

VALUE FOCUS

# Exploration & Production

Third Quarter 2018 // Region Focus: Bakken Shale



## Executive Summary

Oil and gas prices in 2018 have been steadily increasing in the midst of strong demand and constrained supply, and the U.S. energy sector is at the center of this focus. Forecasts from the International Energy Agency (IEA) show that the U.S. is expected to supply almost 60% of the demand growth over the next 5 years as conventional discoveries outside of the U.S. have hit historic lows since the early 1950s.

This quarter we take a closer look at the Bakken, where breakeven prices recently fell to around \$42 per barrel. Production activity has picked up in the region as rig counts reached heights unseen since 2015. Increased production, lower breakeven prices, and sufficient infrastructure have led to an uptick in transaction activity and an increase deal multiples.

2018

Q1: Eagle Ford

Q2: Permian Basin

**Q3: Bakken Shale**

Q4: Marcellus and Utica



# Oil and Gas Industry Services

Mercer Capital provides business valuation and financial advisory services to companies in the energy industry.

## Services Provided

- Valuation of energy companies
- Transaction advisory for acquisitions and divestitures
- Valuations for purchase accounting and impairment testing
- Fairness and solvency opinions
- Litigation support for economic damages and valuation and shareholder disputes

## Industry Segments

Mercer Capital serves the following industry segments:

- Exploration & Production
- Oil Field Services
- Midstream Operations
- Alternative Energy

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### Selected Public Company Information

### Rig Count

### Mercer Capital

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# E&P Industry

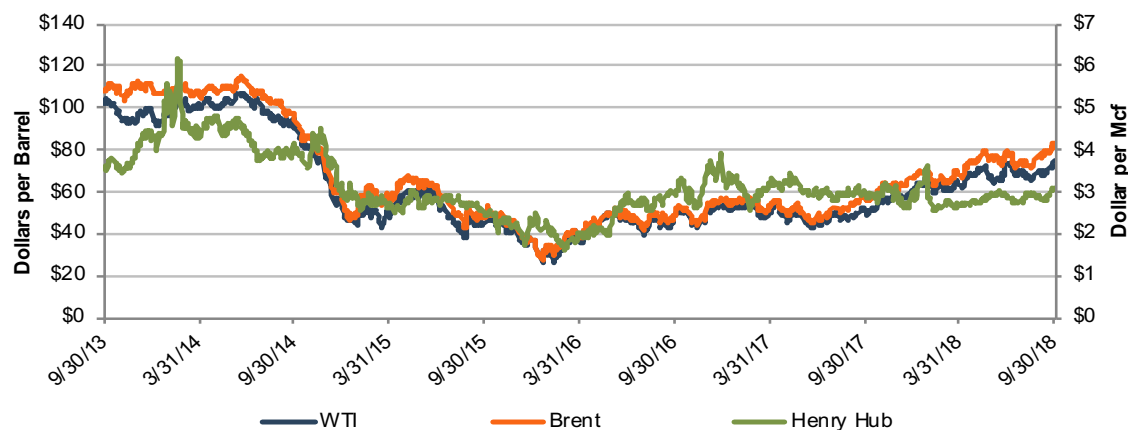
## Oil and Gas

### Commodity Prices

Oil prices started and ended the quarter in almost the same place – around \$73 per barrel. However, it took a circuitous route to get back to where it started, dropping down to \$65 in mid-August and then climbing back. West Texas has been a different story. Differentials between the standardized Cushing, Oklahoma prices and more localized Midland prices have been climbing for much of the year and remained wide until the end of the third quarter due in large part to capacity constraints from a lack of infrastructure in place to bring the product to market. With production increasing without concurrent increases in the ability to transport the new production, there has become an oversupply in the market, decreasing the price received for the region.

Natural gas prices were also volatile for the quarter, experiencing a couple of declines before peaking at \$3.08 per mcf. Prices ended the quarter just above \$3.00 per mcf, up from \$2.92 at the end of the second quarter and unchanged from a year ago. Natural gas prices continue to languish in comparison to the oil boom due to capacity constraints and flaring.

**Crude Oil and Natural Gas Prices**



Source: Bloomberg

## E&P Industry

### Outlook for the Rest of 2018

Capex budgets, a harbinger of drilling plans, have continued to grow and get revised upward for many producers. Drilling and **production figures** continue to climb everywhere but West Texas; however, the slowdown in West Texas is temporary. Noting the Permian's drilled but uncompleted well figure, the Permian's effective inventory is waiting to be unleashed on the market. This could be setting up strong earnings and production, though this will only become clear as companies start reporting their results. It appears the market may be transitioning from ascribing value on enthusiasm about potential shale production and undrilled reserves to realization of those reserves and more real dollars to show for it.

For production to continue to increase in the U.S. though, a smooth renegotiation of NAFTA is required. In the third quarter, a bilateral agreement with Mexico was announced with the option to add Canada, as both Congress and Mexico previously stated they prefer. The three countries eventually came to an agreement that is largely similar to the agreement in place, with a few distinct changes, mostly unrelated to the energy sector. This will allow North America to continue its path to energy independence as the countries' integrated energy markets benefit from relatively lower import costs. However, the agreement must still be approved by each country's legislature, and Senate Majority Leader Mitch McConnell indicated that a vote would not be conducted until 2019, after the November Midterm elections.

## E&P Industry

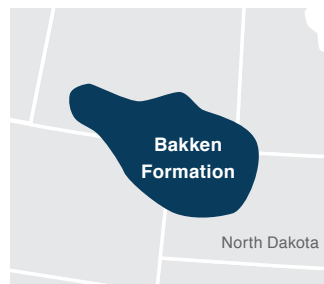
### Outlook for the Rest of 2018

As a global commodity, prices will continue to be impacted by supply around the world, not just North America. Russia and members of OPEC met in June and agreed to boost their collective output of oil production, amid U.S. sanctions on Iran, in order to help with the global shortfall and meet increased demand. Although there was not clear guidance on the increased output, the group has been tentatively aiming for an additional million barrels per day. World total oil supply rose by approximately 680,000 barrels per day in July, but this was largely contributed by the Organization for Economic Cooperation and Development, a group of non-OPEC members that includes the U.S.

In fact, **from recent figures**, Russia's increased output amounted to only 20,000 barrels a day, and Saudi crude output actually decreased by 200,000 barrels a day. The decline in oil production in Iran and Saudi Arabia and lack-luster production boosts from Russia are proving that any alleviation in oil prices will come later as prices continue to rise. While the IEA agrees that the Saudis can supply over 12 million barrels a day, there is little incentive to do so as fiscal breakeven figures for Saudi oil production provided by the IMF show nearly \$88 per barrel. It appears the U.S. will continue to shoulder the burden for supply increases.

# Bakken Shale

## Overview



*The economics of oil and gas production vary by region. Mercer Capital focuses on trends in the Eagle Ford, Permian, Bakken, and Marcellus and Utica plays. The cost of producing oil and gas depends on the geological makeup of the reserve, depth of reserve, and cost to transport the raw crude to market. We can observe different costs in different regions depending on these factors. This quarter we take a closer look at the Bakken Shale.*

Companies that have maintained a presence in the Bakken since the downturn in oil prices are beginning to reap the rewards of their patience. Rising oil prices have begat increases in production, and efficiencies gained in recent years have led to higher margins and increased production. While the Permian Basin has received much of the attention recently, the Bakken certainly appears to be back in business.

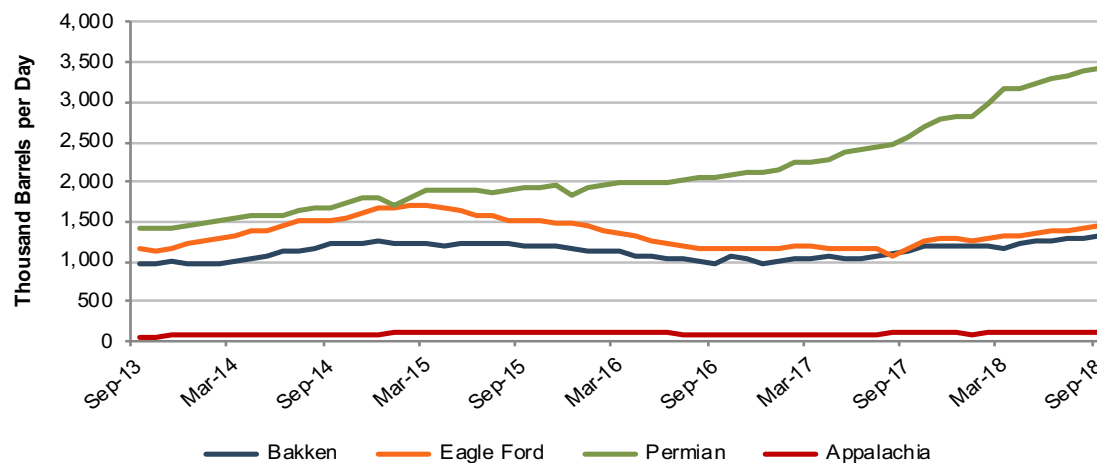
Continental Resources, Hess Corporation, and Whiting Petroleum Corporation are among the biggest players in the region. Whiting has rebounded with its stock price up 141% in the past twelve months, and their related royalty trust, Whiting USA Trust II, has also shown improved performance. Speaking of the decline in oil prices, Continental's CEO **Harold Hamm said recently**, "We would never have gained the efficiencies that we have today without going through that." This can be further illustrated by looking at breakeven prices in the Bakken, which have dropped from about \$77 in September 2014 to below \$39 per barrel during the third quarter of 2018, lower than those seen in Texas.

Greg Hill, President and COO of Hess, recently **emphasized the importance of the Bakken** in their portfolio, saying about 43% of Hess' capex budget would be devoted to the region over the next three years, targeting \$1 billion annually. He added that production constraints seen now in the Permian are very similar to those seen in the Bakken a few years ago.

# Bakken Shale

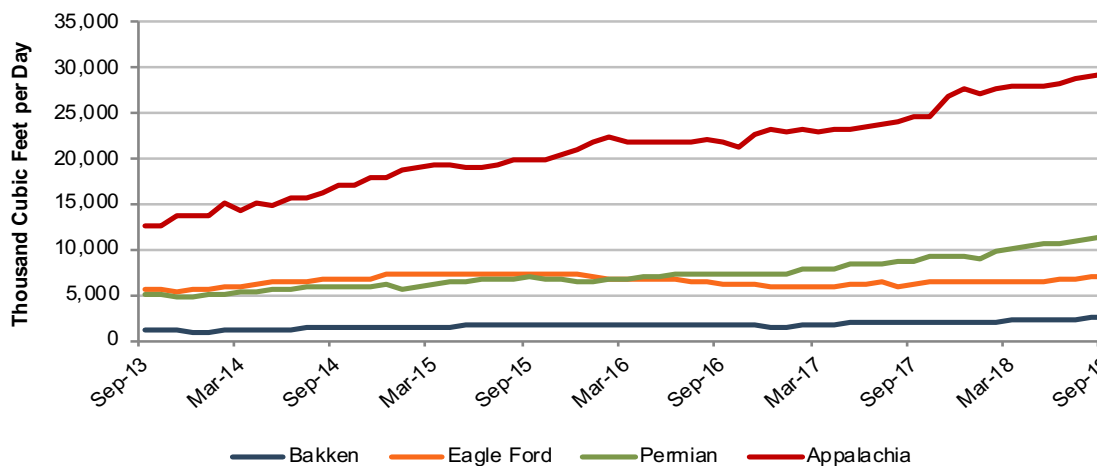
## Production

Daily Production of Crude Oil



Source: EIA

Daily Production of Natural Gas



Source: EIA

## Bakken Shale

### Production

According to **Baker Hughes**, rig counts in North America increased 0.7% in the third quarter, but increased 12.0% over the last twelve months. The Permian Basin led the way with an increase of 26.2% in the past year, leading them to have 46.2% of total rigs. Rig counts peaked in the Bakken in May 2018, reaching heights unseen since 2015, but the Bakken continues to trail the Eagle Ford, Permian, and Appalachia regions. While rig counts aren't ballooning in Bakken, this may be because operators like Continental are focusing on completing wells that have already been drilled, a cheaper alternative to drilling new ones.

Although oil production in the Bakken increased 17.4% in the past year, it lagged the other four regions covered as the Permian set the pace with a 33.1% increase. Natural gas production in the Bakken increased 24.7% in that same time, again trailing the Permian's growth of 31.3%. Given that the Bakken only produces a little over a third as much crude oil and a fifth of the natural gas, it will be interesting to see if the Permian can maintain its torrid pace or if capacity constraints allow others to close the gap.

The U.S. has long trailed other countries in terms of energy production. With the leaps and bounds made in production, the question for industry executives and investors alike is "now what?" Increased production has led to the need for better infrastructure, a problem currently besetting the Permian Basin in particular. Extreme pricing differentials have occurred and plenty of natural gas coming off as a byproduct of oil production is being flared as a result.



## Bakken Shale

### Production

About 388 million cubic feet per day of natural gas was flared in June in North Dakota. Kinder Morgan, one of the largest energy infrastructure companies has **proposed a \$30 million natural gas pipeline** that would alleviate 130 million cubic feet per day, with the project slated to begin construction mid-2019 and be finished by year-end, pending regulatory approval. Pipelines have been cast by industry executives as a safer alternative to rail transportation, though critics view this as a **straw man argument**. With the introduction of the Dakota Access pipeline (DAPL) in mid-2017, about half of the regions production (470,000 barrels per day of crude oil) will travel by this pipeline. Despite the DAPL and other pipelines like the one proposed by Kinder Morgan, rail travel will still figure heavily into the equation as refiners on the East and West coast have low pipeline connectivity, and much of the oil from other regions ends up with one of the numerous refiners in the Gulf of Mexico.

The Minneapolis Fed recently outlined five other projects aimed at increasing gas processing capacity, including a **\$100 million expansion of a natural gas processing plant** near Killdeer, North Dakota. While companies seek high levels of production to take advantage of higher oil prices, these infrastructure constraints have a negative impact. Continental's CEO Harold Hamm **emphasized this point saying**, "Instead of just producing oil, we're going to make sure we produce shareholder return."

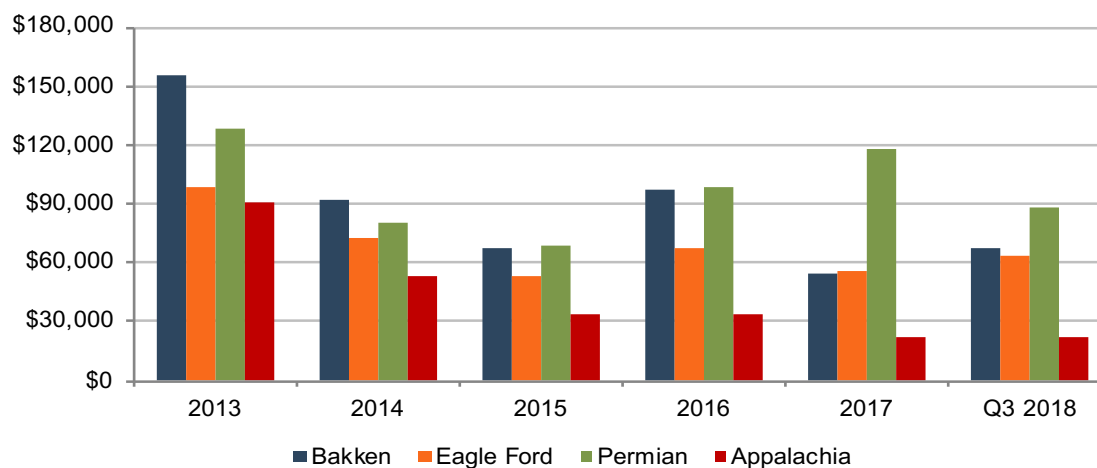
# Bakken Shale

## Valuation Implications

Before the crash in oil prices, the Bakken was booming with the highest EV/production multiples, also known as price per flowing barrel. The Permian took center stage in 2017, but the Bakken is closing that gap.

According to *Bloomberg Intelligence*, breakeven prices in the Bakken finished the quarter at just under \$42 per barrel.<sup>1</sup> It trails only the Delaware Basin at \$40 per barrel and compares favorably to the Midland Basin as well as both East and West Eagle Ford. The breakeven price in the Bakken increased 9.6% in the third quarter, though is only up 3.6% since September 2017. The West Eagle Ford saw the largest quarterly increase in breakeven price of 11.3%, while the Delaware Basin's breakeven price actually declined 8.1% for the quarter.

**Price per Flowing Barrel**



Source: Bloomberg

<sup>1</sup> Calculations based on monthly crude oil and gas production and EIA drilling report by region.

## Bakken Shale

### Market Valuations & Transaction Activity

Over the past year, followers of the oil and gas industry have taken note of the multitude of transactions occurring in the Permian Basin with large deal values and hefty multiples. However, the price differential between WTI and other benchmarks has grown over the last few months, and some attention has moved from the Permian to other domestic shale plays. The activity in other regions such as the Bakken was at one point slow when compared to the Permian, causing the recent increase in production and the swapping of acreage to fly under the radar while many were focused on Texas.

Transaction activity in the Bakken in 2017 marked the **departure of a number of companies** that were active in the play, such as Halcon Resources. At the end of 2017 and into 2018, the exodus from the Bakken to the Permian continued. Recently, the Bakken is being viewed as another viable option to the Permian Basin, which has seen a growing price differential due to insufficient infrastructure. This, and rising oil prices, has resulted in an **increase in production in the region**, leading to more transaction activity and inflows of capital.

Overall, the average deal size has decreased from twelve months ago when companies sold off large bundles of assets to clean up their balance sheets and survive in the low oil price environment. While deals today may be smaller in size, they are more strategic in nature.

## Transactions in the Bakken

Announced Date	Buyer	Seller	Deal Value (\$MM)	\$ / Acre	\$ / Boepd
8/22/18	US Energy Corp.	APEG Energy LP	\$18	\$11,125	\$44,500
7/31/18	Northern Oil and Gas, Inc.	W Energy Partners	\$100	\$9,434	\$14,815
7/19/18	Panhandle Oil and Gas Inc.	Not Disclosed	\$9	\$1,992	\$169,811
7/18/18	Northern Oil and Gas, Inc.	Pivotal Petroleum Partners, LP	\$152	nm	\$37,073
7/12/18	Petroshale Inc.	Not Disclosed	\$55	\$27,764	\$100,000
6/25/18	Whiting Petroleum Corp.	Oasis Petroleum Inc.	\$283	\$4,354	\$64,318
6/19/18	Not Disclosed	Crescent Point Energy Corp.	\$280	nm	\$58,333
4/30/18	Comstock Resources Inc.	Arkoma Drilling LP	\$620	nm	\$44,444
4/27/18	Northern Oil and Gas, Inc.	Salt Creek Oil LLC	\$50	\$37,908	\$36,232
4/11/18	Vitesse Energy Llc, Vitesse Oil Llc	Not Disclosed	\$190	\$8,261	\$45,238
4/4/18	Petro-Hunt LLC	SM Energy Company	\$292	\$2,342	\$41,025
11/20/17	Not Disclosed	Earthstone Energy Inc.	\$27	\$4,576	\$26,445
10/23/17	Valorem Energy LLC	Linn Energy, Inc	\$285	\$14,250	\$35,625
9/20/17	Not Disclosed	Halcon Resources Corp	\$104	nm	\$45,435
<b>Median</b>			<b>\$128</b>	<b>\$8,847</b>	<b>\$44,472</b>
<b>Average</b>			<b>\$176</b>	<b>\$12,201</b>	<b>\$54,521</b>

Source: Shale Experts

\* Does not include every transaction in the Permian Basin for the last twelve months ended 9/30/2018

## Bakken Shale

### Market Valuations & Transaction Activity

#### Whiting Acquires 65,000 Acres from Oasis

One of the largest deals in the region over the last twelve months was Whiting Petroleum Corp.'s purchase of 65,000 acres from Oasis Petroleum Inc. in June for \$283 million. A *Seeking Alpha* contributor noted that this transaction is a “case of one company believing that it can achieve better results in an area that the other company considered lower quality acreage.” This is observed in Oasis' acceptance of a lower than average transaction price per acre, and Whiting's willingness to pay an above average price per flowing barrel.

#### US Energy Acquires 1,600 Acres from APEG

One of the smaller deals was US Energy Corp.'s acquisition of **1,600 acres from APEG Energy LP** (a related party) for \$18 million. US Energy and APEG Energy II, LP announced a strategic partnership in October 2017 in a **deleveraging transaction**. APEG Energy II is one of Angelus Capital's (a private equity firm headquartered in Austin, Texas) funds focused on acquiring domestic oil and gas assets. Since then, US Energy has focused on cleaning up its balance sheet to focus on producing oil assets. Recently, US Energy has been working to add assets that will immediately increase production in the Williston Basin and South Texas.

US Energy expects their most recent transaction “will create **additional opportunities for development and acreage swaps** that would permit the company to continue consolidating its leasehold position in the area.” US Energy paid \$44,500 per flowing barrel, which is in line with average production multiples paid in the region but is somewhat lower than those observed last year. Deal values last year may have been based on the expectation that production would increase in the future, inflating current multiples. Now that production has picked back up in the Bakken, deal multiples appear to have normalized somewhat.

## Bakken Shale

### Market Valuations & Transaction Activity

#### Strategic Deals Between Regional Operators

While there has been activity in the Permian dating back to the 1920s, production has increased significantly in recent years due to revolutions in shale. Somewhat ironically, the Bakken has been economical for shale oil longer than the Permian, meaning that many of its **sweetest spots** have already been drilled. However, this means operators in the Bakken have a competitive edge due to their significant experience in the region since the early 2000s. As Senior Beck, a senior director at Stata Advisors explained, “The Bakken’s maturity and production characteristics could lead to a **growth in consolidation** over the next few years.”

#### Acquisitions of Property by Non-Operators

Additionally, the prominence of activity of non-operators in the Bakken has increased. Private equity funds like Angelus Capital, single-family offices, and other providers of capital that see an opportunity in the Bakken are buying acreage and partnering with the best operators in order to realize superior returns on investment.

Combining these trends, Northern Oil and Gas Inc. is a non-operator who aims to be the Bakken’s “**natural consolidator.**” In July it completed its **largest acquisition yet** of 10,600 net acres for \$100 million cash plus approximately \$190 million of Northern Oil stock. Northern Oil is relying upon the superior abilities of longtime regional operators and the trend towards consolidation. However, it is also an example of a non-operator who has become more prominent in the last year.

The Bakken may have gone unnoticed for a couple years after the downturn in oil prices in 2014, but it may be rising back to prominence as **increases in efficiency and cost reductions** impress investors.

## Appendix A

## Selected Public Company Information

Mercer Capital tracks the performance of Exploration and Production companies across different mineral reserves in order to understand how the current pricing environment affects operators in each region. We created an index of seven groups to better understand performance trends across reserves and the industry. The current pricing multiples of each company in the index are summarized below.

						as of 9/12/2018	
Company Name	Ticker	9/12/2018 Enterprise Value	YOY % Change in EV	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*
<b>Global Integrated</b>							
Exxon Mobil Corp	XOM	\$396,058	3.84%	14.4%	10.5x	3,767	\$105,148
Royal Dutch Shell PLC	RDSA	\$337,066	30.47%	14.3%	6.8x	na	na
Chevron Corp	CVX	\$253,884	0.57%	19.1%	9.3x	2,861	\$88,747
Occidental Petroleum Corp	OXY	\$66,870	23.66%	45.7%	10.2x	676	\$98,973
BP PLC	BP	\$183,228	15.43%	11.1%	6.1x	3,618	\$50,643
<b>Group Median</b>			<b>15.43%</b>	<b>14.4%</b>	<b>9.3x</b>	<b>3,239</b>	<b>\$93,860</b>
<b>Global E&amp;P</b>							
Marathon Oil Corp	MRO	\$21,391	47.54%	60.0%	6.5x	415	\$51,570
Hess Corp	HES	\$24,968	29.51%	-32.7%	-12.9x	260	\$96,087
ConocoPhillips	COP	\$94,944	39.44%	39.5%	7.5x	1,234	\$76,965
Anadarko Petroleum Corp	APC	\$48,196	33.67%	52.1%	8.0x	681	\$70,722
Noble Energy Inc	NBL	\$21,209	9.68%	77.0%	6.2x	343	\$61,836
Apache Corp	APA	\$25,982	10.03%	68.3%	5.8x	473	\$54,877
Murphy Oil Corp	MUR	\$7,428	22.79%	63.4%	5.2x	168	\$44,225
<b>Group Median</b>			<b>29.51%</b>	<b>60.0%</b>	<b>6.2x</b>	<b>415</b>	<b>\$61,836</b>

Source: Bloomberg L.P.

- Price per Flowing Barrel is EV/ daily production (\$/boe/d)
- Companies included in the Guideline Group were selected from a broader guideline group, detailed [here](#). The selected companies' market caps exceed \$1 billion and revenues exceed \$500 million.
- Statoil (Norway's government owned oil company) changed its name to Equinor signaling its emergence as a broad energy company, not one just focused on oil. We have removed Statoil from our guideline group as its expansion into the broader energy market makes it less comparable to traditional E&P companies.

## Appendix A

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Company Name	Ticker	9/12/2018 Enterprise Value	YOY % Change in EV	EBITDAX Margin	EV/ EBITDAX	Daily Production (mboe/d)	Price per Flowing Barrel*	
<b>North American E&amp;P</b>								
Ultra Petroleum Corp	UPL	\$2,420	-24.73%	63.6%	4.3x	123	\$19,653	
Encana Corp	ECA	\$15,636	18.35%	34.9%	10.4x	379	\$41,288	
Devon Energy Corp	DVN	\$30,785	4.26%	19.5%	11.9x	537	\$57,291	
Enerplus Corp	ERF	\$3,139	30.04%	55.3%	6.9x	94	\$33,448	
QEP Resources Inc	QEP	\$5,086	38.12%	32.3%	9.3x	148	\$34,469	
WPX Energy Inc	WPX	\$9,818	44.39%	41.9%	15.9x	133	\$73,933	
EQT Corp	EQT	\$25,311	50.47%	7.1%	88.3x	682	\$37,119	
Chesapeake Energy Corp	CHK	\$15,165	0.02%	24.8%	6.3x	528	\$28,696	
Newfield Exploration Co	NFX	\$7,494	7.07%	59.9%	5.9x	194	\$38,651	
<b>Group Median</b>			<b>18.35%</b>	<b>34.9%</b>	<b>9.3x</b>	<b>194</b>	<b>\$37,119</b>	
<b>Bakken</b>								
Continental Resources Inc/OK	CLR	\$28,922	48.13%	73.1%	9.7x	296	\$97,716	
Whiting Petroleum Corp	WLL	\$7,134	46.71%	-9.5%	-42.7x	131	\$54,630	
Oasis Petroleum Inc	OAS	\$6,847	66.22%	31.5%	14.1x	86	\$79,453	
Crescent Point Energy Corp	CPG	\$6,444	-7.28%	61.0%	4.3x	173	\$37,284	
<b>Group Median</b>			<b>47.42%</b>	<b>46.2%</b>	<b>7.0x</b>	<b>152</b>	<b>\$67,042</b>	

Source: Bloomberg L.P.

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<b>Marcellus &amp; Utica</b>								
Range Resources Corp	RRC	\$8,058	-2.85%	23.3%	12.6x	372	\$21,688	
Cabot Oil & Gas Corp	COG	\$10,514	-20.24%	27.7%	22.0x	360	\$29,192	
Antero Resources Corp	AR	\$11,761	-3.55%	29.4%	10.4x	460	\$25,543	
Gulfport Energy Corp	GPOR	\$3,826	-6.15%	60.3%	4.8x	227	\$16,880	
Southwestern Energy Co	SWN	\$6,506	-15.17%	38.0%	5.1x	453	\$14,360	
<b>Group Median</b>			<b>-6.15%</b>	<b>29.4%</b>	<b>10.4x</b>	<b>372</b>	<b>\$21,688</b>	
<b>Permian Basin</b>								
Concho Resources Inc	CXO	\$30,395	57.71%	91.2%	10.8x	280	\$108,600	
Parsley Energy Inc	PE	\$10,840	25.41%	72.4%	11.1x	114	\$95,013	
Diamondback Energy Inc	FANG	\$14,119	34.77%	77.7%	11.1x	121	\$116,822	
Halcon Resources Corp	HK	\$1,296	-36.17%	221.0%	2.4x	16	\$82,806	
Laredo Petroleum Inc	LPI	\$2,856	-33.81%	48.5%	5.6x	70	\$40,959	
Pioneer Natural Resources Co	PXD	\$30,067	32.83%	28.9%	13.2x	319	\$94,294	
Cimarex Energy Co	XEC	\$9,580	-9.79%	61.6%	7.3x	215	\$44,610	
Energen Corp	EGN	\$8,296	44.49%	64.0%	10.2x	100	\$83,086	
<b>Group Median</b>			<b>29.12%</b>	<b>68.2%</b>	<b>10.5x</b>	<b>117</b>	<b>\$88,690</b>	

Source: Bloomberg L.P.

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<b>Eagle Ford</b>								
Carrizo Oil & Gas Inc	CRZO	\$3,967	56.93%	68.6%	6.5x	63	\$63,443	
SM Energy Co	SM	\$5,813	45.98%	65.6%	6.2x	126	\$46,265	
EOG Resources Inc	EOG	\$73,158	29.66%	43.1%	11.8x	735	\$99,557	
<b>Group Median</b>			<b>45.98%</b>	<b>65.6%</b>	<b>6.5x</b>	<b>126</b>	<b>\$63,443</b>	
<b>Overall Median</b>			<b>23.66%</b>	<b>45.7%</b>	<b>7.5x</b>	<b>288</b>	<b>\$54,753</b>	

Source: Bloomberg L.P.

- Price per Flowing Barrel is EV/ daily production (\$/boe/d)
- Companies included in the Guideline Group were selected from a broader guideline group, detailed [here](#). The selected companies' market caps exceed \$1 billion and revenues exceed \$500 million.
- Statoil (Norway's government owned oil company) changed its name to Equinor signaling its emergence as a broad energy company, not one just focused on oil. We have removed Statoil from our guideline group as its expansion into the broader energy market makes it less comparable to traditional E&P companies.

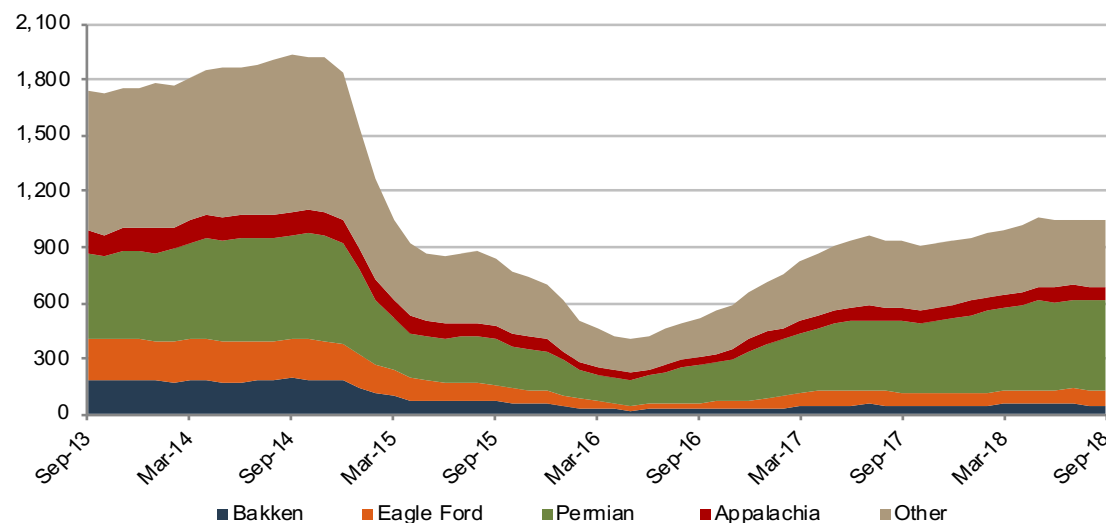
## Appendix B

# Rig Count

**Baker Hughes** collects and publishes information regarding active drilling rigs in the United States and internationally. The number of active rigs is a key indicator of demand for oilfield services & equipment. Factors influencing rig counts include energy prices, investment climate, technological changes, regulatory activity, weather, and seasonality.

The number of active rigs in the United States as of September 28, 2018, stood at 1,052, a 12.0% increase from September 29, 2017. The increase reflects a pickup in drilling activity from the increase of oil prices to over \$70/ bbl, enabling companies to increase drilling activities.<sup>2</sup> Activity increased in the Bakken with the number of active rigs increasing by 6.0% to 53 rigs in September 2018.

### Rig Count by Region



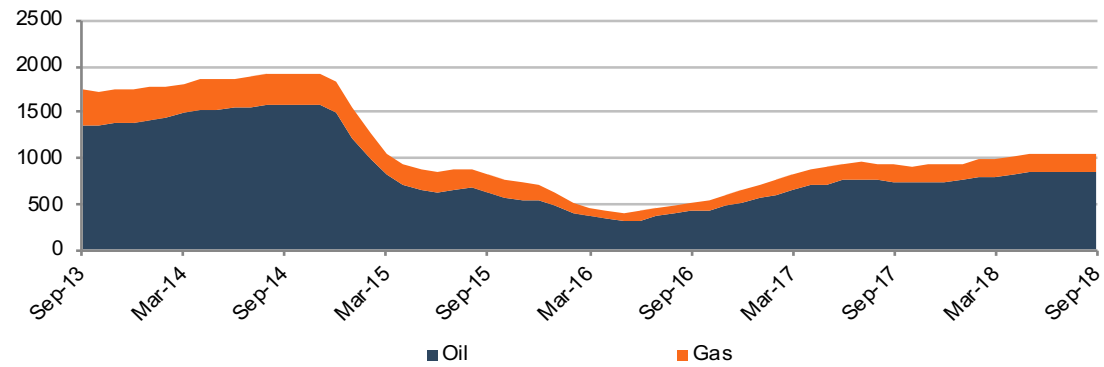
Source: Baker Hughes

<sup>2</sup> Data provided by Baker Hughes.

Appendix B

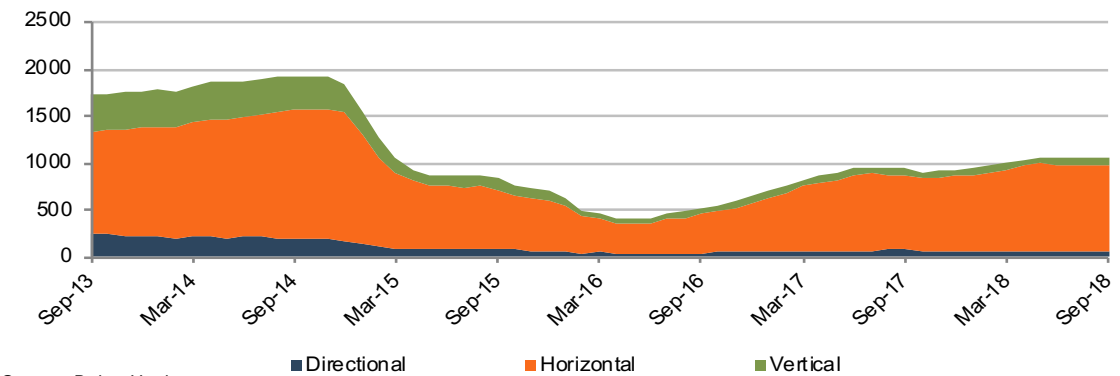
# Rig Count

**U.S. Rig Count by Oil vs. Natural Gas**



Source: Baker Hughes

**U.S. Rig Count by Trajectory**

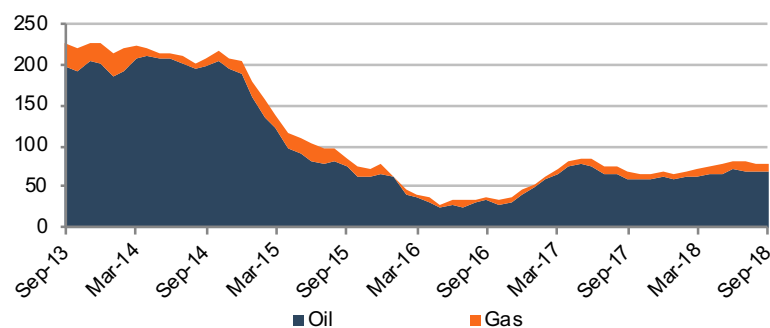


Source: Baker Hughes

Appendix B

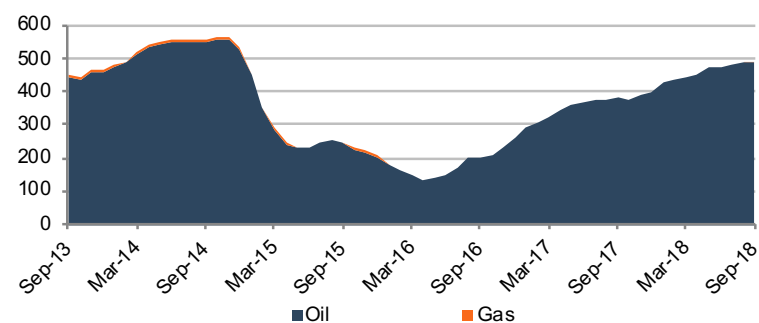
# Rig Count // Oil vs. Natural Gas

Eagle Ford Rig Count by Oil vs. Natural Gas



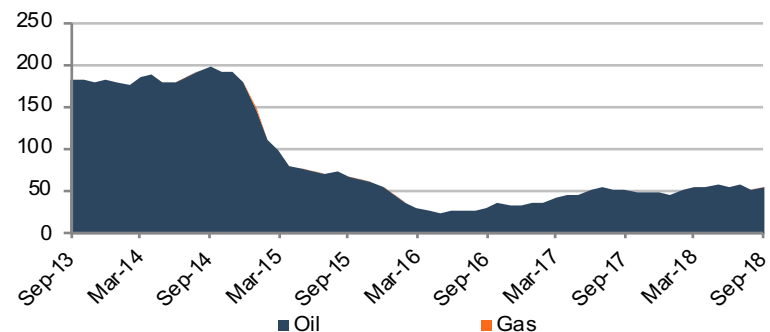
Source: Baker Hughes

Permian Rig Count by Oil vs. Natural Gas



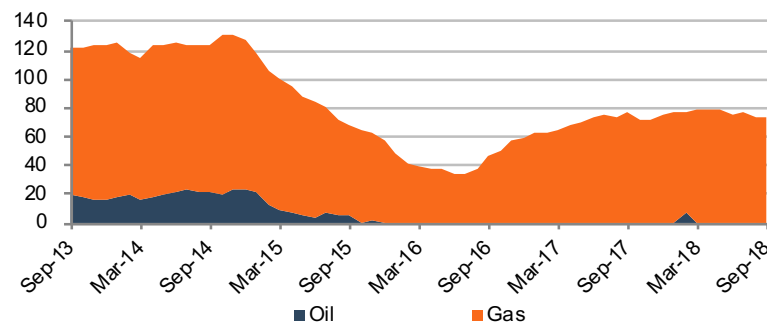
Source: Baker Hughes

Bakken Rig Count by Oil vs. Natural Gas



Source: Baker Hughes

Marcellus & Utica Rig Count by Oil vs. Natural Gas

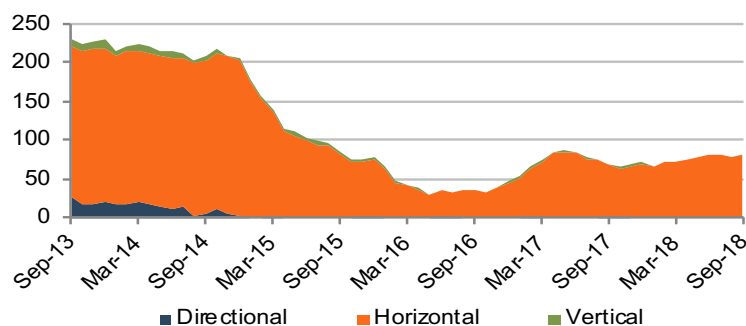


Source: Baker Hughes

## Appendix B

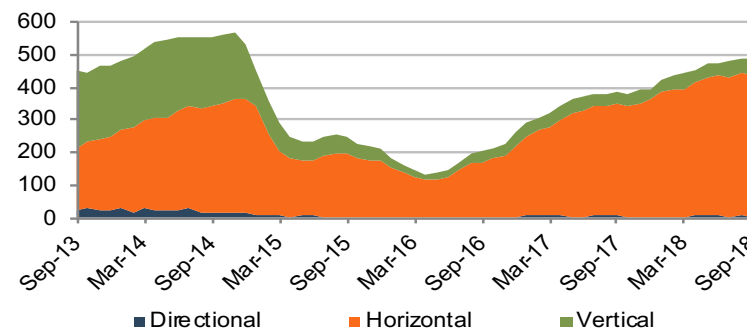
# Rig Count // Trajectory

**Eagle Ford Rig Count by Trajectory**



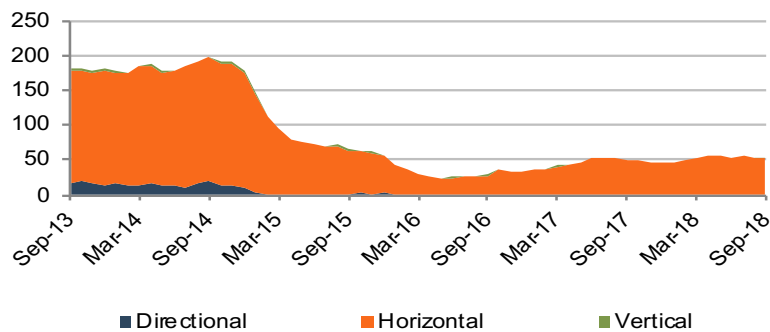
Source: Baker Hughes

**Permian Rig Count by Trajectory**



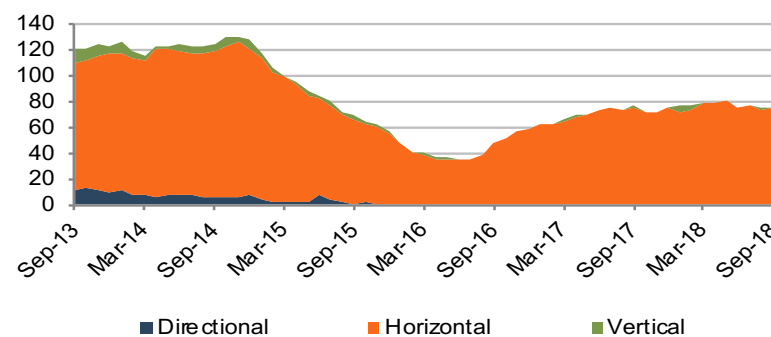
Source: Baker Hughes

**Bakken Rig Count by Trajectory**



Source: Baker Hughes

**Marcellus & Utica Rig Count by Trajectory**



Source: Baker Hughes



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