects a need to increase service capacity and an increased interest in specific product lines rather than broad cross-segment services. While we expect future opportunities for innovative tie-ups between service, manufacturing, and technology companies, operational considerations were front and center in 2017 and will likely remain so in 2018.

Internationally, 2017 has been an offshore rig story. Companies continue to face a weak contracting market with an excess of rig availability and limited deepwater activity. Outside of the Transocean-Songa deal, Ensco acquired Atwood for \$1.6 billion, and Shelf Drilling purchased three jack-up rigs from SeaDrill for \$225 million. M&A in the offshore space reflects the overcapacity facing the market, requiring companies

to rationalize capacity and shore up balance sheets.³⁰ There is likely limited running room for future deals as the number of major players declines, but potential remains for smaller, more targeted acquisitions.

In the United States, OFS M&A activity is focused on onshore shale play services, especially well construction and completion services, including pressure pumping and products like sand. Outside of the Schlumberger acquisition, Trican purchased Canyon Services in March, Select Energy Services acquired Rockwater, and C&J Energy Services acquired O-Tex Pumping. With DUC well inventory rising consistently throughout the year,³¹ companies specializing in all facets of hydraulic fracturing will likely remain open for deal making as the need for scale grows. Moreover, after years of reduced investment in the sector, M&A may be a more effective way to meet growing demand for equipment and services, as several years of cost-cutting have reduced many companies' excess capacity. Though not as apparent this year, deals that leverage some complementarity may be advantageous as the onshore space continues to evolve.

Figure 6. 2017 deals focused on consoldiating existing service lines



Sources: 1Derrick's M&A Database, Spears & Associates,32 and company reports

High

Moderate

Low

Looking forward, there are many challenges facing the industry that the OFS sector will likely need to meet. First, as fracturing continues to drive US production growth, the demand for sand and water services will likely increase. And while pumping horsepower is front of mind, those auxiliary services could be critical. In the case of sand, geography might be as important as quality, since transportation costs can be significant with Texas-sourced sand displacing Northern White.33 Similarly, sourcing water in West Texas can be a challenge, and disposal could prove problematic as volumes continue to grow. Second, despite significant improvements in drilling and completions costs, the OFS sector has borne the brunt of the costcutting. Continued optimization of the supply chain could mitigate the impact of low costs on margins. Consolidation can achieve economies of scale, but deploying novel technologies and innovative business models could have more potential upside. Last, there appears to be substantial remaining overcapacity across the sector. Divesting non-core assets could accelerate the deployment of equipment, boosting value for both the seller and buyer.



Midstream

2017 proved to be a quiet year in midstream deal making, with a moderate number of deals but relatively low total value compared to 2016 (figure 7). As in previous years, most of the activity was in the United States, though the largest midstream deal of 2017, Pembina's acquisition of Veresen for \$7.1 billion, was focused primarily on Canadian assets. Perhaps unsurprisingly, there was significant interest in gathering and processing assets, and to a lesser degree pipelines, around the major plays, especially the Permian and SCOOP/STACK. Perhaps more surprising was the interest from private equity (PE) firms. Blackstone acquired interest in the Rover Pipeline and EagleClaw

Midstream as part of its \$7 billion purchases across the natural gas value chain.³⁴ Other deals include the Global Infrastructure Partners acquisition of Medallion Gathering & Processing in the Permian and Alta Mesa's acquisition of Kingfisher Midstream in Oklahoma. PE investment may reflect improved opportunities in midstream versus upstream, with natural gas coming to the forefront. Overall, US gas production is projected to rise from roughly 74 (Bcf/d) in 2017 to 97 in 2022. Over that same time frame, unconventional production in the Permian could double by 2022, with Marcellus production increasing by 50 percent.³⁵

Figure 7. No large-scale midstream M&A deals by value in 2017



Following record-high upstream acreage deals in the Permian,³⁶ we have seen high multiples in the midstream space as well. This may reflect the record US oil and gas production along with continued investment across numerous key plays. Moreover, the sustained differentials between different oil and natural gas markets, such as WTI in Houston versus Cushing,³⁷ likely signals a need for additional infrastructure. However, higher prices may warrant higher caution, as there is continued uncertainty around price and production trajectories in the United States and internationally.

One potential growth area is the US export market. The United States became a net exporter of natural gas at the end of 2016³⁸ and continues to set new records for crude oil exports.³⁹ Half of the 50 midstream deals this year focused on gathering and processing, which directly serve upstream regions, with the balance being pipelines, LNG, and storage. However, as exports continue to grow, investment in infrastructure serving the export market will likely become increasingly important. Moreover, potential for integration with downstream terminal and process assets could provide operational synergies.



Downstream

Despite reduced deal count, downstream M&A spend held steady in 2017 (figure 8). The deals were across a range of assets from service stations to terminals, half of which were in North America. The largest refining deal of the year was Aramco's acquisition of 50 percent in Petronas's RAPID project in Malaysia for \$7 billion, followed by ONGC's consolidation of Hindustan Refining assets for \$4.4 billion. The largest North American deals were Sunoco's divestment of its convenience stores for \$3.3 billion and Andeavor Logistics' acquisition of Western Refining Logistics for \$1.8 billion.

Generally speaking, 2017 did not present a clear theme as each deal addressed specific considerations of the buyer and seller. The majors and global integrated companies continue to divest retail and distribution assets to smaller players. And unlike upstream and midstream, PE investment appears muted with the Warburg Pincus-backed Zenith Energy acquisition of the outstanding units of Arc Logistics Partners LP, with Arc Logistics being the only notable deal. PE interest may

increase in the future if valuations remain high in other sectors, but the long-lived nature of the assets and relatively modest deal flow may pose challenges to the business model.

Like midstream, downstream is potentially well positioned for future deal making around US exports. Not only is the United States increasing its exports of oil and natural gas, it is also increasing its refined products exports as well—all three bode well for terminalling and storage. 40 There were several coastal deals that may presage a trend, including SemGroup's purchase of the Houston Fuel Oil Terminal from Alinda Capital Partners for \$1.5 billion. Over the next few years, these kinds of deals may become more common if the export markets continue to heat up. Additionally, the changing supply and demand picture internationally could drive similar deals across markets. While overall deal value and count remains modest in comparison to other sectors, it has proven relatively robust to the price cycles.



Figure 8. Downstream M&A deal value remained strong despite declining deal count

Looking ahead

Despite relatively flat oil prices and improved business indicators, 2017 M&A was muted, potentially reflecting the industry's continued caution. After a promising first half, overall deal count and value was down year-overyear. Broadly speaking, the oil markets remain balanced with OPEC's reduced production, offsetting growth in US unconventional production. Deals this year focused on execution rather than growth, perhaps due to the increasingly prevalent lower for longer outlook.

In upstream, rig activity remains range bound, but increased productivity translated into higher US production. Deals focused on portfolio optimization and consolidation, with a noticeable decline in Permian spend. There were numerous high-profile divestitures of non-core assets, typically in higher-cost or more mature regions. Additionally, consolidation in the United States reflects increasing interest in boosting contiguous acreage, reducing costs, and improving economies of scale and scope.

Like the upstream, the OFS sector seemed to be focused on consolidation. In offshore, the continued need for capacity rationalization was likely the key driver. However, the driver onshore appears to be capacity building—not reduction—as continued shale growth strains existing completions activity. Auxiliary services like sand and water handling could become increasingly important.

Midstream deal activity was notably down, mainly due to a lack of the extraordinarily large deals seen in recent years. Gathering and processing represented half of all 2017 deals with significant private equity interest. Downstream spend remained relatively strong. In both sectors, US exports could be an avenue for increased activity.

Several factors could lead to increased deal flow in 2018. Certainly higher, more stable oil and prices could generate interest from more cautious players, improve access to financing, and narrow the buyer-seller valuation gap. Moreover, the majors as well as the larger independent and integrated oil companies continue to execute their divestment plans, providing opportunities for smaller and more regionally focused companies. Continued consolidation and portfolio management across the various sectors will likely be key to adapting to the current business environment.



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Let's talk

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