

VALUE FOCUS

Exploration & Production

Second Quarter 2017 // Region Focus: Permian Basin



Executive Summary

Although oil prices have increased over the last 12 months, they fell over the second quarter from \$50.54/bbl to \$46.02/bbl on June 30, 2017. Over the last couple of years many companies postponed exploration activities and cut capital projects to drill new wells because of the depressed oil prices. However, because oil prices have now settled around \$50/bbl, producers are working to cut costs and increase efficiency in this new oil price environment. Ongoing oil prices remain below normal levels, but exploration and production activities have recovered significantly from their low in May 2016. The Baker Hughes North American (U.S.) total oil rig count increased over 14% during the second quarter of 2017 and is up 124% over rig counts 12 months ago. Rig counts increased every week except one during 2017.

After instituting their first production cuts in eight years last quarter, OPEC and non-OPEC producers met in May, agreeing to extend production cuts for nine more months. OPEC's stated goal was keeping the price of oil above \$50 per barrel and aimed to bring stocks down to 2.7 billion barrels. Even if OPEC maintains production cuts, rising U.S. shale oil output is thought to temper the results of OPEC's reduction in supply.

As oil prices stabilized around \$50 per barrel, the number of oil and gas companies filing for bankruptcy declined. Fourteen oil and gas companies went bankrupt in the first half of the 2017 compared to 51 in the first half of 2016.

2017

Q1: Eagle Ford

Q2: Permian Basin

Q3: Bakken

Q4: Marcellus and Utica



Energy 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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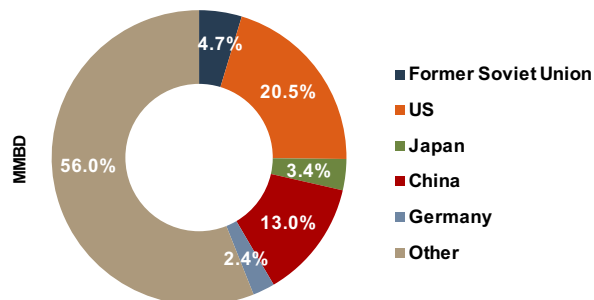
World Oil Demand

Crude Oil & Natural Gas

99.15
mboe/d

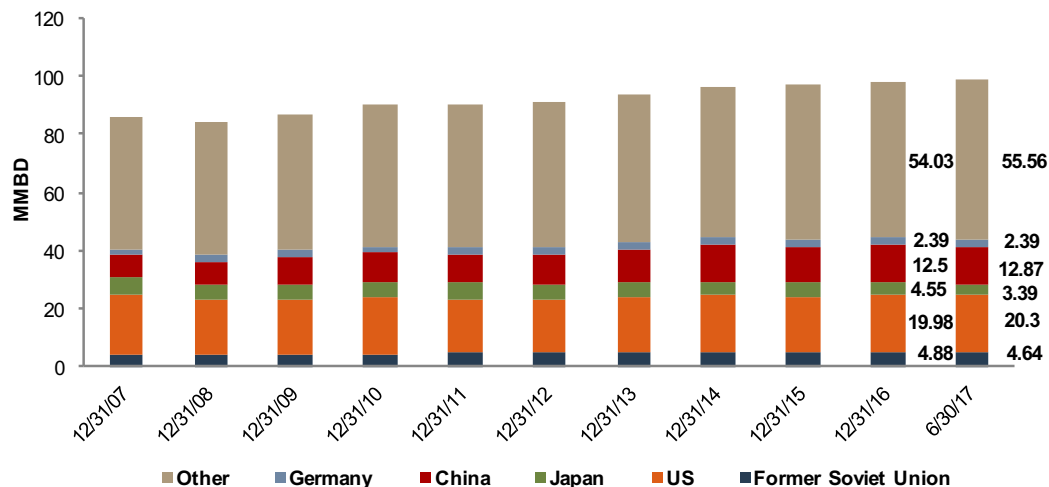
World Daily Consumption of Crude Oil and Liquid Fuels: June 2017

As of June 30, 2017, total world daily consumption equaled 99.15 million barrels per day.



Source: Bloomberg

World Daily Consumption of Crude Oil and Liquid Fuels



Source: Bloomberg

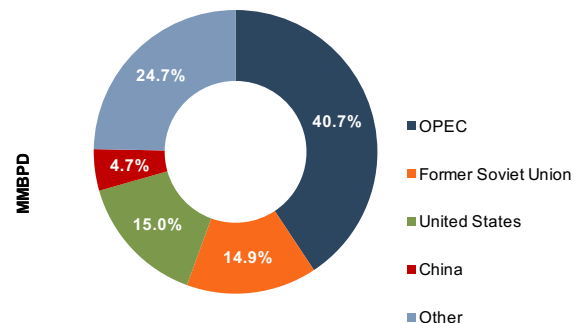
World Oil Supply

Crude Oil & Natural Gas

98.00
mboe/d

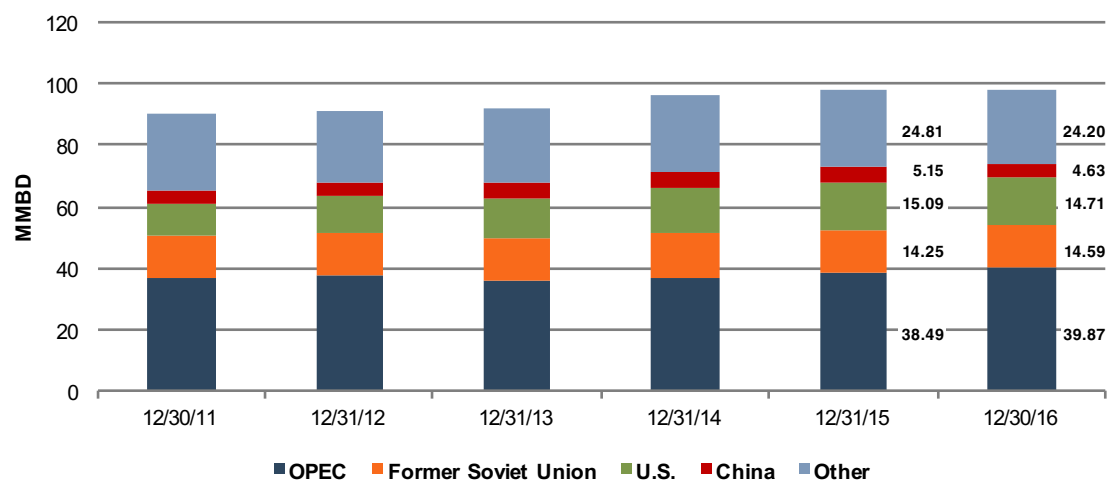
World Daily Production of Crude Oil: December 2016

As of December 31, 2016 (the most recent date available) world daily production totaled 98.00 million barrels per day.



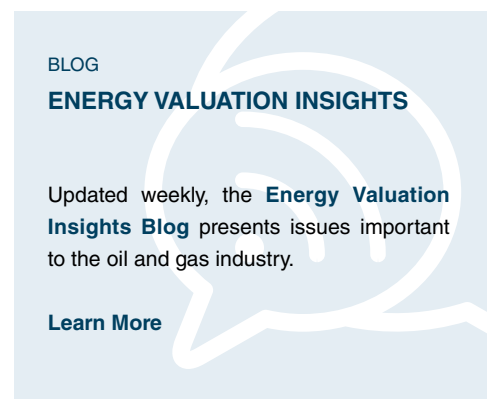
Source: Bloomberg

World Daily Production of Crude Oil



Source: Bloomberg

Regulation Overview



BLOG
ENERGY VALUATION INSIGHTS

Updated weekly, the **Energy Valuation Insights Blog** presents issues important to the oil and gas industry.

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The Oil and Gas industry is heavily regulated. The Environmental Protection Agency (EPA), the Federal Energy Regulatory Commissions (FERC), Bureau of Land Management (BLM), the Department of the Interior (DOI), and more regulate operations of the oil and gas industry. However, the Trump administration has continued efforts to roll back regulation as the year has progressed.

In 2016, the EPA and the Bureau of Land Management passed standards to cut down on methane emissions from the oil and gas sector. The Trump administration targeted these rules as part of their deregulatory agenda over the past quarter. In a surprise move in May, the **Senate blocked to repeal** a Bureau of Land Management (BLM) rule that would force oil and gas companies to limit methane that is burned at drilling sites, however the implementation of the BLM rule and a separate but similar **EPA rule have been delayed for two years**. Over the next two years, these regulations are expected to be targeted by the current administration in order to reduce the financial burden they have on oil and gas companies.

In the second quarter of 2017, President Donald Trump signed two executive orders that were aimed at boosting the energy industry. “Implementing an America-First Offshore Energy Strategy” immediately **revokes withdrawals of offshore areas** from oil/gas leasing and orders the review of existing leasing schedules and regulations related to offshore drilling. Another executive order demands a review of national monuments made since 1996 so that the land could be opened up for the further **development of the energy industry**. Both executive orders currently face legal challenges and may take years to implement.

Over the last quarter the Trump administration voiced its plans to establish a friendlier business environment for American Businesses. President Trump largely backed away from campaign promises to rewrite or eliminate the North American Free Trade Agreement (also known as NAFTA). Instead of seeking a full repeal, the Trump administration has shifted its focus to modernizing the trade deal. Commerce Secretary Wilbur Ross announced that **re-negotiating the North America Free Trade Agreement (NAFTA)** could continue into 2018. Energy infrastructure and markets in the United States are integrated with both Mexico and Canada, meaning that changes in NAFTA could **significantly impact the energy industry**. The energy industry is divided on whether these changes will have a negative or positive effect on the industry.

Tax reform is another legislative issue that has the potential to both help and hurt the industry. **A tax plan** is expected to be released in September, and a border adjustment tax (BAT) is among the options being considered. Per McKinsey, a BAT could result in a small but **positive impact** for refiners while the upstream sector could benefit from higher margins related to exports.

Permian Basin

Overview



The economics of oil and gas production varies 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 Permian Basin.

Although the Permian was discovered in the 1920s, the true potential of the Permian was not realized until 2007 when hydraulic fracturing techniques were used to access the tight sand layers of the play. For decades, wells have targeted conventional, permeable reservoir layers that trap oil and gas produced primarily in the shale layers. Recently developed enhanced extraction techniques have maintained these reservoirs' outputs. Since then the Permian has been revitalized as producers have begun using unconventional drilling techniques in addition to traditional vertical wells. Because the crude in the shale layers have only recently been explored, there are still tremendous reserves left. The Permian is the largest producer of oil and the second largest producer of gas, after the Marcellus. Companies that operate in the Permian do not have to choose between oil and gas but can diversify operations.

Because the Permian has been produced since the early 1900s, the easiest, cheapest oil and gas to extract from the Permian Basin was produced long ago, so many areas are not viable at low oil prices. However, the Permian still has some of the lowest break even prices compared to other reserves in the US. The Permian is a stacked play which means that multiple horizontal wells can be drilled from one main wellbore. This provides **increased productivity** as multilateral wells have greater drainage areas than single wellbore. Additionally, it can reduce overall drilling risk and cost. For deep reservoirs like the Permian, a multilateral well eliminates the cost of drilling the total depth twice. Break even prices in the Permian as of June 2017 vary from \$40 in the Delaware Basin to \$51 in the Midland Basin according to Bloomberg Intelligence.

Permian Basin

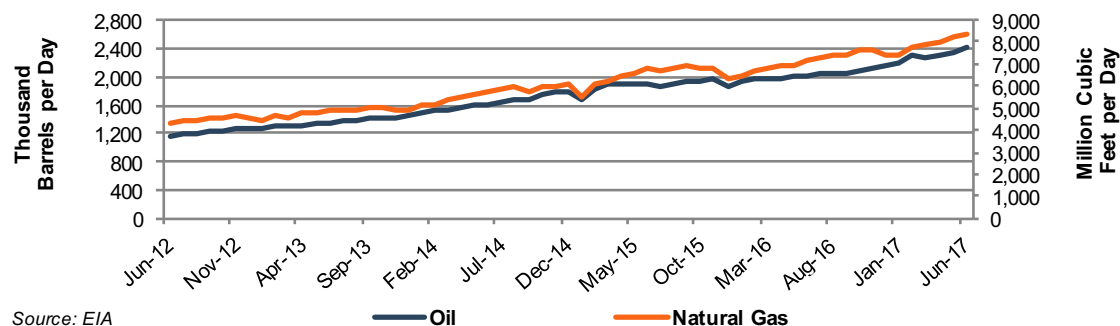
Production

The EIA estimates of total production as the sum of new production from recently drilled wells and legacy production from existing wells. Legacy productions trends are dominated by depletion rates. However, over the last year the change in legacy production, although negative, has decreased.

Production of oil and natural gas in the Permian Basin has increased at a compound annual rate of 15.6% and 14.0%, respectively over the last five years. Currently nearly 25% of the US' crude and 10% of the country's natural gas is coming from the Permian Basin (*calculations based on montly crude oil and gas production and [EIA drilling report by region](#)*). On average, production per rig for both oil and natural gas in the Permian lags the Eagle Ford and Bakken region. However, **rig counts** in the Permian outnumbered other regions by almost 4 times in the Eagle Ford and more than seven times in the Bakken and Marcellus. The top producers in the Permian include Occidental Petroleum Corp, Pioneer Natural Resources Co, Chevron Corp., and Apache Corp.

Production in the Permian increased faster than many other regions because the area has lower breakeven prices than other regions. After the collapse of oil prices in 2014, many companies moved operations to the Permian where they could afford to drill at such low prices. Since the collapse of oil prices in June 2014, the Permian has seen a 15% annual increase in production compared to a 3% decline in the Eagle Ford.

Total Oil and Gas Production in the Permian Basin



Permian Basin

Guideline Public Company Valuation Multiples

As shown in Appendix B, valuation multiples for companies focused in the Permian are higher than Companies operating in other domestic plays. Many companies are moving out of other regions and relocating to the Permian which is thought to have better upside potential.

Valuation multiples in the Permian peaked at the end of 2016 and have since begun to normalize. Since multiples reached \$136/boe as of September 2016, multiples have decreased as enterprise values for companies operating in the Permian increased by 4% (median measure) while production increased by 16%.

M&A Transaction Activity

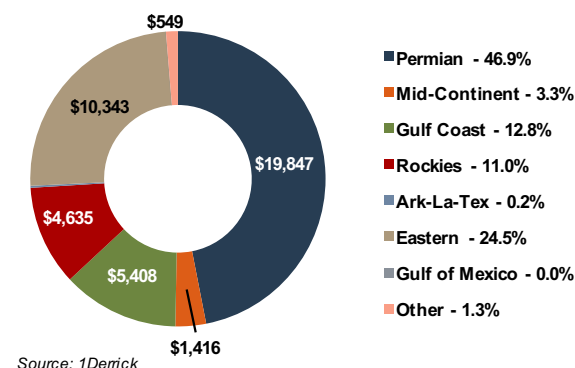
M&A activity in the E&P sector has generated approximately \$42 billion over the past six months. The Permian Basin still remains the most active play for M&A activity in the US with almost 50% of deal value derived from the play.

According to 1Derrick there were 157 E&P mergers and acquisitions in the Permian Basin generating almost \$20 billion in deal value. Acreage multiples in the Permian are much higher than average multiples seen in other regions of the US but were fairly consistent across deals, although the Midland Basin had somewhat higher multiples than the Delaware Basin. The high production multiples displayed by three of the above transactions tell an interesting story about the current economics of the Permian Basin.

Marathon's purchase of Black Mountain's acreage, Parsley's purchase of BTA's acreage, and QEP's purchase of Jim Cox Resources acreage all resulted in deal values equal to over \$1 million per daily barrel of oil produced. These multiples beg for an explanation. It seems that these companies were paying for something other than current production; rather they were likely paying for proven undeveloped reserves (PUDs) which they will develop once the price of oil rises and production becomes more economical.

U.S. Announced Deal Value (as of 6/30/2017)

(in \$millions)



M&A Transaction Activity (continued)

The sheer quantity of available oil has been one of the major deal drivers in the Permian Basin over the last year. Marathon Oil's President and CEO Lee Tillman in reference to the transaction mentioned above said, "This bolt-on achieves the scale necessary for efficient long-term development in the basin." This year Marathon plans to add two additional wells, but it should be expected that as the oil price environment improves, the acreage that many companies are paying premiums for now will start paying off as they drill new wells to increase their production.

Permian Transactions

Announced Date	Buyer	Seller	Deal Value (\$MM)	\$ / Acre	\$ / Boepd
Midland Basin					
7/27/16	Four Corners Petroleum II, LLC	Whiting Petroleum Corp.	\$300	na	34,884
8/15/16	Parsley Energy Inc.	BTA Oil Producer LLC	400	43,764	1,481,481
8/15/16	Concho Resources, Inc.	Reliance Energy Inc	1,625	40,625	162,500
9/6/16	Callon Petroleum Co.	Plymouth Exploration LLC, Element Petroleum III	340	57,124	147,826
10/18/16	SM Energy Company	QStar, LLC	1,600	44,818	666,667
1/24/17	Lario Oil & Gas	Trail Ridge Energy Partners II LLC	345	34,500	186,486
1/31/17	Guidon Energy	PrimeEnergy Corp.	31	19,313	8,583
2/8/17	Parsley Energy Inc.	Double Eagle Energy Permian LLC	2,800	39,437	na
2/20/17	Not Disclosed	Pioneer Natural Resources Co.	63	11,250	na
3/15/17	PetroLegacy Energy II, LLC	Pioneer Natural Resources Co.	266	13,300	177,333
4/3/17	Occidental Petroleum Corp	Vanguard Natural Resources, Llc	78	26,000	na
7/27/17	QEP Resources, Inc.	Jm Cox Resources Lp	732	53,043	1,152,756
8/3/17	Concho Resources, Inc.	Apache Corp	600	48,387	200,000
Median			\$345	\$40,031	\$181,910
Average			\$706	\$35,963	\$421,852

Source: Shale Experts

* Does not include all transactions in the Permian for the last twelve months ended 6/30/2017

Permian Transactions (continued)

Announced Date	Buyer	Seller	Deal Value (\$MM)	\$ / Acre	\$ / Boepd
Delaware Basin					
7/13/16	Diamondback Energy, Inc.	Luxe Energy Llc	\$560	29,197	560,000
10/3/16	Not Disclosed	Marathon Oil Corp	235	na	58,750
10/5/16	Resolute Energy Corp	Firewheel Energy Llc	135	40,996	112,500
11/1/16	Occidental Petroleum Corp	Patriot Resourcs, Samson Exploration, J Cleo Thompson	2,000	57,143	181,818
11/21/16	Concho Resources, Inc.	Endurance Resources Llc	430	26,220	172,000
11/28/16	Centennial Resources Development	Silverback Exploration LLC	855	24,293	244,286
12/13/16	Callon Petroleum Co.	American Resource Development LLC	633	37,904	423,411
12/15/16	Diamondback Energy, Inc.	Brigham Resources, LLC	2,550	33,412	268,931
1/4/17	PDC Energy, Inc.	Fortuna Resources Holdings, LLC	118	26,222	393,333
1/10/17	Parsley Energy Inc.	Apache Corp	205	39,423	186,364
1/12/17	WPX Energy, Inc.	Carrier Energy Partners, Panther Energy Company II, LLC	775	42,818	119,231
1/25/17	Halcon Resources Corp	Samson Exploration LLC	74	11,000	na
1/25/17	Halcon Resources Corp	Samson Exploration LLC	705	33,979	271,154
3/3/17	Resolute Energy Corp	CPX II Operating LLC	160	34,783	200,000
3/9/17	Marathon Oil Corp	BC Operating Inc	1,100	15,714	220,000
3/21/17	Marathon Oil Corp	Black Mountain Oil & Gas LLC	700	33,333	1,750,000
5/1/17	Centennial Resources Development	Gmt Exploration Llc	350	29,511	166,667
8/7/17	RSP Permian Inc.	Not Disclosed	228	38,000	456,000
Median			\$495	\$33,412	\$220,000
Average			\$681	\$32,250	\$360,942
Permian Basin					
6/19/17	Occidental Petroleum Corp	Hess Corp	\$600	na	73,171
Median			\$430	\$34,240	\$186,486
Average			\$689	\$33,840	\$356,301

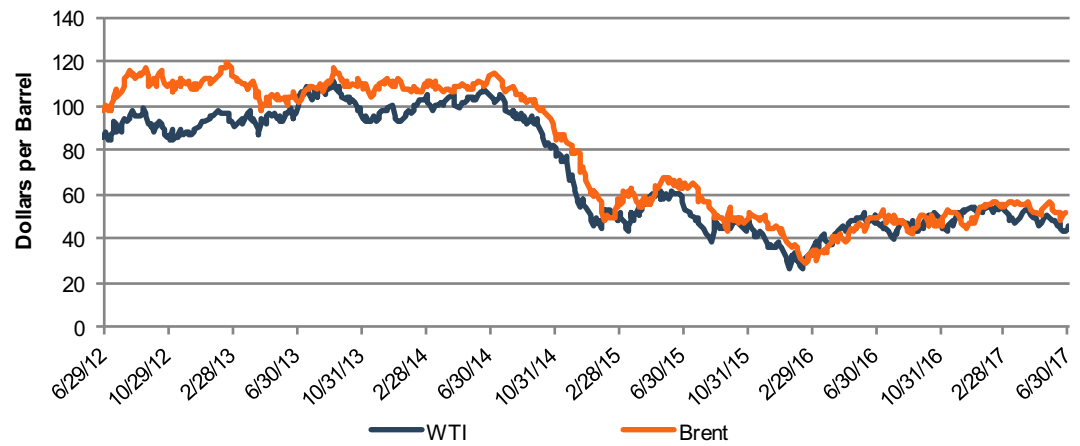
Source: Shale Experts

* Does not include all transactions in the Permian for the last twelve months ended 6/30/2017

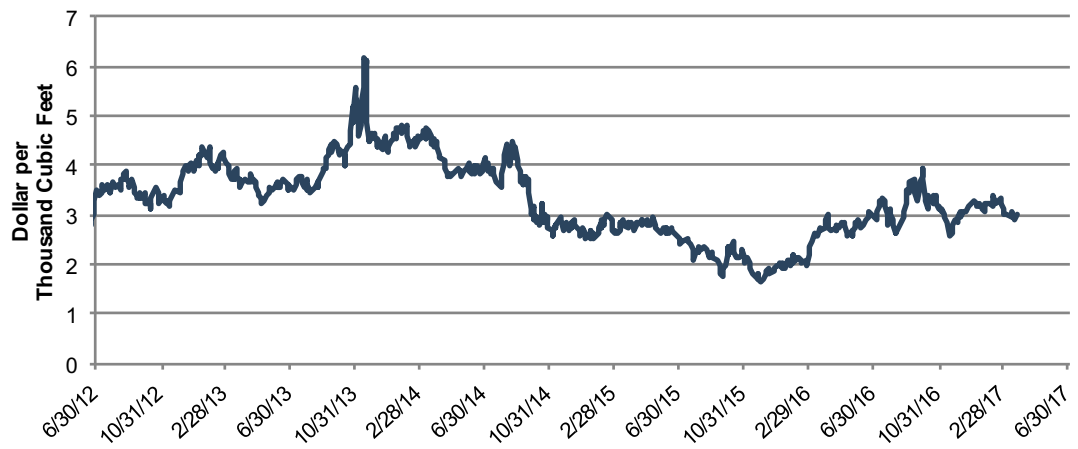
Appendix A

Commodity Prices

Crude Oil Spot Prices



Henry Hub Natural Gas Spot Price



Appendix B

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 which we follow in order to better understand performance trends across reserves and across the industry. The current pricing multiples of each company in the index is summarized below.

as of 6/30/2017									
Company Name	Ticker	LTM		EBITDAX Margin	Daily Production (MBOE/D)	Enterprise Value (\$MM)	YOY Change in EV	EV/ EBITDAX	EV/ Total Production
		Revenues (\$MM)	EBITDAX (\$MM)						
Global Integrated									
Exxon-XTO	XOM	215,287	29,144	13.5%	4,034	386,627	-11.1%	13x	95,834x
Statoil	STO	55,118	18,869	34.2%	1,956	64,851	-7.8%	3x	33,155x
Shell	RDS/A	270,549	38,401	14.2%	na	290,905	-2.8%	8x	na
Chevron	CVX	116,785	19,644	16.8%	2,731	236,934	0.9%	12x	86,747x
Occidental Petroleum Co.	OXY	11,453	4,153	36.3%	614	53,382	-14.3%	13x	86,905x
BP	BP	210,428	23,496	11.2%	na	155,105	7.4%	7x	na
Average		146,603	22,285	21.0%	2,334	197,967	-4.6%	9x	75,660x
Median		163,607	21,570	15.5%	2,344	196,019	-5.3%	10x	86,826x

Presented in \$000,000s, as of 6/30/2017
Source: Bloomberg L.P.

Notes on Select Public Companies

- Atlas Resources filed for bankruptcy in July 2016.
- Arsenal Energy and Lone Pine Resources combined to form Prairie Provident Resources.
- Lucas Energy was renamed Camber Energy (CEI) and moved its focus to the Permian Basin.
- Ultra Petroleum filed for Chapter 11 on April 29, 2016 and is still working to get out of bankruptcy.
- Swift Energy emerged from bankruptcy on April 25, 2016.
- In December 2016, Stone Energy filed for bankruptcy.
- Vanguard filed for Bankruptcy in February 2017.
- USEG is trading at below \$1 per share.
- In the fourth quarter of 2016, Earthstone Energy shifted their focus to the Permian Basin.
- Clayton Williams Energy was acquired by Nobel Energy in April 2017 (we added Noble Energy to our group of global E&P companies).
- Stone Energy filed for bankruptcy in December 2016 and emerged midway through Q1 2017.
- Sanchez Energy sold \$200 million in non-core assets located in the eastern portion of the Eagle Ford in 4Q 2016 in order to focus operations in the southern section of the Eagle Ford.

Appendix B

Selected Public Company Information

as of 6/30/2017

Company Name	Ticker	LTM		EBITDAX Margin	Daily Production (MBOE/D)	Enterprise Value (\$MM)	YOY Change in EV	EV/EBITDAX	EV/Total Production
		Revenues (\$MM)	EBITDAX (\$MM)						
Global E&P									
Marathon Oil	MRO	4,343	2,190	50.4%	362	14,721	-15.5%	7x	40,680x
Hess	HES	5,058	1,590	31.4%	314	20,061	-16.8%	13x	63,890x
ConocoPhillips Co.	COP	27,523	4,298	15.6%	1,183	67,797	-14.0%	16x	57,334x
Anadarko Petroleum Corp.	APC	10,878	5,161	47.4%	656	38,062	-15.0%	7x	58,019x
Noble Energy	NBL	4,133	274	6.6%	375	20,886	-5.7%	76x	55,705x
Apache Corp.	APA	5,826	2,841	48.8%	497	26,412	-12.4%	9x	53,182x
Murphy Oil	MUR	1,988	1,287	64.7%	166	6,260	-17.0%	5x	37,790x
Newfield Exploration	NFX	1,716	918	53.5%	158	7,554	-31.5%	8x	47,875x
Average		7,683	2,320	39.8%	464	25,219	-16.0%	18x	51,809x
Median		4,701	1,890	48.1%	368	20,473	-15.2%	9x	54,443x

Presented in \$000,000s, as of 6/30/2017
Source: Bloomberg L.P.

Appendix B

Selected Public Company Information

as of 6/30/2017

Company Name	Ticker	LTM		EBITDAX Margin	Daily Production (MBOE/D)	Enterprise Value (\$MM)	YOY Change in EV	EV/EBITDAX	EV/Total Production
		Revenues (\$MM)	EBITDAX (\$MM)						
Other North American E&P									
Legacy Reserves	LGCY	398	106	26.6%	43	1,522	0.0%	14x	35,518x
EXCO Resources	XCO	303	nm	nm	na	1,233	-25.9%	nm	na
EV Energy Partners	EVEP	233	(114)	-48.9%	28	631	-13.7%	nm	22,463x
Encana Corp.	ECA	4,181	1,640	39.2%	309	12,404	3.0%	8x	40,162x
Devon	DVN	12,108	4,878	40.3%	557	29,427	-13.6%	6x	52,846x
Contango Oil & Gas	MCF	80	nm	nm	10	241	-31.2%	nm	24,466x
Bill Barrett Corp	BBG	250	147	58.8%	18	748	-21.0%	5x	42,486x
Denbury Resources Inc	DNR	963	(391)	-40.6%	61	3,749	-13.6%	nm	61,239x
Bonanza Creek Energy Inc	BCEI	200	21	10.7%	18	591	na	28x	33,015x
Enerplus	ERF	669	560	83.7%	83	2,203	4.9%	4x	26,472x
QEP Resources Inc	SXL	1,596	680	42.6%	164	4,273	-20.6%	6x	26,069x
Abraxas Petroleum Corp.	AXAS	66	26	38.9%	9	300	19.1%	12x	33,926x
WPX Energy	WPX	1,111	423	38.1%	115	6,674	29.4%	16x	57,832x
EQT	EQT	2,546	1,674	65.8%	394	16,218	-5.2%	10x	41,176x
Chesapeake Energy	CHK	9,035	(173)	-1.9%	558	16,278	2.4%	nm	29,168x
Matador Resources	MTDR	413	231	55.8%	37	2,656	20.8%	12x	72,702x
Comstock Resources	CRK	214	nm	nm	41	1,144	1.3%	nm	28,159x
Average		2,022	693	29.2%	153	5,900	-4.0%	11x	39,231x
Median		413	189	39.0%	52	2,203	-2.6%	10x	34,722x

Presented in \$000,000s, as of 6/30/2017

Source: Bloomberg L.P.

Appendix B

Selected Public Company Information

Focused E&P Companies (>50% of Production in region)

as of 6/30/2017

Company Name	Ticker	LTM		EBITDAX Margin	Daily Production (MBOE/D)	Enterprise Value (\$MM)	YOY Change in EV	EV/ EBITDAX	EV/ Total Production
		Revenues (\$MM)	EBITDAX (\$MM)						
Bakken									
Continental Resources	CLR	2,393	1,697	70.9%	240	18,669	-22.5%	11x	77,644x
Whiting Petroleum Corp	WLL	1,341	539	40.2%	128	5,250	-27.9%	10x	41,012x
Halcon Resources Corp	HK	550	(169)	-30.7%	40	1,770	na	nm	44,711x
Oasis Petro	OAS	944	495	52.4%	68	4,260	11.9%	9x	62,197x
Crescent Point Energy	CPG	2,751	1,703	61.9%	170	7,268	-35.4%	4x	42,650x
Average		1,596	853	38.9%	129	7,443	-18.5%	8x	53,643x
Median		1,341	539	52.4%	128	5,250	-25.2%	9x	44,711x
Marcellus & Utica									
Range Resources	RRC	2,164	1,237	57.2%	354	9,585	-3.1%	8x	27,047x
Cabot Oil and Gas	COG	1,575	383	24.3%	317	12,680	-2.4%	33x	40,021x
Rice	RICE	1,350	755	55.9%	231	9,233	70.5%	12x	40,000x
REX Energy Corp	REXX	185	nm	nm	34	709	-18.0%	nm	20,594x
Antero Resources Corp	AR	3,208	1,792	55.9%	395	12,710	-5.7%	7x	32,166x
Eclipse Resources Corp.	ECR	334	144	43.1%	56	1,148	-8.0%	8x	20,448x
Gulfport Energy	GPOR	914	249	27.2%	195	4,382	-2.1%	18x	22,528x
Southwestern Energy Co	SWN	3,001	275	9.2%	425	7,812	-38.4%	28x	18,367x
Average		1,591	691	39.0%	251	7,282	-0.9%	16x	27,647x
Median		1,463	383	43.1%	274	8,523	-4.4%	12x	24,788x

Presented in \$000,000s, as of 6/30/2017
Source: Bloomberg L.P.

Appendix B

Selected Public Company Information

Focused E&P Companies (>50% of Production in region)

as of 6/30/2017

Company Name	Ticker	LTM		EBITDAX Margin	Daily Production (MBOE/D)	Enterprise Value (\$MM)	YOY Change in EV	EV/ EBITDAX	EV/ Total Production
		Revenues (\$MM)	EBITDAX (\$MM)						
Permian Basin									
Concho	CXO	2,429	2,484	102.3%	194	20,116	8.5%	8x	103,756x
Callon Petroleum Co	CPE	292	189	64.8%	25	2,662	42.0%	14x	105,874x
Parsley Energy	PEIX	716	499	69.6%	74	10,996	94.2%	22x	147,706x
Diamondback Energy	FANG	831	572	68.8%	80	10,319	46.5%	18x	129,670x
Earthstone Energy, Inc.	ESTE	67	nm	nm	10	1,087	365.2%	nm	111,891x
RSP Permian Inc	RSPP	568	nm	nm	60	6,275	49.4%	nm	104,631x
Laredo Petroleum Inc.	LPI	810	409	50.5%	60	3,906	5.3%	10x	65,197x
Approach Resources Inc	AREX	102	51	50.2%	12	661	12.7%	13x	54,370x
Ring Energy	REI	44	12	26.0%	5	627	73.6%	54x	127,342x
Pioneer Natural Resources Co.	PXD	5,262	1,854	35.2%	282	27,680	6.9%	15x	98,167x
Cimarex Energy Co.	XEC	1,616	871	53.9%	190	9,908	-18.5%	11x	52,060x
Energen Corp	EGN	697	581	83.3%	75	5,474	11.2%	9x	73,160x
Average		1,120	752	60.5%	89	8,309	58.1%	17x	97,819x
Median		707	535	59.3%	67	5,874	27.4%	13x	104,193x

Presented in \$000,000s, as of 6/30/2017
Source: Bloomberg L.P.

Appendix B

Selected Public Company Information

Focused E&P Companies (>50% of Production in region)

as of 6/30/2017

Company Name	Ticker	LTM		EBITDAX Margin	Daily Production (MBOE/D)	Enterprise Value (\$MM)	YOY Change in EV	EV/ EBITDAX	EV/ Total Production
		Revenues (\$MM)	EBITDAX (\$MM)						
Eagle Ford									
Carrizo Oil & Gas Inc.	CRZO	615	293	47.7%	56	2,938	-13.7%	10x	52,774x
Baytex Energy	BTE	779	19	2.4%	69	1,943	-26.9%	104x	27,993x
Sanchez Energy	SN	598	170	28.4%	89	2,857	35.2%	17x	32,111x
SM Energy (St. Mary Land & Exploration)	SM	1,300	435	33.4%	119	4,182	-5.8%	10x	35,185x
EOG Resources	EOG	9,543	3,547	37.2%	611	57,592	10.5%	16x	94,255x
Average		2,567	893	29.8%	189	13,902	-0.1%	31x	48,464x
Median		779	293	33.4%	89	2,938	-5.8%	16x	35,185x

Presented in \$000,000s, as of 6/30/2017
Source: Bloomberg L.P.

Appendix B

Selected Public Company Information

Focused E&P Companies (>50% of Production in region)

as of 6/30/2017

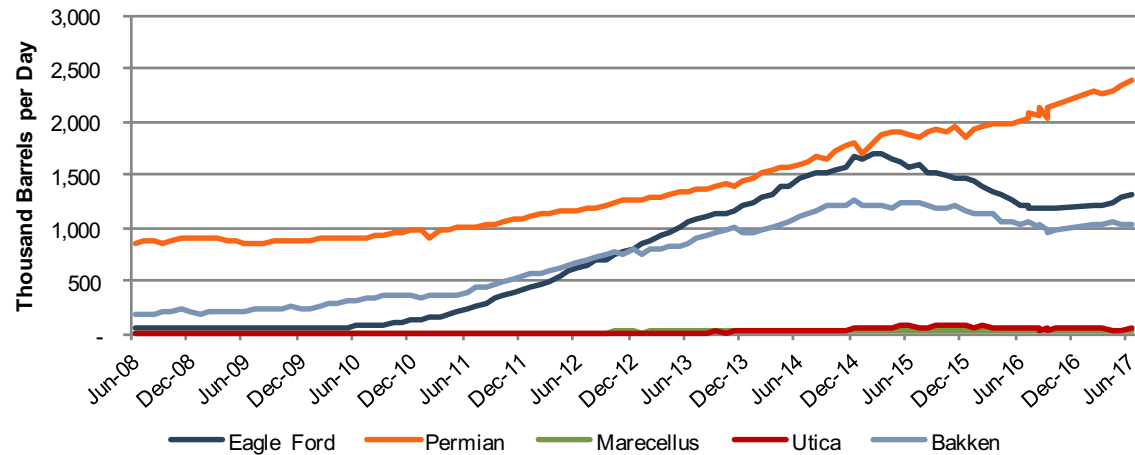
Company Name	Ticker	LTM		EBITDAX Margin	Daily Production (MBOE/D)	Enterprise Value (\$MM)	YOY Change in EV	EV/ EBITDAX	EV/ Total Production
		Revenues (\$MM)	EBITDAX (\$MM)						
Focused E&P									
Average		1,515	668	41.0%	147	8,207	25.8%	20x	63,243x
Median		821	435	43.1%	77	4,816	6.9%	13x	48,386x
E&P									
Average		2,651	970	37.1%	199	10,107	9.3%	17x	53,730x
Median		944	495	40.3%	102	5,250	-5.2%	12x	42,568x
All									
Average		17,804	3,477	35.2%	358	29,881	7.8%	16x	55,354x
Median		1,300	560	38.9%	123	6,275	-5.2%	12x	43,681x

Presented in \$000,000s, as of 6/30/2017
Source: Bloomberg L.P.

Appendix C

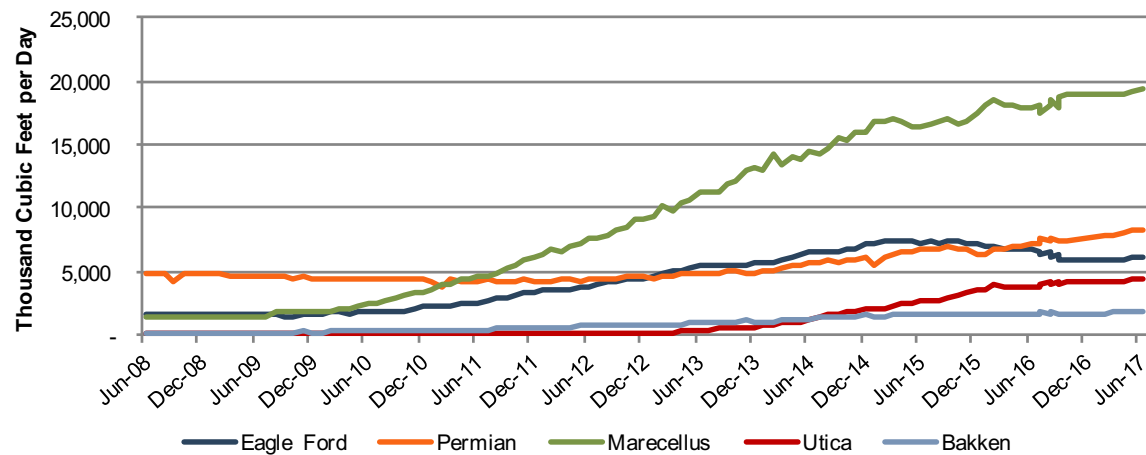
Production by Region

Crude Oil Production



Source: EIA

Natural Gas Production

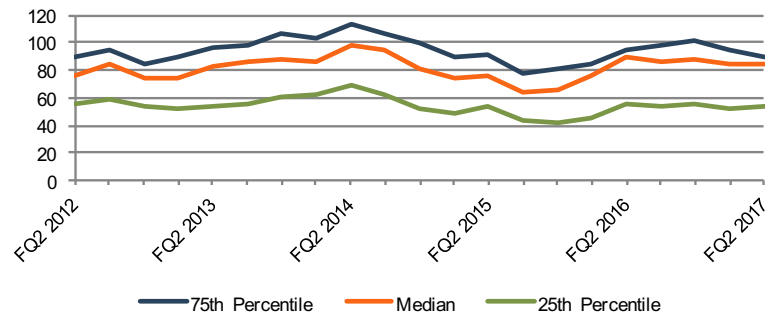


Source: EIA

Appendix D

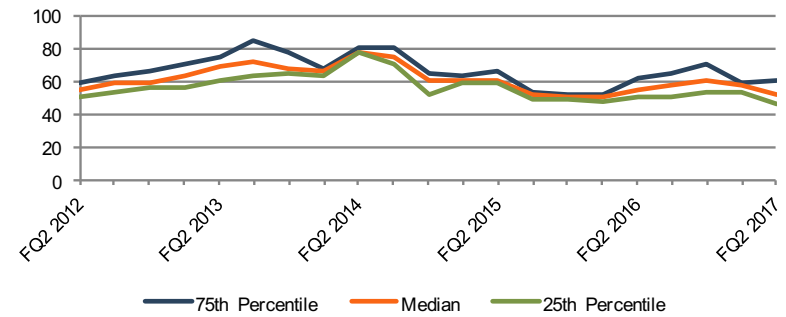
Historical Valuations

Global Integrated EV/Total Production



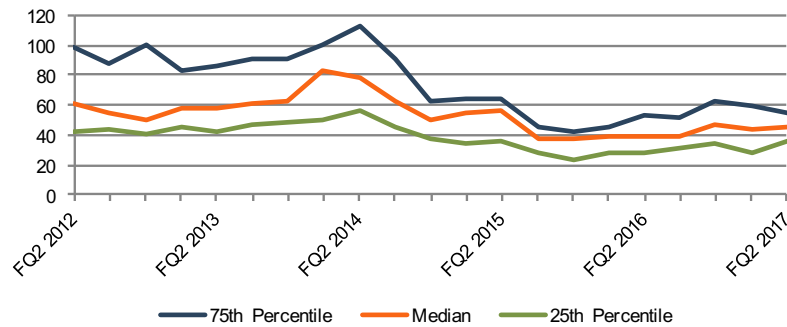
Source: Bloomberg L.P.

Global E&P EV/Total Production



Source: Bloomberg L.P.

North American E&P EV/Total Production

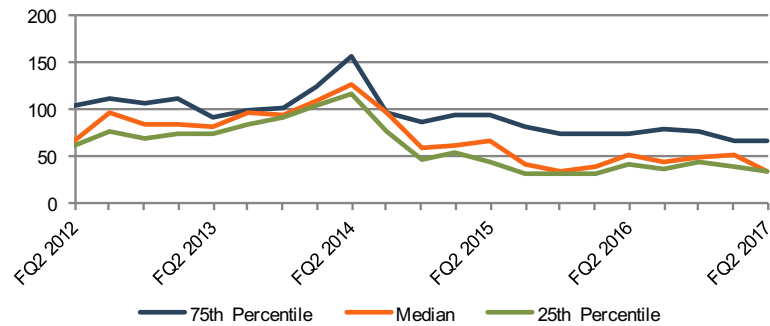


Source: Bloomberg L.P.

Appendix D

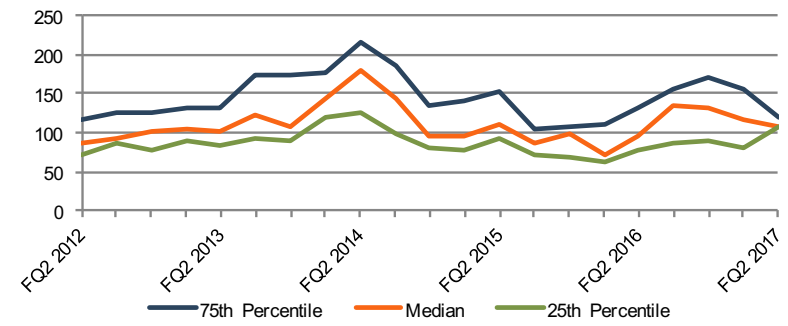
Historical Valuations

Eagle Ford EV/Total Production



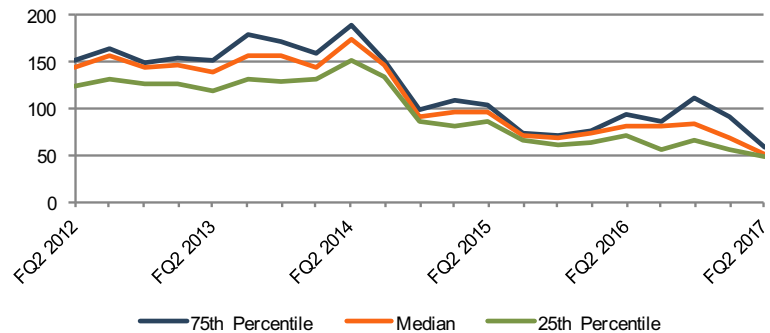
Source: Bloomberg L.P.

Permian Rig EV/Total Production



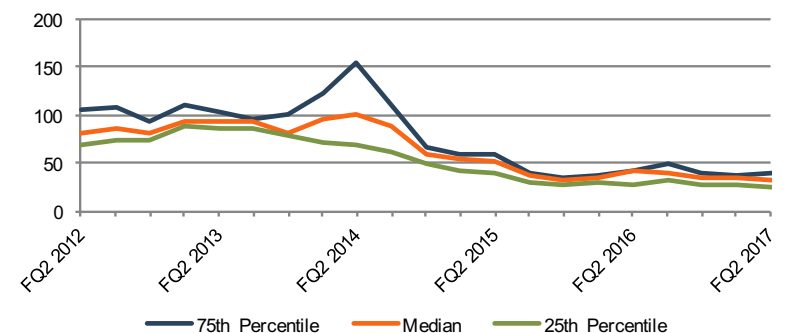
Source: Bloomberg L.P.

Bakken Rig EV/Total Production



Source: Bloomberg L.P.

Marcellus & Utica EV/Total Production

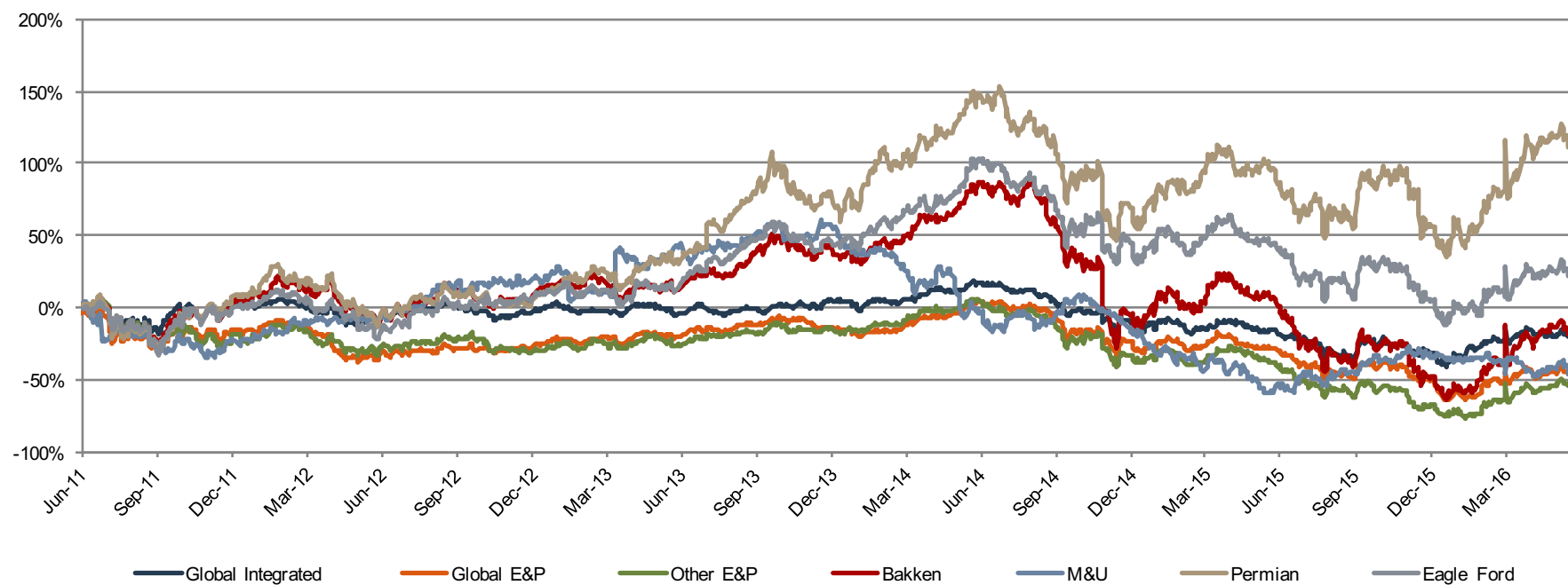


Source: Bloomberg L.P.

Appendix E

Stock Performance

Mercer Capital's Energy Indices Stock Performance



Source: Bloomberg

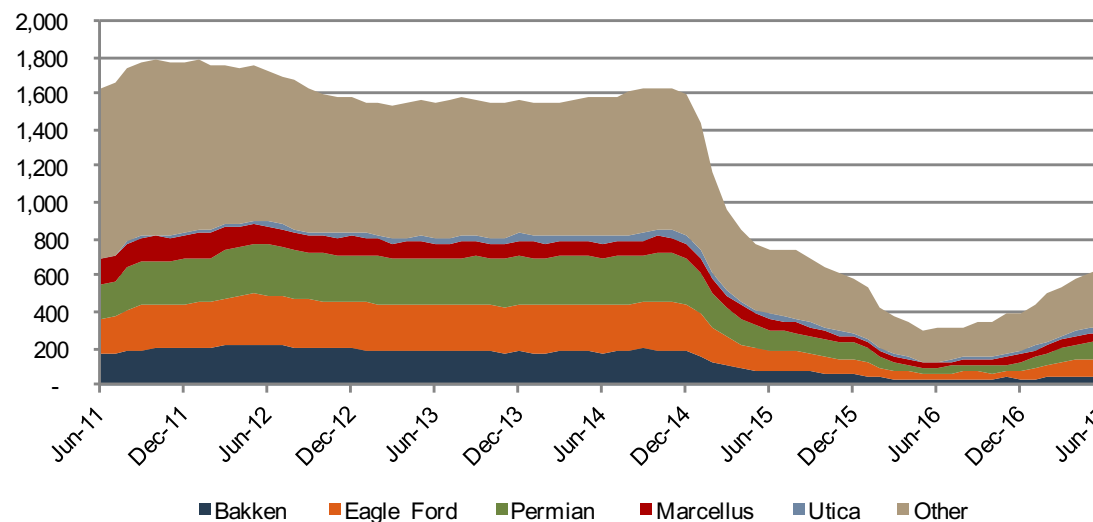
Appendix F

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 June 30, 2017, stood at 916, a 6% increase from June 2015, and a 120% increase from the same period in 2016. The increase reflects a pickup in drilling activity from the stabilization of oil prices around \$50/bbl, enabling companies to increase drilling activities. The Permian remains the most active play for drilling, more than tripling the Eagle Ford which is the second most active region in terms of drilling activity.

Rig Count by Region

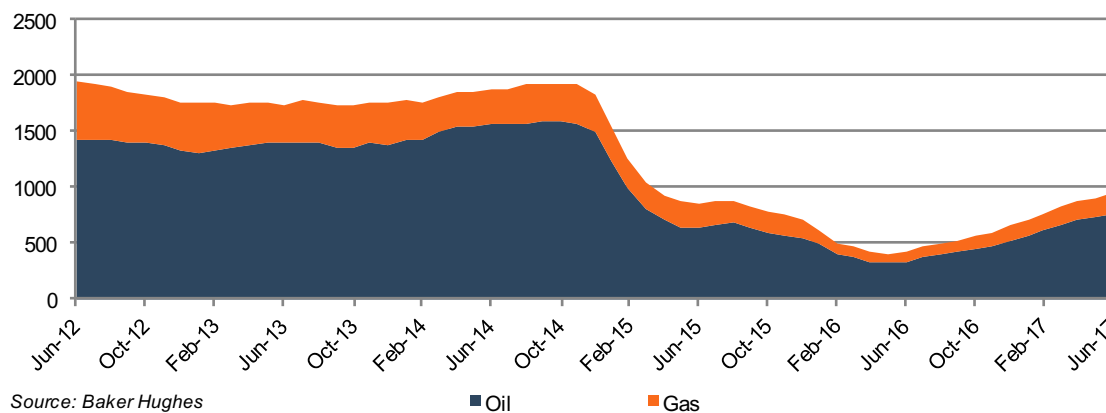


Source: Baker Hughes

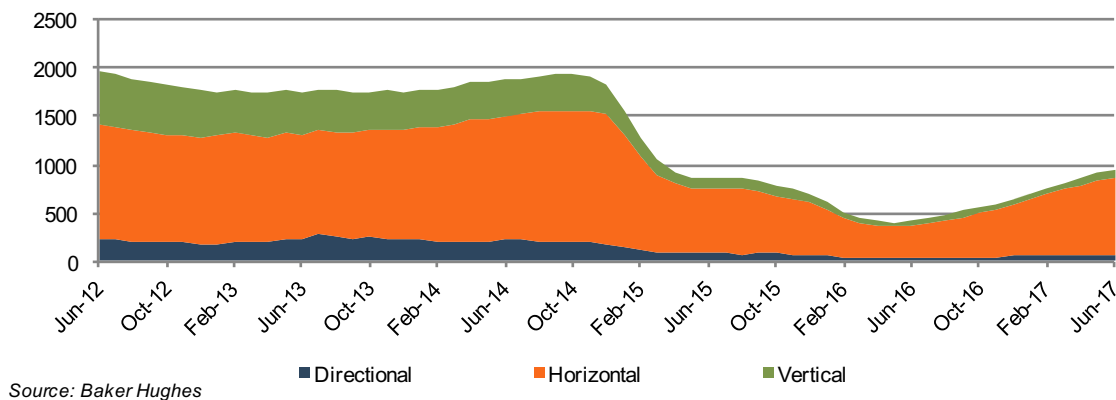
Appendix F

Rig Count

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



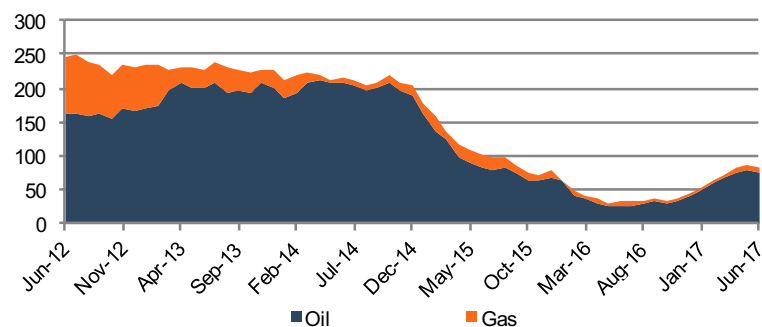
U.S. Rig Count by Trajectory



Appendix F

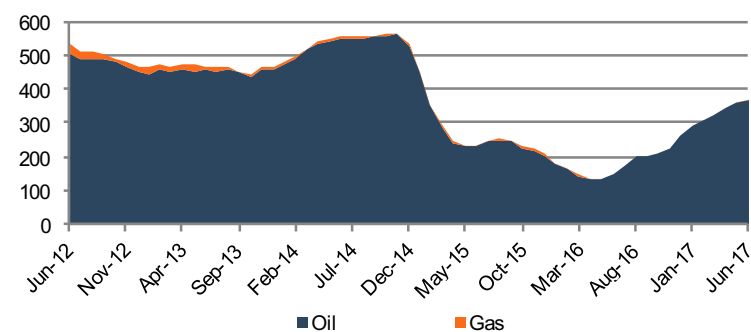
Rig Count // Oil vs. Natural Gas

Eagle Ford Rig Count by Oil vs. Natural Gas



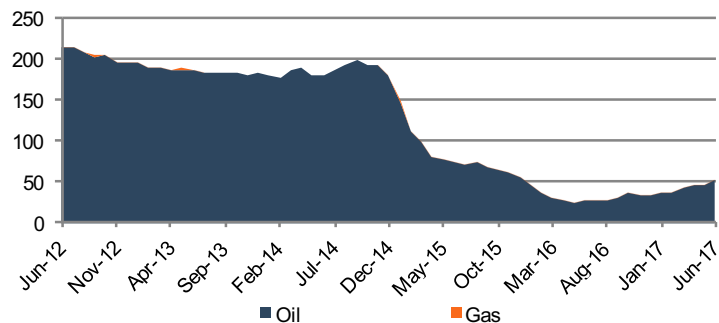
Source: Baker Hughes

Permian Rig Count by Oil vs. Natural Gas



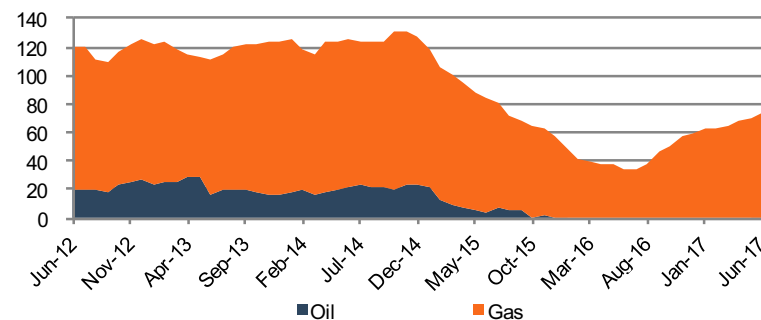
Source: Baker Hughes

Bakken Rig Count by Oil vs. Natural Gas



Source: Baker

Marcellus & Utica Rig Count by Oil vs. Natural Gas

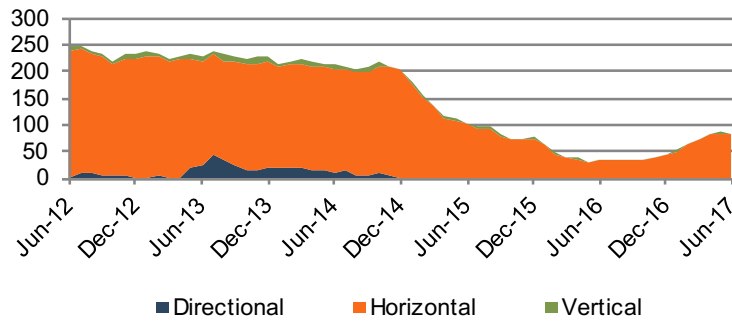


Source: Baker Hughes

Appendix F

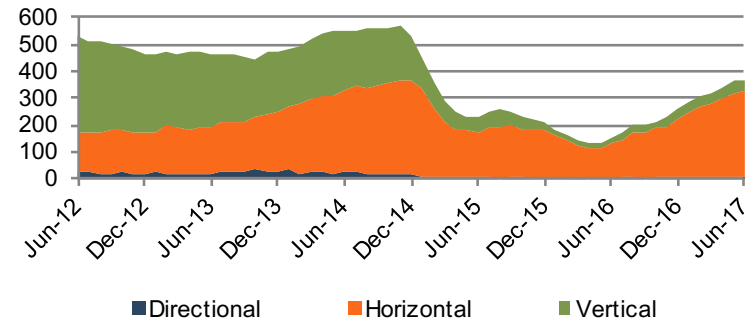
Rig Count // Trajectory

Eagle Ford Rig Count by Trajectory



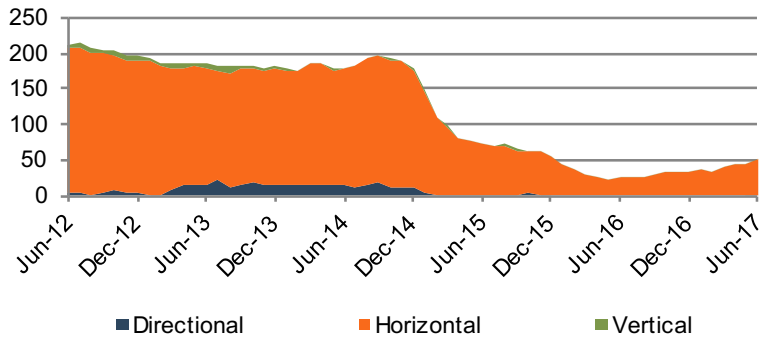
Source: Baker Hughes

Permian Rig Count by Trajectory



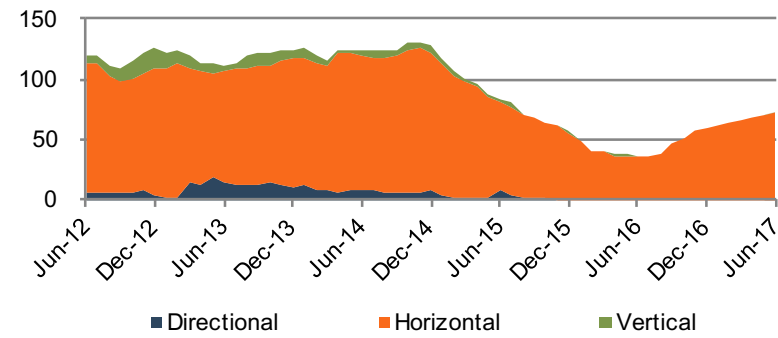
Source: Baker Hughes

Bakken Rig Count by Trajectory



Source: Baker Hughes

Marcellus & Utica Rig Count by Trajectory



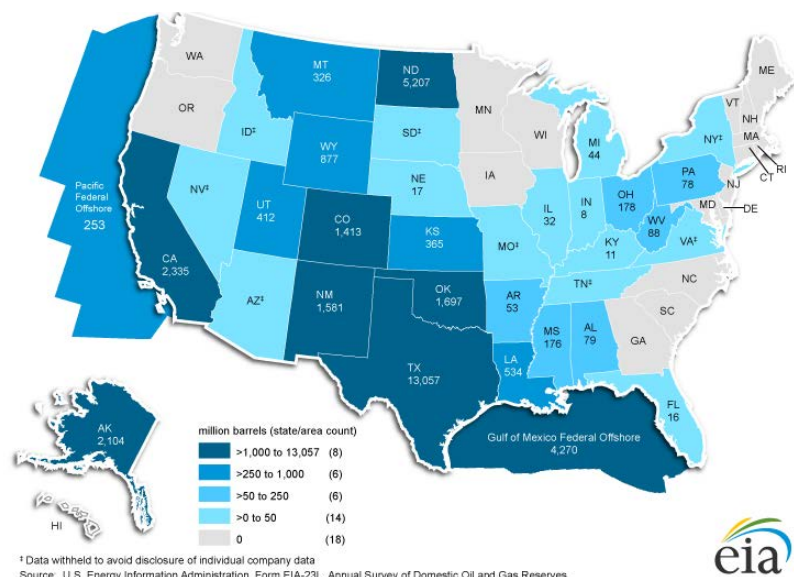
Source: Baker Hughes

Appendix G

U.S. Oil and Gas Resources

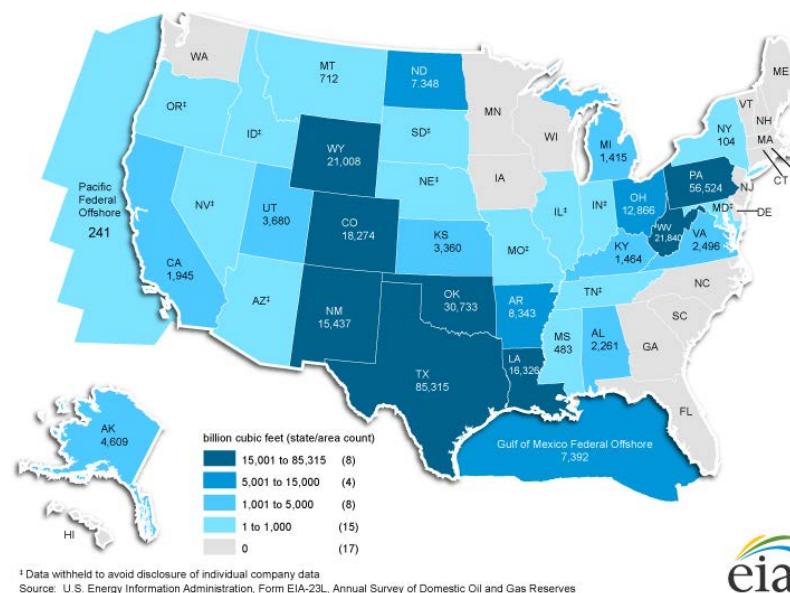
U.S. Crude Oil and Lease Condensate Proved Reserves Map

2015



U.S. Wet Natural Gas Proved Reserves Map

2015



The EIA's Annual Survey of Oil and Gas Reserves is available in November. The most recent data available was used.



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