



Permian Performance Update OFS Newsletter | February 2017

► Introduction

In this edition of Founders' Oilfield Services Newsletter, we highlight the Permian Basin and delve into the recent surge of activity. Also, we provide a summary of 2017 capex budgets from Permian focused E&P companies and how these compare to their historical spending. As the U.S. Oil and Gas industry recovery continues building momentum, eyebrows in the industry have been raised by the volume of bets being placed on the Permian. These investments should drive activity for OFS companies in the basin for years to come. At the start of 2016, rig counts in the Permian began just shy of 200, dipped all the way to 137 in May, and rebounded to 252 to close out 2016, providing a net addition of 53 in 2016. These numbers compare to a net decrease of 59 in rig count for all other basins in the U.S. during the same period. A&D remained active in the Permian too, in particular the \$6B [Bass Family/Exxon deal](#). In addition, there has been a number of recent discoveries in the Permian, suggesting increased focus and spending on exploration. One of the deposits in the Wolfcamp, owned by Pioneer, is claimed to be the [largest deposit ever assessed in the U.S.](#)

Energy & Industrials Team

Duane Donner

ddonner@foundersib.com

Joe Brady

jbrady@foundersib.com

John Sullivan

jsullivan@foundersib.com

John Ortstadt

jortstadt@foundersib.com

Vaughn McCrary

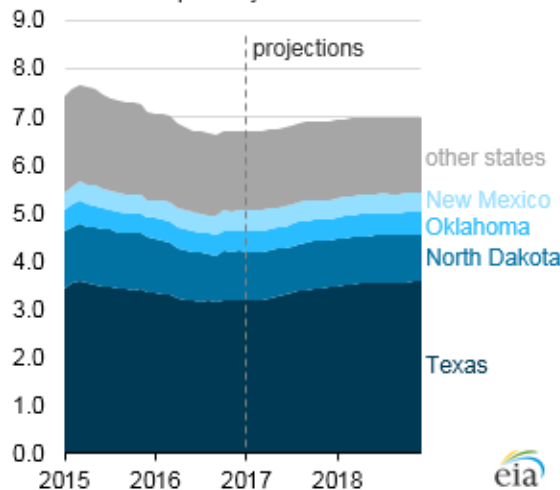
vmccrary@foundersib.com

Matt Roden

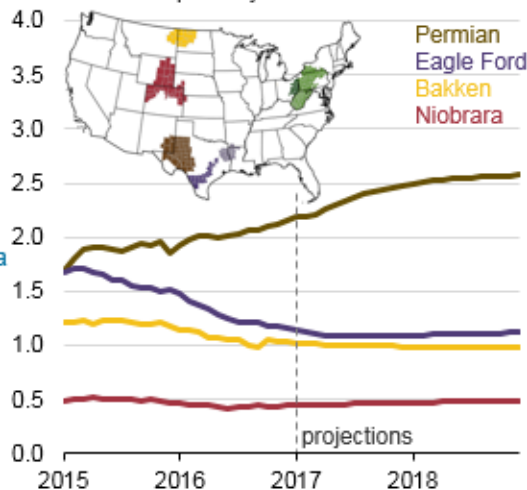
mroden@foundersib.com

Figure 1: EIA Oil Production Projections by State and Basin

Oil production in the Lower 48 states
 million barrels per day



U.S. oil production in major tight oil regions
 million barrels per day



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"We are seeing a significant uptick in West Texas activity"
 - Duane Donner,
Founders Investment Banking

► Permian Outperformance

Production out of the Permian increased from both 2015 to 2016 and 2016 to 2017, which is tough to believe given the industry environment during the period. As noted in figure one, the EIA expects Permian basin production to continue to increase over the next two years compared to relatively flat projections for the other major basins, including the Eagle Ford, Bakken, and Niobrara. The Permian region benefits from a couple distinct geological advantages. In addition to its sheer size relative to other basins, the Permian has numerous producing zones more than 1,000 feet thick that make up the stacked play. This compares to the Eagle Ford's producing zones of only 200 – 300 feet. With the proliferation of horizontal drilling, the difference in geology has contributed to extremely favorable economics, which are being noticed by many in the industry. James McManus, CEO at Energen, said on the Company's most recent earnings call, "We have gained a lot of efficiencies in our drilling and completion activities, and our per-unit operating costs continue to decline. As a result and in combination with high-quality rock, our outstanding assets in the Permian Basin generate excellent rates of return even at a \$45 flat oil price." These favorable economics should continue to drive activity in the region.

"Our outstanding assets in the Permian Basin generate excellent rates of return even a \$45 flat oil price."

- James McManus, Energen CEO

► Permian Basin Drilling Economics

Drilling economics in the Permian have improved substantially with the onset of horizontal drilling. Horizontal rigs, now accounting for over 80% of the total, are continuing to drill longer laterals giving the operators the ability to take advantage of multiple oil formations. The stacked nature of the Permian allow operators to tap into more of the resources at a lower cost.

"Ten years ago, when 90% of U.S. rigs were vertical and directional, a 640 acre section in parts of the Permian Basin could support 16 vertical wells, which could be expected to generate 2.4 million barrels of oil equivalent (Boe). At an average cost of \$2 million to drill and complete each well, an operator's finding and development cost would be roughly \$17.78 per Boe. Today, an operator can use horizontal drilling to develop each stacked layer from a single surface location, which could generate a five-fold increase in effective acreage and reduces the cost per Boe to \$8.89."

Source: The Carlyle Group – Oil Market Commentary: Where the Past Is-and Is Not-Prologue

Figure 2: Illustrative Midland Permian Basin Drilling Economics

Drilling Locations	Vertical	Horizontal
Acres per Section	640	640
# of Unique Prospective Benches	NA	5
Effective Acres per Section	640	3,200
Well Spacing (Acres per Well)	40	107
Wells Per Section	16	30
Drilling & Completion CapEx		
D&C CapEx per Well (\$MM)	\$ 2.0	\$5.0
x Wells Per Section	16	30
D&C CapEx Per Section (\$MM)	\$ 32.0	\$ 150.0
Gross Reverse Recovery		
Gross EUR Per Well (MBoe)	150	750
x Wells Per Section	16	30
Gross EUR Per Section (MMBoe)	2.4	22.5
Finding & Development Cost		
Gross Single Well EUR (MBoe)	150	750
x (1-Royalty Burden)	75%	75%
Net Single Well EUR (MBoe)	113	563
Net F&D Cost (\$/Boe)	\$ 17.78	\$ 8.89

For illustrative purposes only. Assumes 100% working interest and a 25% royalty burden. A section is defined as one square mile; F&D calculates as D&C capex per well divided by the net single well EUR.

► Conclusion

A perfect storm of the right oil price and a unique geology combined with technological advancements have created a rush to the Permian as the basin in which drilling economics are the most favorable. In figure three and four below, E&P's with a heavy focus in the Permian are opting to increase their drilling and completion spending for 2017. This compares to many of the global E&P operators focused outside the Permian forecasting flat to down spending based on the current market expectation for oil prices. Oilfield service companies located in West Texas in search of growth and utilization in today's recovering oil and gas industry are poised to take advantage of the increasing need for services.

Figure 3: Select Permian Focused E&P Capex

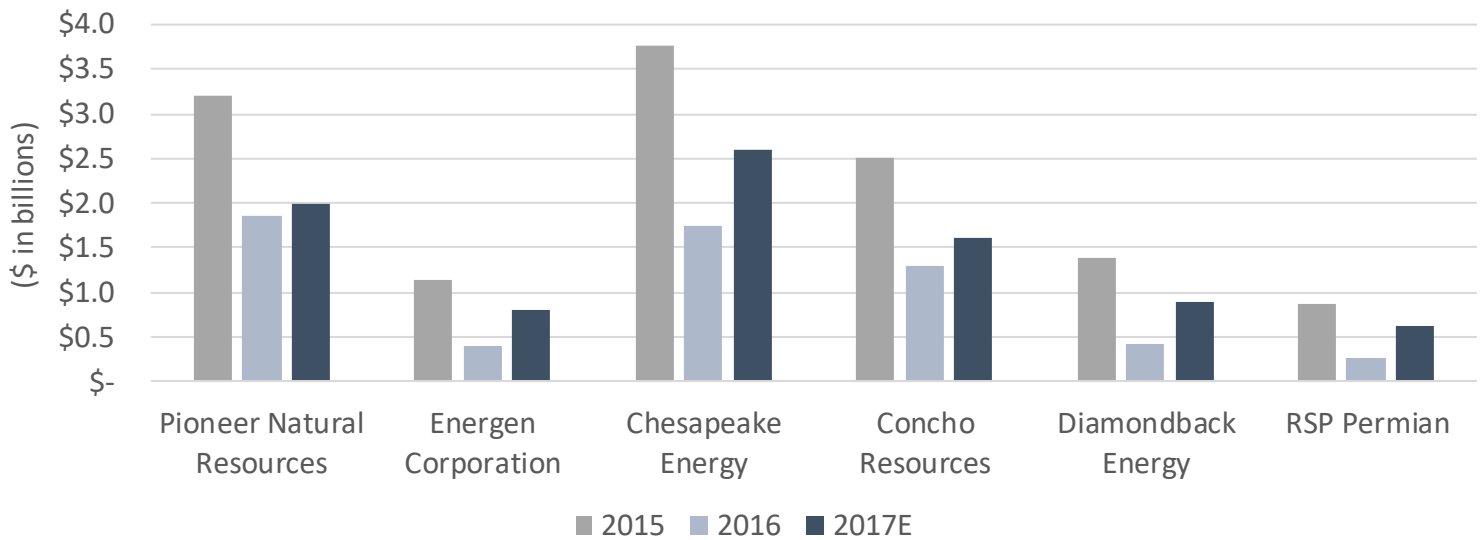
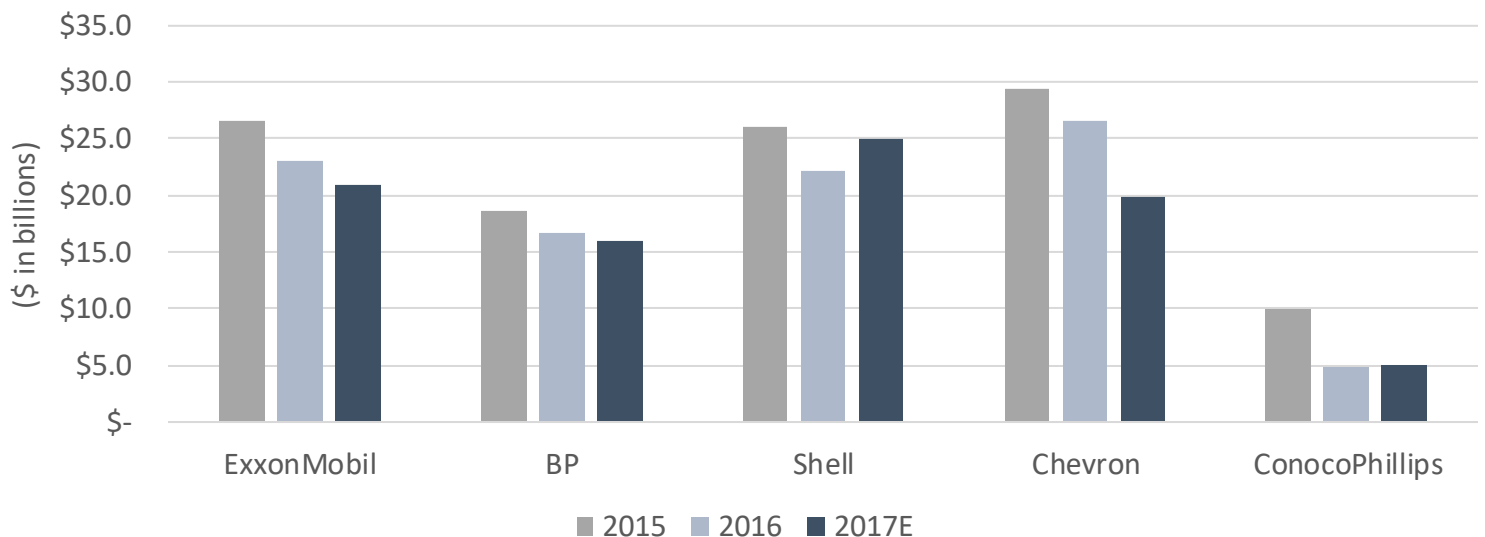


Figure 4: Select Global E&P Capex



Earnings Release Calendar

January 2017

Date	Company Name	Vertical
1/23/2017	Halliburton Company	Integrated Equipment & Service Providers
1/25/2017	RPC, Inc.	Service Providers
1/26/2017	Baker Hughes Incorporated	Integrated Equipment & Service Providers
1/26/2017	Helmerich & Payne, Inc.	Land Drillers

February 2017

Date	Company Name	Vertical
2/2/2017	Weatherford International plc	Integrated Equipment & Service Providers
2/6/2017	Diamond Offshore Drilling, Inc.	Offshore Drillers
2/7/2017	National Oilwell Varco, Inc.	Equipment & Technology
2/8/2017	Ensign Energy Services Inc.	Service Providers
2/8/2017	Oceaneering International, Inc.	Equipment & Technology
2/9/2017	Noble Corporation plc	Offshore Drillers
2/9/2017	Patterson-UTI Energy, Inc.	Land Drillers
2/10/2017	Forum Energy Technologies, Inc.	Equipment & Technology
2/15/2017	Oil States International, Inc.	Equipment & Technology
2/17/2017	Pioneer Energy Services Corp.	Land Drillers
2/19/2017	Basic Energy Services, Inc.	Service Providers
2/21/2017	Superior Energy Services, Inc.	Service Providers
2/22/2017	Nabors Industries Ltd.	Land Drillers
2/22/2017	Trican Well Service Ltd.	Service Providers
2/23/2017	Frank's International N.V.	Service Providers
2/23/2017	Calfrac Well Services Ltd.	Service Providers
2/23/2017	TechnipFMC plc	Equipment & Technology
2/24/2017	Rowan Companies plc	Offshore Drillers
2/24/2017	Transocean Ltd.	Offshore Drillers
2/25/2017	Dril-Quip, Inc.	Equipment & Technology
2/28/2017	Tesco Corporation	Service Providers
2/28/2017	Ensco plc	Offshore Drillers

March 2017

Date	Company Name	Vertical
3/1/2017	TETRA Technologies, Inc.	Service Providers

Trading Statistics

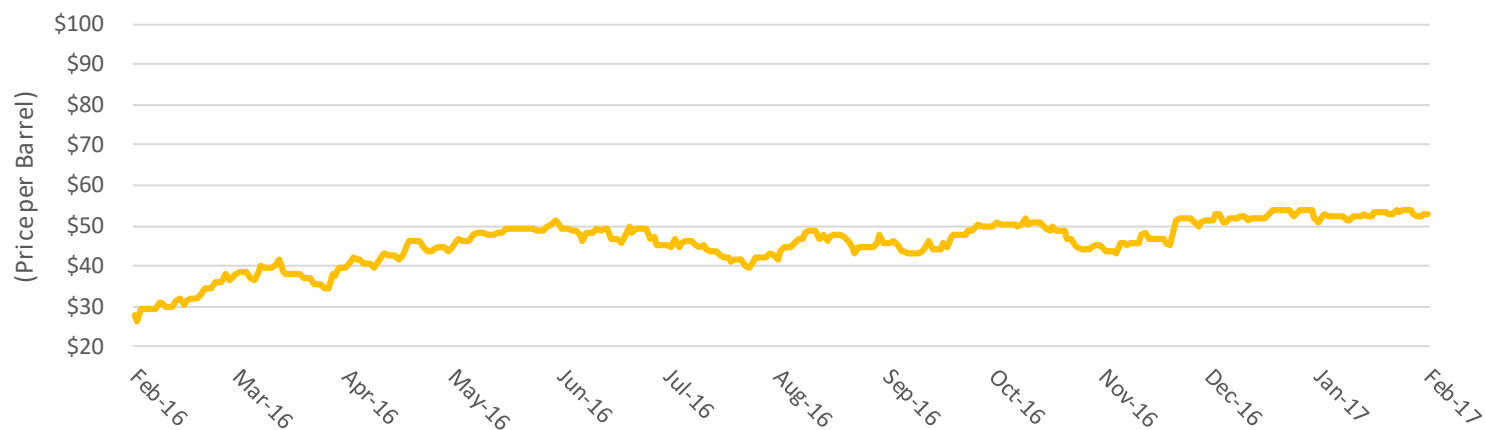
Ticker	Company Name	Stock Price	% of 52-Week		Market	Enterprise	2017P		Enterprise Value /		
		2/10/17	High	Low	Cap	Value	Revenue	EBITDA	2017 Revenue	2017 EBITDA	
Integrated Equipment & Service Providers											
SLB	Schlumberger Limited	\$ 82.16	94%	119%	\$ 114,323.6	\$ 125,182.6	\$ 31,261.2	\$ 7,571.8	4.0x	16.5x	
HAL	Halliburton Company	56.13	95%	195%	48,661.0	57,012.0	18,795.1	3,518.1	3.0x	16.2x	
BHI	Baker Hughes Incorporated	61.15	89%	160%	26,008.7	24,535.7	10,137.5	1,381.7	2.4x	17.8x	
WFT	Weatherford International plc	6.06	71%	162%	5,944.7	13,055.7	6,114.3	718.5	2.1x	18.2x	
	Min	\$ 6.06	71%	119%	\$ 5,944.7	\$ 13,055.7	\$ 6,114.3	\$ 718.5	2.1x	16.2x	
	Median	58.64	91%	161%	37,334.8	40,773.8	14,466.3	2,449.9	2.7x	17.1x	
	Mean	51.38	87%	159%	48,734.5	54,946.5	16,577.0	3,297.5	2.9x	17.2x	
	Max	82.16	95%	195%	114,323.6	125,182.6	31,261.2	7,571.8	4.0x	18.2x	
Equipment & Technology											
NOV	National Oilwell Varco, Inc.	\$ 39.42	90%	148%	\$ 14,888.3	\$ 16,694.3	\$ 7,266.2	\$ 617.2	2.3x	27.0x	
FTI	TechnipFMC plc	31.76	88%	104%	3,786.7	1,758.5	13,379.7	1,599.9	0.1x	1.1x	
OII	Oceaneering International, Inc.	27.05	73%	120%	2,652.7	2,995.5	1,917.2	231.3	1.6x	13.0x	
DRQ	Dril-Quip, Inc.	62.65	90%	134%	2,354.5	1,811.8	445.2	65.2	4.1x	27.8x	
OIS	Oil States International, Inc.	39.75	95%	185%	2,042.1	2,055.2	743.5	78.5	2.8x	26.2x	
FET	Forum Energy Technologies, Inc.	21.95	89%	259%	2,083.7	2,246.7	780.8	47.8	2.9x	47.0x	
	Min	\$ 21.95	73%	104%	\$ 2,042.1	\$ 1,758.5	\$ 445.2	\$ 47.8	0.1x	1.1x	
	Median	35.59	90%	141%	2,503.6	2,151.0	1,349.0	154.9	2.5x	26.6x	
	Mean	37.10	88%	158%	4,634.7	4,593.7	4,088.8	440.0	2.3x	23.7x	
	Max	62.65	95%	259%	14,888.3	16,694.3	13,379.7	1,599.9	4.1x	47.0x	
Service Providers											
SPN	Superior Energy Services, Inc.	\$ 18.26	92%	221%	\$ 2,770.8	\$ 3,776.2	\$ 1,776.1	\$ 198.4	2.1x	19.0x	
FI	Frank's International N.V.	12.60	71%	120%	2,802.1	2,272.6	473.2	24.1	4.8x	94.4x	
ESI	Environmental Clean Technologies Limited	0.01	77%	170%	37.0	37.3	NA	NA	N/A	N/A	
CFW	Calfrac Well Services Ltd.	3.58	88%	442%	489.1	1,142.2	830.3	46.0	1.4x	24.8x	
TCW	Trican Well Service Ltd.	4.18	101%	516%	809.8	934.9	410.9	30.8	2.3x	30.3x	
TESO	Tesco Corporation	8.80	90%	154%	408.4	314.1	163.9	(21.1)	1.9x	N/A	
BAS	Basic Energy Services, Inc.	43.30	97%	147%	1,118.3	2,079.3	721.1	64.5	2.9x	32.3x	
RES	RPC, Inc.	21.72	93%	181%	4,724.6	4,592.7	1,323.6	226.1	3.5x	20.3x	
TTI	TETRA Technologies, Inc.	4.94	64%	115%	626.5	1,600.8	762.7	147.8	2.1x	10.8x	
	Min	\$ 0.01	64%	115%	\$ 37.0	\$ 37.3	\$ 163.9	\$ (21.1)	1.4x	N/A	
	Median	8.80	90%	170%	809.8	1,600.8	741.9	55.2	2.2x	22.6x	
	Mean	13.04	86%	230%	1,531.8	1,861.1	807.7	89.6	2.6x	27.1x	
	Max	43.30	101%	516%	4,724.6	4,592.7	1,776.1	226.1	4.8x	94.4x	
Offshore Drillers											
RIG	Transocean Ltd.	\$ 13.35	80%	174%	\$ 5,197.0	\$ 11,252.0	\$ 2,897.8	\$ 1,215.3	3.9x	9.3x	
ESV	Enasco plc	10.74	82%	165%	3,256.1	6,199.6	1,893.7	733.5	3.3x	8.5x	
DO	Diamond Offshore Drilling, Inc.	17.38	65%	118%	2,384.0	4,312.8	1,450.2	572.7	3.0x	7.5x	
NE	Noble Corporation plc	7.31	52%	164%	1,778.0	6,101.2	1,171.8	474.3	5.2x	12.9x	
RDC	Rowan Companies plc	18.20	84%	164%	2,283.0	3,891.1	1,244.9	450.4	3.1x	8.6x	
	Min	\$ 7.31	52%	118%	\$ 1,778.0	\$ 3,891.1	\$ 1,171.8	\$ 450.4	3.0x	7.5x	
	Median	13.35	80%	164%	2,384.0	6,101.2	1,450.2	572.7	3.3x	8.6x	
	Mean	13.40	73%	157%	2,979.6	6,351.3	1,731.7	689.2	3.7x	9.3x	
	Max	18.20	84%	174%	5,197.0	11,252.0	2,897.8	1,215.3	5.2x	12.9x	
Land Drillers											
HP	Helmerich & Payne, Inc.	\$ 69.23	81%	149%	\$ 7,515.8	\$ 7,136.8	\$ 1,623.1	\$ 348.6	4.4x	20.5x	
NBR	Nabors Industries Ltd.	15.74	86%	272%	4,469.0	7,751.2	2,536.5	713.1	3.1x	10.9x	
PTEN	Patterson-UTI Energy, Inc.	27.89	94%	218%	4,639.1	5,215.5	1,594.1	299.8	3.3x	17.4x	
PES	Pioneer Energy Services Corp.	6.35	88%	588%	486.6	876.4	400.7	53.4	2.2x	16.4x	
	Min	\$ 6.35	81%	149%	\$ 486.6	\$ 876.4	\$ 400.7	\$ 53.4	2.2x	10.9x	
	Median	21.82	87%	245%	4,554.0	6,176.1	1,608.6	324.2	3.2x	16.9x	
	Mean	29.80	87%	307%	4,277.6	5,245.0	1,538.6	353.7	3.2x	16.3x	
	Max	69.23	94%	588%	7,515.8	7,751.2	2,536.5	713.1	4.4x	20.5x	

Relevant Transactions

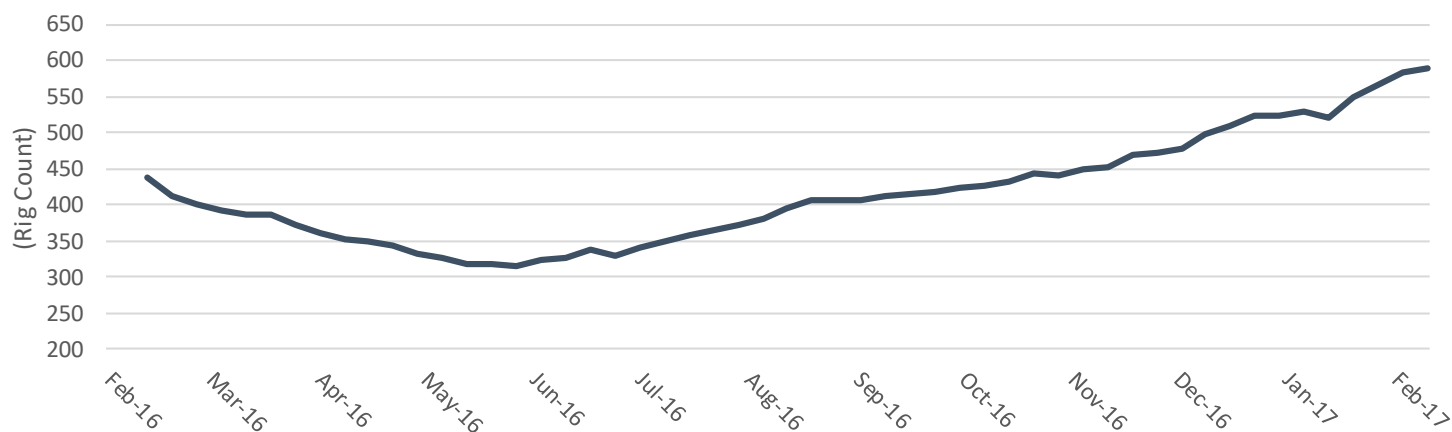
Announced Date	Target	Buyer	Target Business Description
1/6/2017	OilPatch Technologies, LLC	Dril-Quip, Inc.	OilPatch Technologies, LLC focuses on definition, specification, design, analysis, manufacture, and testing of subsea and floating production development systems and components.
12/12/2016	Seventy Seven Energy Inc.	Patterson-UTI Energy, Inc.	Seventy Seven Energy Inc., a diversified oilfield services company, provides a range of wellsite services and equipment to land-based exploration and production customers in the United States.
11/29/2016	Allied Energy Services	BJ Services	U.S. based provider of cementing, acidizing, and related services to the oil and gas industry.
11/17/2016	Latitude Technologies Inc.	Energy Services Group, LLC	Latitude Technologies Inc. provides technology solutions to the energy industry in Texas.
11/14/2016	Top-Co Inc.	Rubicon Oilfield International Holdings, L.P.	Top-Co Inc. designs, manufactures, and distributes float equipment, casing cementing equipment, and casing accessories for oil and gas industry.
11/2/2016	Stewart Tubular Products, Inc.	Aterian Investment Partners, LLC	Stewart Tubular Products, Inc. manufactures downhole tubular accessories and support equipment to the oil and gas industry.
10/27/2016	Raging Bull Oilfield Services LLC	Fluid Delivery Solutions, LLC	Raging Bull Oilfield Services LLC offers oilfield water transfer and equipment rental services.
10/17/2016	Blue Ocean Technologies, LLC	Oceaneering International, Inc.	Blue Ocean Technologies, LLC provides subsea services to the offshore oil and gas production sector.
10/17/2016	TIW Corporation	Dril-Quip, Inc.	TIW Corporation is engaged in the design, manufacture, and sale of tools and technologies for the oil and gas drilling industry in the United States and internationally.
10/12/2016	Bayou Workover Services LLC	Ranger Energy Services, LLC	Bayou Workover Services LLC offers oilfield services such as work over, plug and abandonment, and fluid management services.
10/7/2016	Blackhawk Group Holdings, Inc.	Frank's International N.V.	Blackhawk Group Holdings, Inc. was incorporated in 2013 and is based in Houston, Texas.
9/14/2016	Extreme Plastics Plus, Inc.	BW EPP Holdings LLC	Extreme Plastics Plus, Inc., an environmental containment company, specializes in providing environmental lining, above ground storage tanks, composite rig mats, secondary steel wall containment systems, and rig vac systems.

Recent Trends

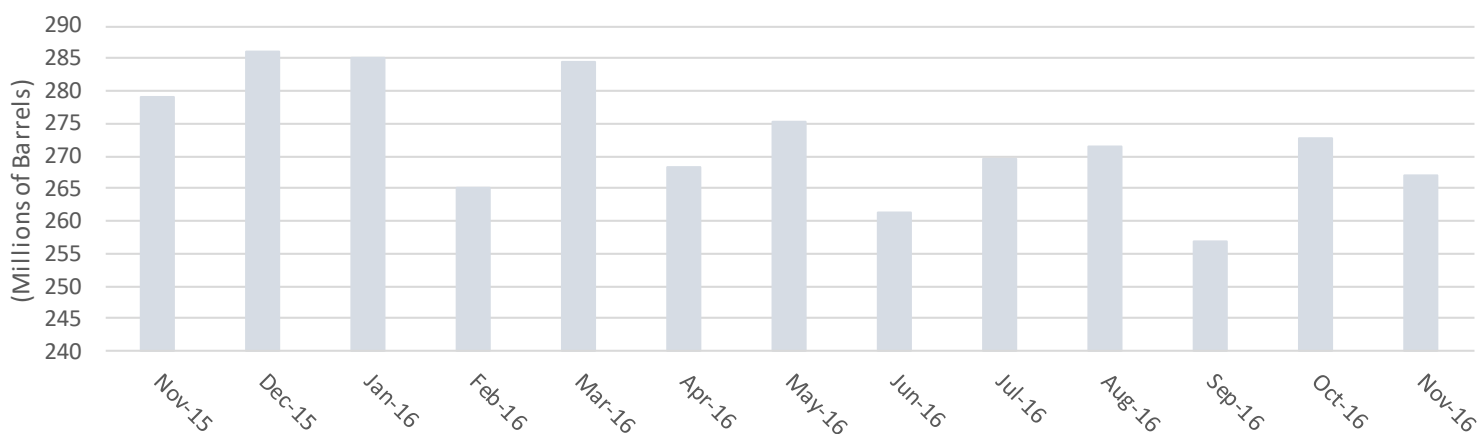
Crude Oil (NYMEX: CL)



Domestic Oil and Natural Gas Rig Count

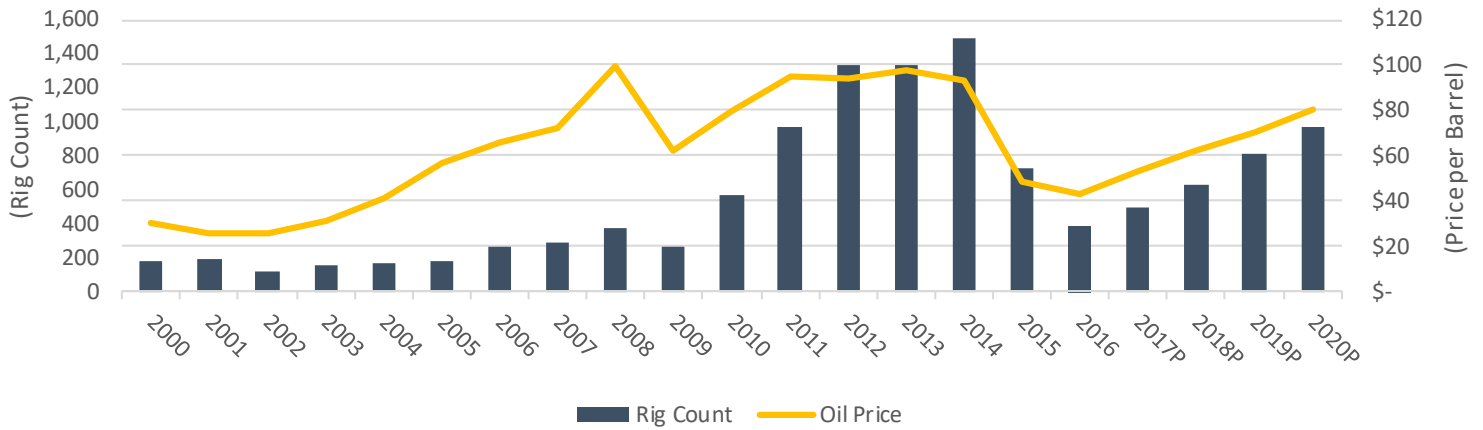


Domestic Crude Oil Production



Domestic Oil Trends

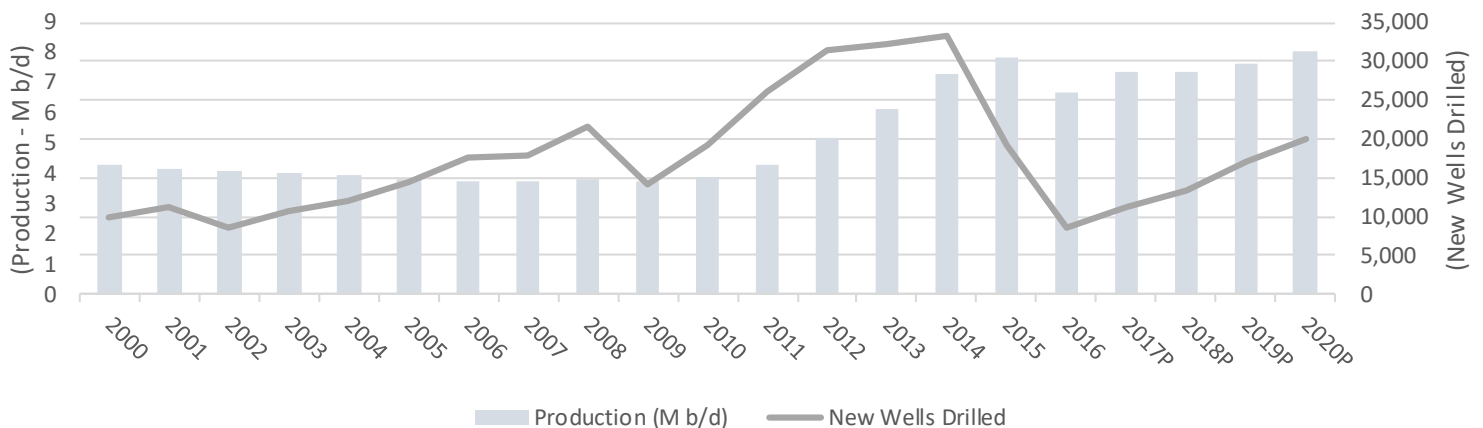
Crude Oil Price and Rig Count



Notable Trends

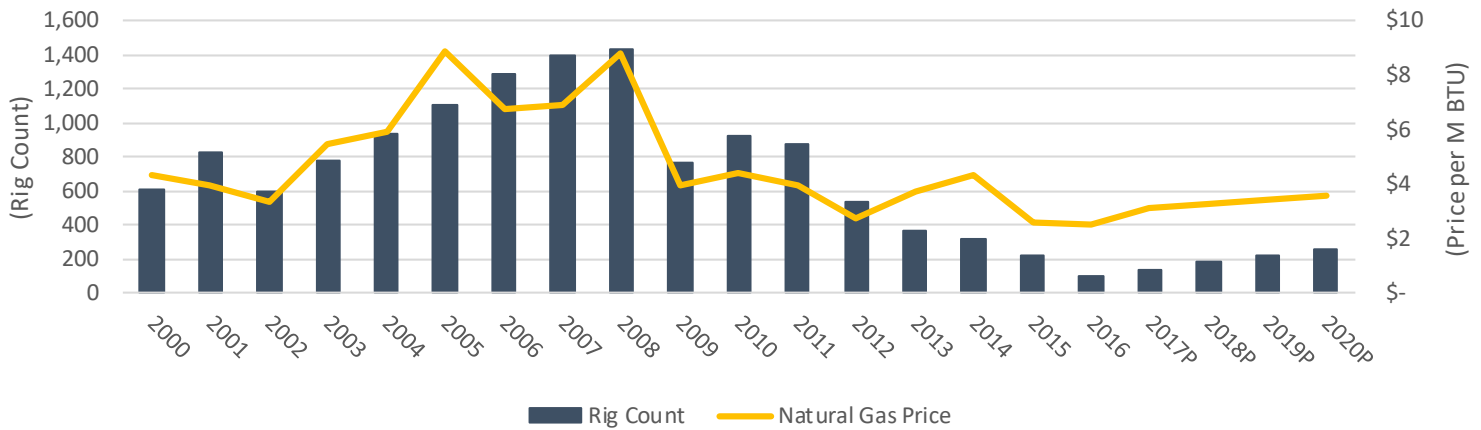
	2012	2013	2014	2015	2016	2017P	2018P	2019P	2020P
Avg. Oil Price	\$94.18	\$98.02	\$93.22	\$48.59	\$43.24	\$53.25	\$62.00	\$70.00	\$80.00
Avg. Rig Count	1,335	1,334	1,485	728	391	500	630	810	965
New Wells Drilled	31,425	32,150	33,150	19,250	8,650	11,100	13,300	17,000	20,000
Production (M b/d)	5.2	6.1	7.3	7.9	6.7	7.4	7.4	7.7	8.0
New Wells Drilled per Rig	23.5	24.1	22.3	26.4	22.1	22.2	21.1	21.0	20.7

Domestic New Oil Well Count and Production



Domestic Natural Gas Trends

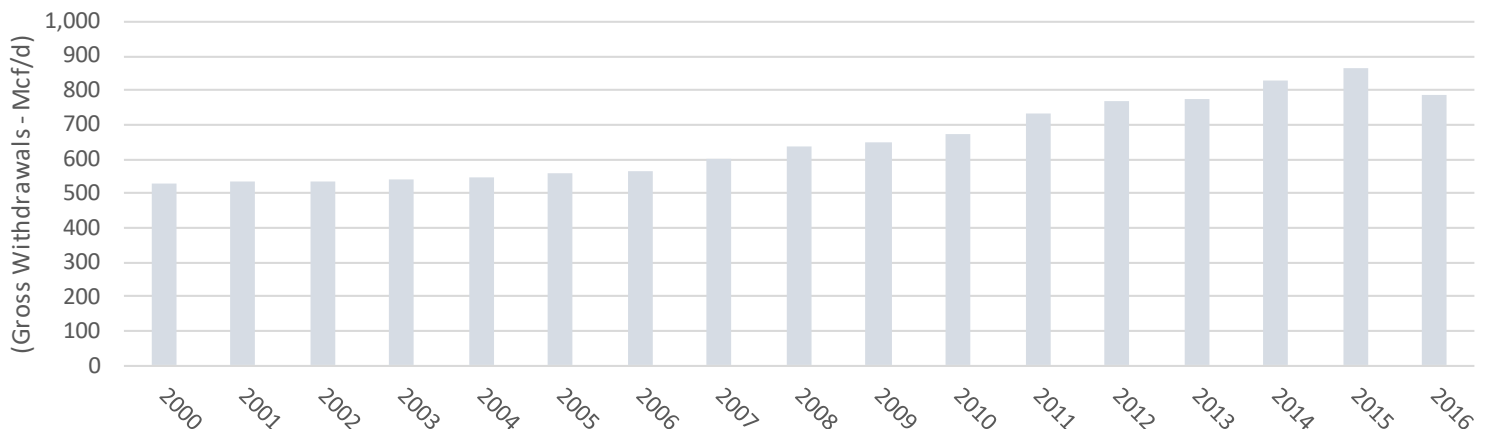
Natural Gas Price and Rig Count



Notable Trends

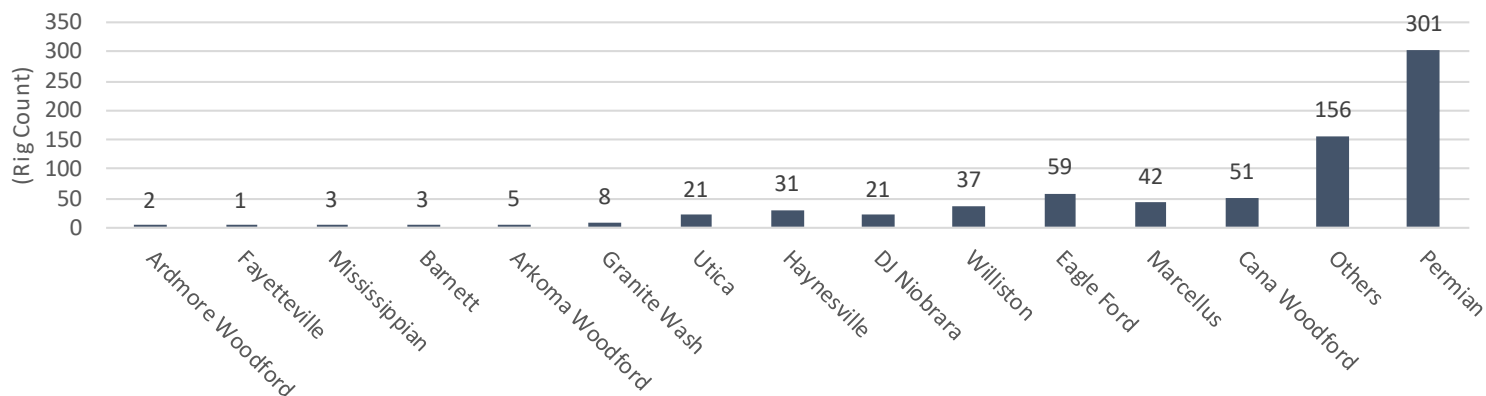
	2012	2013	2014	2015	2016	2017P	2018P	2019P	2020P
Avg. Nat. Gas Price	\$2.75	\$3.73	\$4.32	\$2.62	\$2.51	\$3.13	\$3.25	\$3.40	\$3.60
Avg. Rig Count	534	368	318	219	98	140	180	220	255
New Wells Drilled	9,500	7,800	7,150	4,850	2,450	3,450	4,375	6,000	7,750
Production (Mcf/d)	767.5	772.5	825.5	865.4	788.0	NA	NA	NA	NA
New Wells Drilled per Rig	17.8	21.2	22.5	22.2	25.0	24.6	24.3	27.3	30.4

Domestic Natural Gas Production

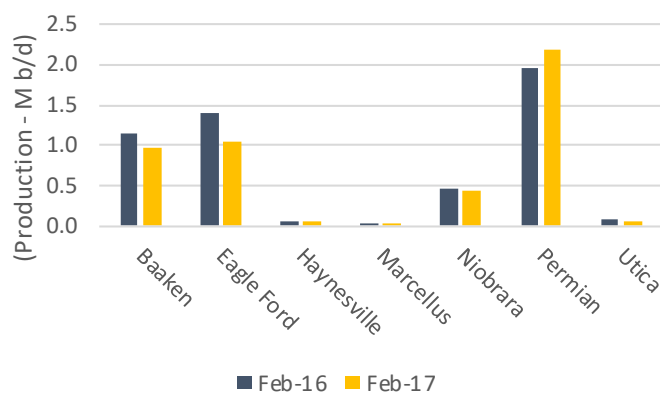


Trends by Basin

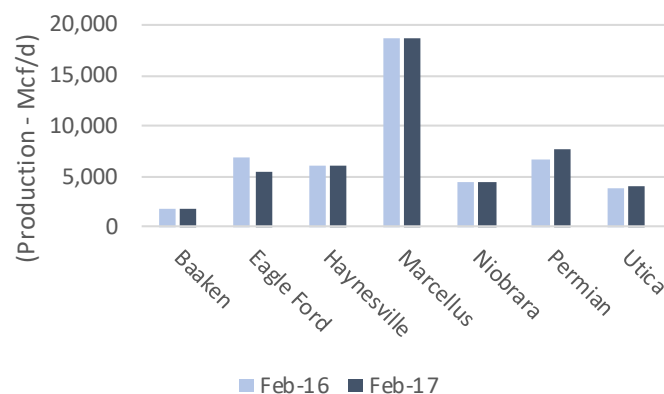
Current Natural Gas and Oil Rig Count



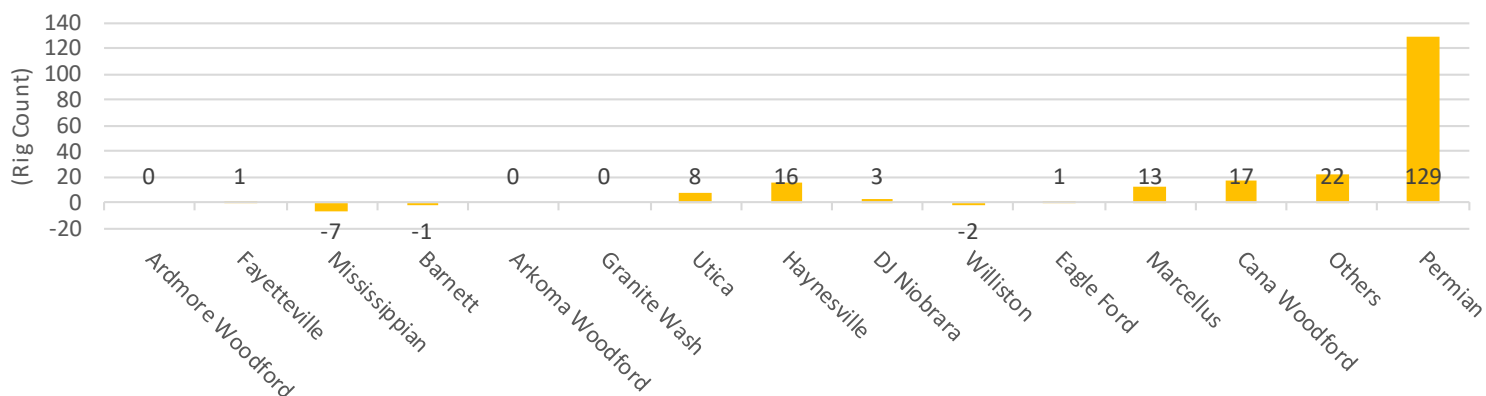
Oil Production



Natural Gas Production

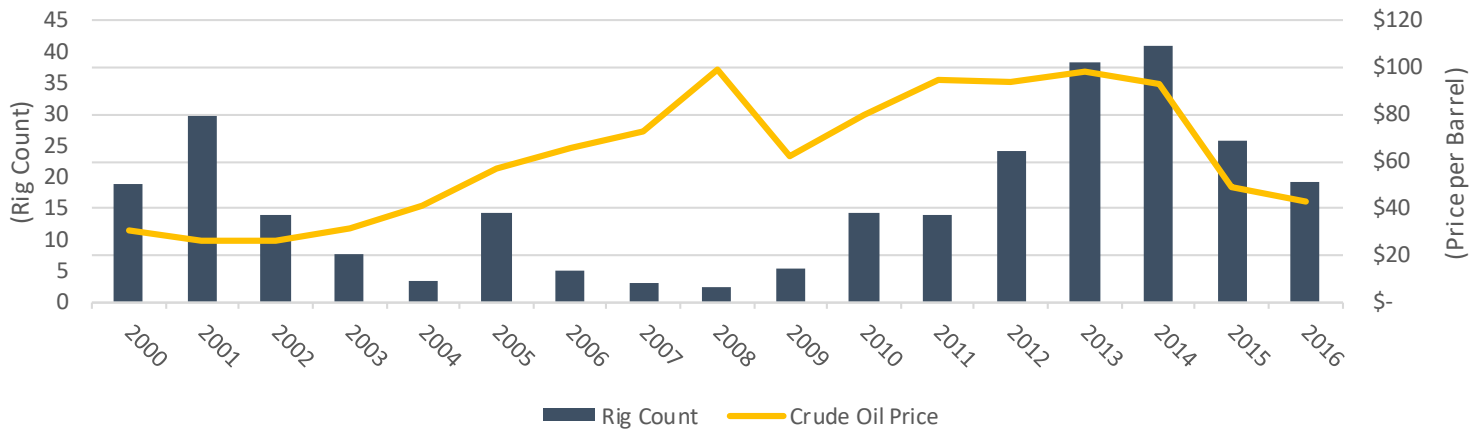


LTM Change in Rig Count



Offshore Trends

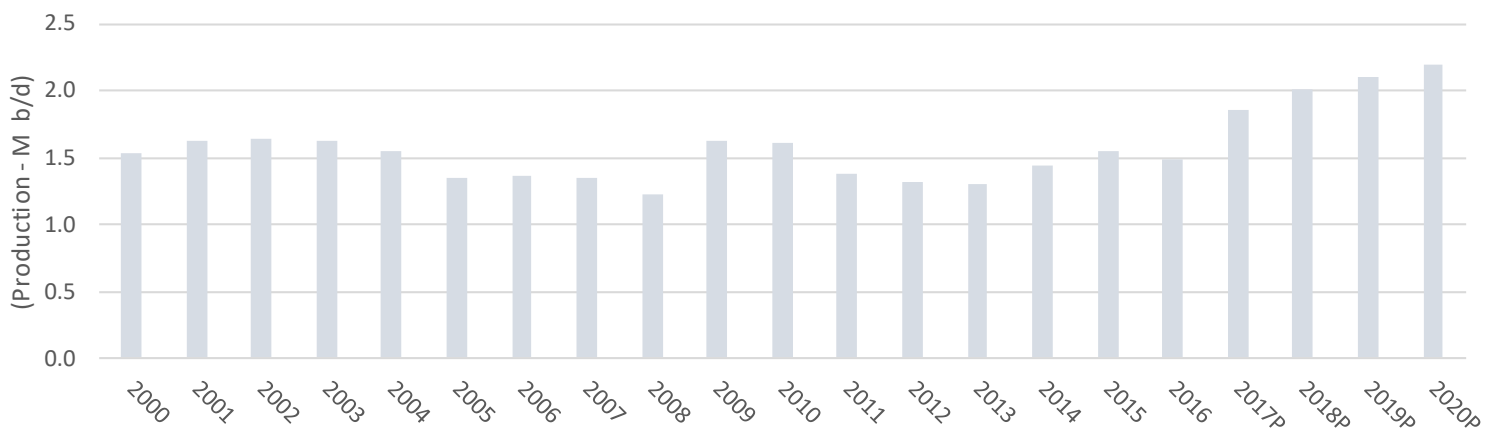
Crude Oil Price and Rig Count



Notable Trends

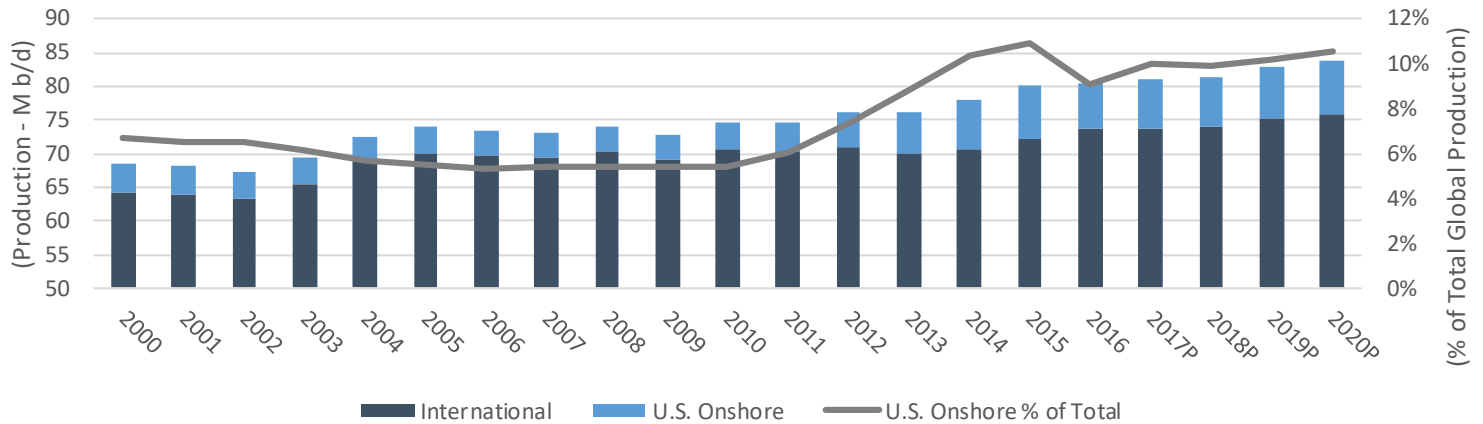
	2012	2013	2014	2015	2016	2017P	2018P	2019P	2020P
Avg. Oil Price	\$94.18	\$98.02	\$93.22	\$48.59	\$43.24	\$53.25	\$62.00	\$70.00	\$80.00
Avg. Rig Count	24	38	41	26	19	NA	NA	NA	NA
Wells Drilled	375	440	450	275	210	275	350	400	430
Production (M b/d)	1.3	1.3	1.4	1.5	1.5	1.9	2.0	2.1	2.2
Wells Drilled per Rig	15.6	11.5	10.9	10.6	10.9	NA	NA	NA	NA

Offshore U.S. Production

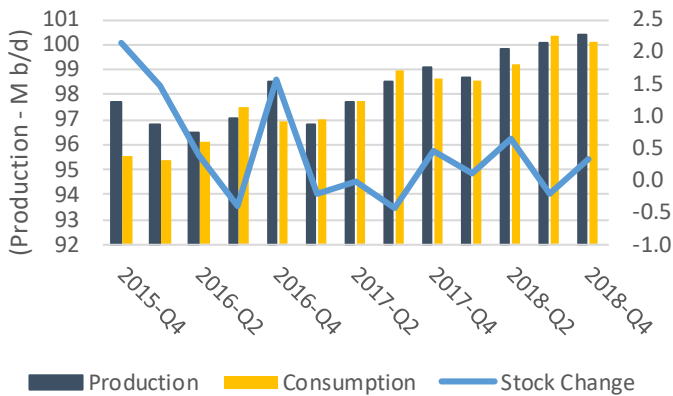


Global Trends

Crude Oil Production



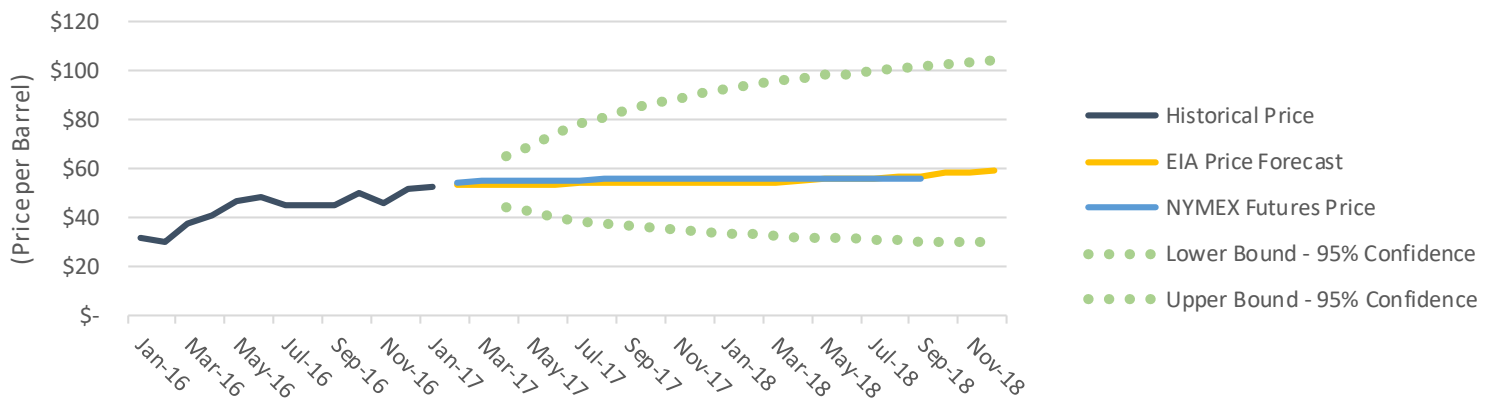
Liquid Fuels Production and Consumption Balance



Top 5 Petroleum & Other Liquid Producers - 2016

1. Saudi Arabia	~11 M b/d
2. Russia	~10 M b/d
3. United States	~8 M b/d
4. Iraq	~5 M b/d
5. China	~4 M b/d

Crude Oil Short Term Price Uncertainty



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Contact

For more information, visit www.foundersib.com, call us at 205.949.2043, or contact the Energy & Industrial team directly by email:

Duane P. Donner II, Managing Director
ddonner@foundersib.com

John W. Sullivan, Vice President
jsullivan@foundersib.com

Vaughn R. McCrary, Associate
vmccrary@foundersib.com

Joe H. Brady III, Director
jbrady@foundersib.com

John F. Ortstadt, Business Development
jortstadt@foundersib.com

Matthew T. Roden, Analyst
mroden@foundersib.com

BIRMINGHAM

2204 Lakeshore Drive, Suite 425
Birmingham, AL 35209-8855
Phone: 205.949.2043
Fax: 205.871.0010

DALLAS

5605 N. MacArthur Blvd, Suite 1000
Irving, TX 75038
Phone: 214.295.1055
Fax: 214.295.1047