

VALUE FOCUS

# Exploration & Production

Fourth Quarter 2016 // Region Focus: Marcellus & Utica Shale



## Executive Summary

Oil prices increased over the last twelve months from \$37/bbl at January 4, 2016 to \$55/bbl at year end. For the last two years companies have postponed exploration activities and cut capital projects to drill new wells. Now that oil prices have settled around \$50/bbl, production has increased across the U.S.

As oil prices increased, the number of oil and gas companies filing for bankruptcy declined. Out of the

70 oil and gas companies that **filed for bankruptcy** in 2016, only 13% of bankruptcies occurred in the fourth quarter.

The price of crude oil is determined by market forces: supply and demand. On pages 1 and 2, world demand and supply is analyzed in order to understand the current pricing environment.

2016

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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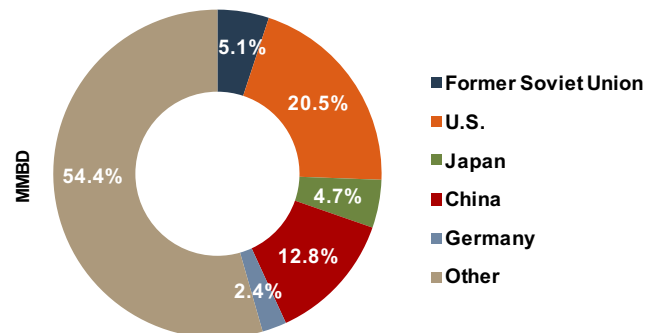
# World Oil Demand

## Crude Oil & Natural Gas

97.39  
mboe/d

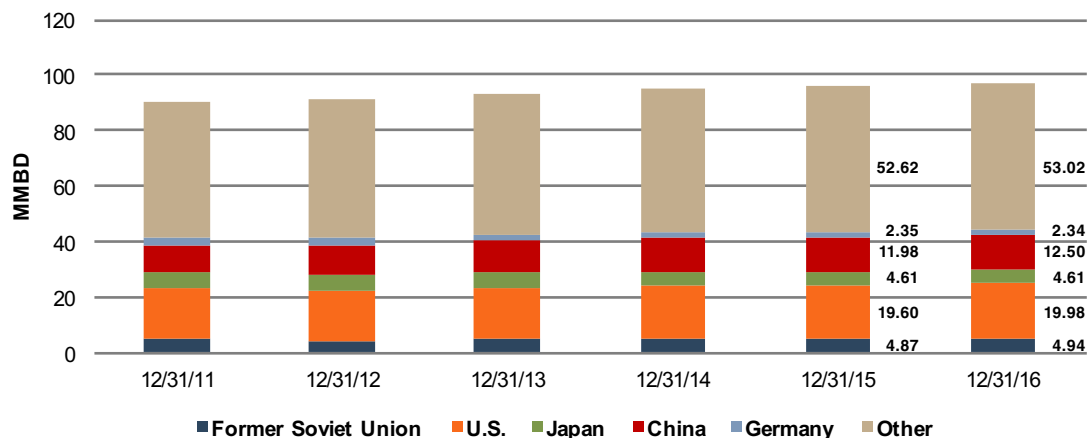
### World Daily Consumption of Crude Oil and Liquid Fuels: December 2016

As of December 31, 2016, total world daily consumption equaled 97.39 million barrels per day



Source: Bloomberg

### World Daily Consumption of Crude Oil and Liquid Fuels



Source: Bloomberg

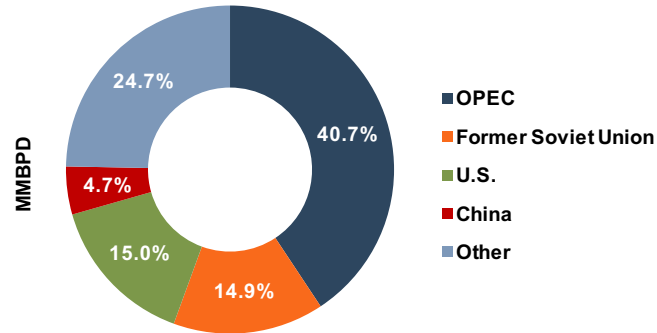
# World Oil Supply

## Crude Oil & Natural Gas

98.00  
mboe/d

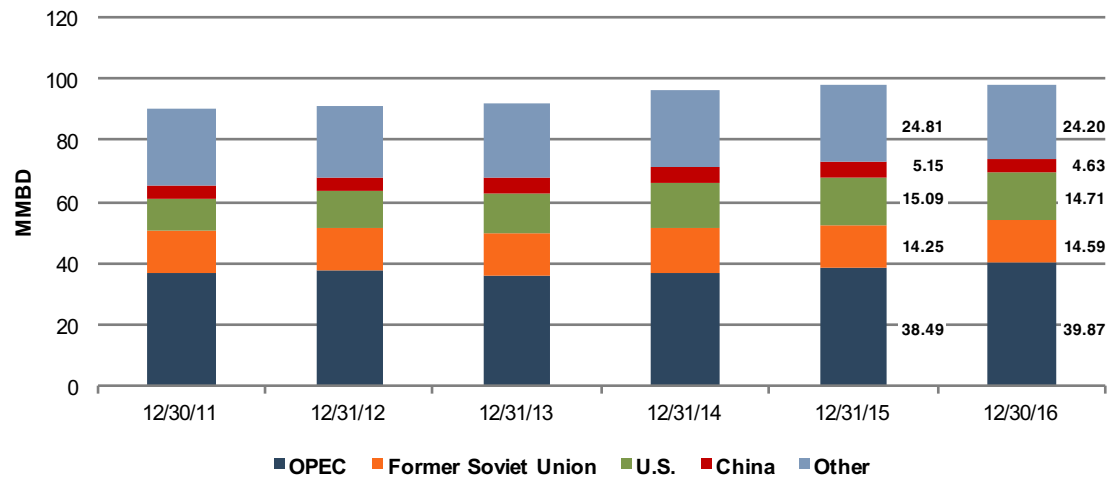
### World Daily Production of Crude Oil: December 2016

As of December 31, 2016 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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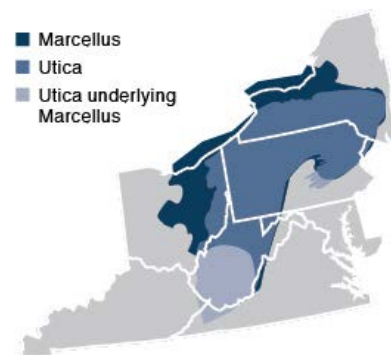
The oil and gas industry is heavily regulated. The Environmental Protection Agency (EPA), the Federal Energy Regulatory Commissions (FERC), Bureau of Land Management (BLM), the Department of the Interior (DOI), and more regulate operations of the oil and gas industry. Recent legislation includes the lifting of the export ban and the EPA's finalization of Amended Source Review Performance Standards to reduce methane emissions.

President Obama's plan is to reduce methane emissions from the oil and gas industry from 2012 levels by 40% to 45% by 2025. He previously made steps in reducing methane emissions by finalizing the Amended Source Review Performance Standards. Current legislation on the table is the Bureau of Land Management's venting and flaring rule for oil and gas wells. It is likely that closing this loophole could be one of the Obama Administration's final administrative actions before the Trump administration takes office.

The recent presidential election of Donald Trump is expected to have a material impact on the oil and gas industry. The Trump presidency is expected to offer a more friendly energy environment. Trump nominated ex-CEO of Exxon-Mobil, Rex Tillerson, as Secretary of State and former Texas Governor Rick Perry as the new Secretary of Energy. Additionally, President Trump intends to nominate Oklahoma Attorney General Scott Pruitt as the next **Environmental Protection Agency administrator** but his confirmation hearings will not take place until the first quarter of 2017. While President Trump's administration plans to work to promote oil and gas investment, there is still much uncertainty surrounding future regulation of the oil industry. The recent protests surrounding the Dakota Access Pipeline demonstrate that there still exists strong opposition which the Trump administration will have to face.

# Marcellus & Utica Shale

## 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 Marcellus and Utica Shale.*

The Marcellus formation and the underlying Utica are two large shale layers in the Appalachian basin. The Utica is the larger and denser of the two layers and rests a few thousand feet below the Marcellus. Producers must use techniques such as hydraulic fracturing, horizontal drilling, and pad drilling to make wells economically viable. Due to their depth and low permeability, the Marcellus and Utica have very high upfront drilling costs. Additionally, regional wellhead prices are far below domestic market prices because there are too few pipelines to transport gas out of the region, resulting in excess supply. That said, the region appears as though it will remain the center of natural gas production in coming years. The Marcellus is already the second most prolific natural gas producer in the world after the Pars/North Dome field in Iran. Utica wells have set record highs for cost but also for production. Such profuse production gives these two shale layers a lower breakeven price than most other natural gas plays. Since the productivity of both plays is newly discovered, most of the recoverable gas is still in the ground.

# Marcellus & Utica Shale

## 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.

Since 2012, the two formations have accounted for over 85% of domestic natural gas production growth and are predicted to dominate production in years to come. The price of natural gas has been depressed for many years but began declining even further in early 2014, reaching a low of \$1.64/mcf on March 3, 2016. Since then the price of natural gas has more than doubled to \$3.72/mcf at year end. Although natural gas prices have been volatile, natural gas production in the Marcellus and Utica has still been increasing over the last few years albeit slower rate. From January 2011 to year-end 2013, production of natural gas increased at a compound annual rate of 54%. However, from January 2014 to December 2016, production growth slowed to a CAGR of 19%. Rig counts in the Marcellus and Utica remained unchanged in 2016 after falling by 55% the previous year. Natural gas production per rig in 2016 increased by 21% in the Marcellus and by 25% in the Utica.<sup>1</sup>

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<sup>1</sup> EIA Drilling Report by Region.

# Marcellus & Utica Shale

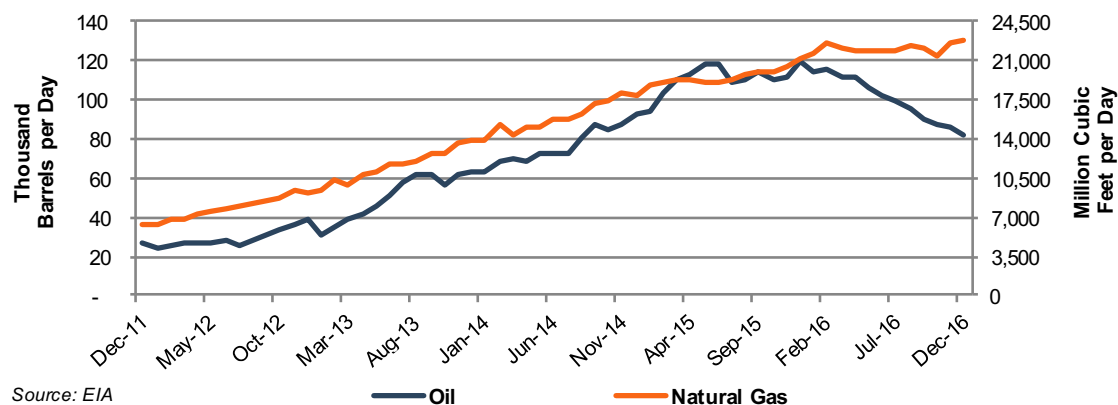
## Production (continued)

The top producers in the Marcellus and Utica Shale include Chesapeake, Range Resources, and Cabot.

The different financial positions of the three companies are indicative of the industry as a whole. Some companies, such as Chesapeake, are still working to improve liquidity and manage debt, while others, like Range, are well positioned to begin spending again in order to increase production. However, all companies are reporting the expectation for cost reductions in 2017 driven by increased efficiency from improvements made to pad drilling and the lengthening of lateral length wells. Range Resources reported that the fourth quarter was their best quarter in 2016, and they are projecting substantial increases in their margins in 2017. Chesapeake improved efficiencies by divesting in non-core assets and focusing on plays that are more economical.

Capital expenditures were reduced over the last few years as the price of natural gas remained depressed. However, many oil and gas companies are hoping to begin spending again in 2017. Range Resources expects to increase spending in order to catch up with their previous trajectory that was thrown off over the last couple of years. Cabot plans on spending 67% of their cap ex budget in the Marcellus.

**Total Oil and Gas Production in the Marcellus & Utica Shale**





# Marcellus & Utica Shale

## Guideline Public Company Valuation Multiples

As shown in Appendix B (pages 11-17), median valuation multiples for companies focused in the Marcellus and Utica are slightly lower than companies operating in other domestic plays. While many companies moved out of other regions to the Permian Basin in 2016, many natural gas companies still are focused in the Marcellus and Utica.

Enterprise values for companies in the Marcellus and Utica increased by approximately 20% over the last twelve months, while enterprise values in the Permian, Bakken, and the Eagle Ford increased by 69%, 39%, and 35% respectively. Currently, multiples for companies operating in the Permian Basin are high because enterprise values recognize the future earnings potential, while EBITDA only considers historical earnings, which have been depressed from the fall in oil prices. The Permian has lower break even costs than many plays, and recent discoveries of oil reserves have attracted investors' attention. While the Marcellus and Utica are still viable plays, the price of natural gas has remained depressed for many years due to a lack of infrastructure in the area. However, new investment in pipelines that will carry natural gas and NGLs out of the Northeast is expected to help reduce pressure on natural gas prices which will increase earnings. Valuation multiples in the Marcellus and Utica have remained relatively constant over the last year.

# Marcellus & Utica Shale

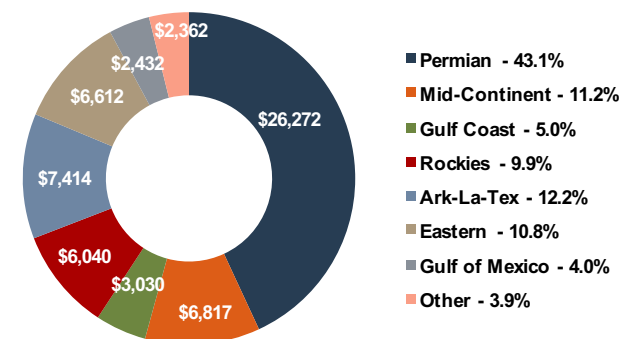
## M&A Transaction Activity

M&A activity in the E&P sector has generated approximately \$61.0 billion over the past twelve months. Recent transactions in the Marcellus & Utica are summarized on the next page.

This past year there has been significant movement in and out of the Marcellus and Utica shale plays. In a recent transaction, Antero increased their acreage in the Marcellus and now holds more than 2x the gross undeveloped acreage in the high-graded core assets of the Marcellus than their next peer. This acquisition strengthened Antero's position as the largest "pure play" in Appalachia. On the other hand, Anadarko, one of the initial investors in the Marcellus shale, **divested their Marcellus assets** in order to focus operations in the Delaware and DJ basins. Most of the acreage was non-operated which means that they do not have control of how or when the acreage is developed. This explains the relatively low valuation multiples.

### U.S. Announced Deal Value (2016)

(in \$millions)



Source: 1Derrick

**Marcellus & Utica Transactions**

| Announced Date | Buyer                           | Seller                                   | Play            | Deal Value (\$MM) | \$ / Acre        | \$ / Daily Mmcf | \$ / Mcfe/d    |
|----------------|---------------------------------|--|-----------------|-------------------|------------------|-----------------|----------------|
| 12/21/16       | Alta Resources Development, LLC | Anadarko Petroleum Corp                  | Marcellus Shale | \$1,240.0         | \$6,359.0        | \$2.6           | na             |
| 12/19/16       | Not Disclosed                   | Eclipse Resources Corp.                  | Utica Shale     | 63.8              | 6,444.4          | 63.8            | na             |
| 12/7/16        | Gulfport Energy Corp.           | Not Disclosed                            | Utica Shale     | 87.0              | 6,904.8          | na              | na             |
| 10/26/16       | Not Disclosed                   | Antero Resources                         | Marcellus Shale | 170.0             | 10,000.0         | na              | na             |
| 10/25/16       | EQT Corp                        | Trans Energy Inc. , Republic Energy Inc. | Marcellus Shale | 683.0             | 11,459.7         | 15.5            | na             |
| 9/26/16        | Rice Energy                     | Vantage Energy LLC                       | Multiple        | 2,700.0           | 19,708.0         | 6.8             | na             |
| 6/9/16         | Antero Resources                | Southwestern Energy Co.                  | Multiple        | 450.0             | 8,181.8          | 32.1            | 109.8          |
| 5/20/16        | Vantage Energy LLC              | Alpha Natural Resources Inc.             | Marcellus Shale | 339.5             | 6,669.9          | na              | na             |
| 5/2/16         | EQT Corp                        | Statoil                                  | Marcellus Shale | 407.0             | 6,512.0          | 8.1             | na             |
| 3/28/16        | Not Disclosed                   | Range Resources Corp                     | Marcellus Shale | 110.0             | 10,091.7         | 5.0             | na             |
| 2/22/16        | Tug Hill Operating              | Gastar Exploration, Ltd.                 | Multiple        | 80.0              | 3,883.5          | na              | na             |
| <b>Median</b>  |                                 |  |                 | <b>\$339.5</b>    | <b>\$6,904.8</b> | <b>\$8.1</b>    | <b>\$109.8</b> |
| <b>Average</b> |                                 |  |                 | <b>\$575.5</b>    | <b>\$8,746.8</b> | <b>\$19.1</b>   | <b>\$109.8</b> |

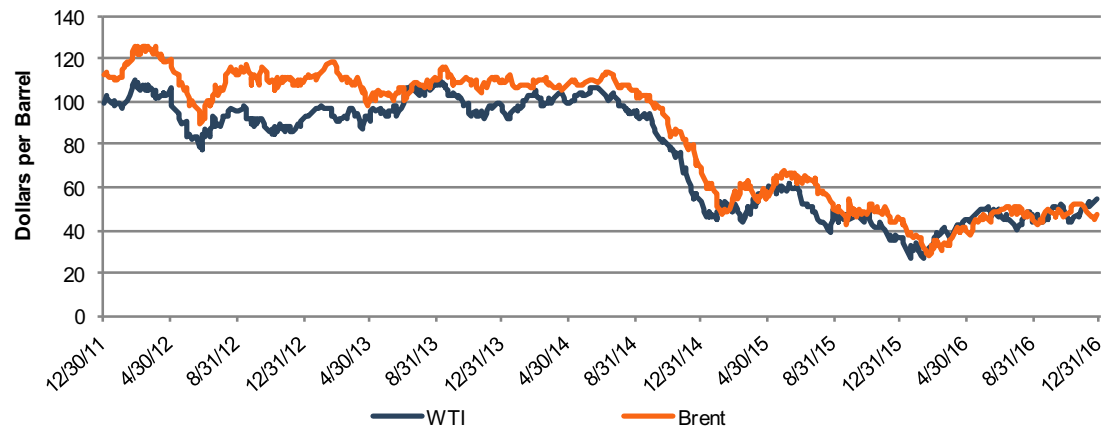
Source: Shale Experts

\* Does not include all transactions in the Marcellus and Utica for the year ended 12/31/2016

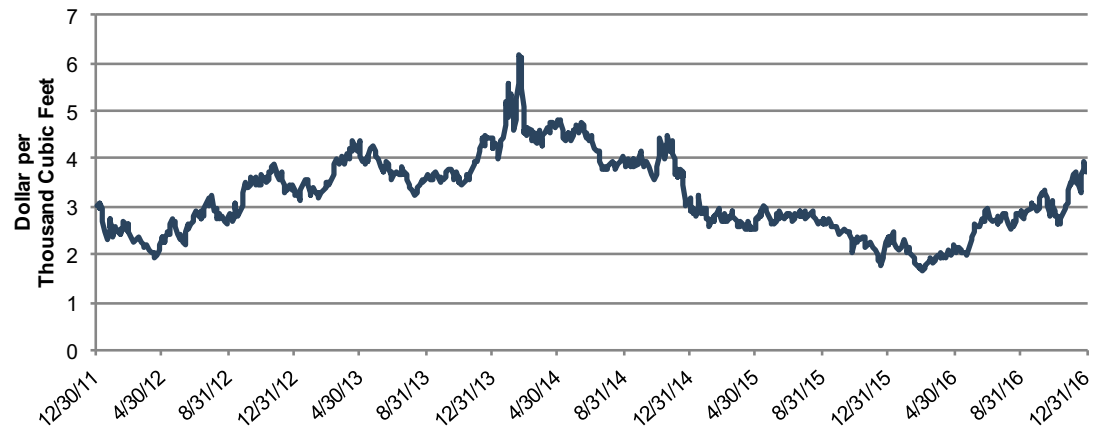
Appendix A

# 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 12/30/2016         |        |                 |                |                |                           |                         |                  |             |                      |
|--------------------------|--------|-----------------|----------------|----------------|---------------------------|-------------------------|------------------|-------------|----------------------|
| 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) |                |                           |                         |                  |             |                      |
| <b>Global Integrated</b> |        |                 |                |                |                           |                         |                  |             |                      |
| Exxon-XTO                | XOM    | 197,518         | 24,768         | 12.5%          | 4,080                     | 419,891                 | 14.9%            | 17x         | 102,914x             |
| Statoil                  | STO    | 45,689          | 14,700         | 32.2%          | 2,056                     | 75,245                  | 34.2%            | 5x          | 36,607x              |
| Shell                    | RDS/A  | 233,591         | 29,468         | 12.6%          | na                        | 306,382                 | 76.3%            | 10x         | na                   |
| Chevron                  | CVX    | 103,310         | 14,274         | 13.8%          | 2,603                     | 262,481                 | 32.8%            | 18x         | 100,838x             |
| Occidental Petroleum Co. | OXY    | 10,090          | 2,671          | 26.5%          | 624                       | 62,019                  | 9.2%             | 23x         | 99,337x              |
| BP                       | BP     | 183,008         | 14,604         | 8.0%           | na                        | 157,389                 | 27.7%            | 11x         | na                   |
| <b>Average</b>           |        | <b>128,868</b>  | <b>16,748</b>  | <b>17.6%</b>   | <b>2,341</b>              | <b>213,901</b>          | <b>32.5%</b>     | <b>14x</b>  | <b>84,924x</b>       |
| <b>Median</b>            |        | <b>143,159</b>  | <b>14,652</b>  | <b>13.2%</b>   | <b>2,329</b>              | <b>209,935</b>          | <b>30.2%</b>     | <b>14x</b>  | <b>100,087x</b>      |

Presented in \$000,000s, as of 12/30/2016

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.

## Appendix B

## Selected Public Company Information

as of 12/30/2016

| 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) |                |                           |                         |                  |             |                      |
| <b>Global E&amp;P</b>    |        |                 |                |                |                           |                         |                  |             |                      |
| Marathon Oil             | MRO    | 4,086           | 1,650          | 40.4%          | 390                       | 19,450                  | 33.4%            | 12x         | 49,857x              |
| Hess                     | HES    | 4,762           | 1,168          | 24.5%          | 314                       | 25,428                  | 35.5%            | 22x         | 80,988x              |
| ConocoPhillips Co.       | COP    | 23,693          | 6,695          | 28.3%          | 1,561                     | 85,992                  | 6.9%             | 13x         | 55,088x              |
| Anadarko Petroleum Corp. | APC    | 8,134           | 2,913          | 35.8%          | 772                       | 54,396                  | 29.4%            | 19x         | 70,470x              |
| Noble Energy             | NBL    | 3,958           | 2,550          | 64.4%          | 405                       | 22,733                  | 7.2%             | 9x          | 56,199x              |
| Apache Corp.             | APA    | 5,301           | 1,013          | 19.1%          | 503                       | 32,690                  | 27.4%            | 32x         | 64,932x              |
| Murphy Oil               | MUR    | 1,810           | 766            | 42.3%          | 169                       | 7,369                   | 14.0%            | 10x         | 43,732x              |
| Newfield Exploration     | NFX    | 1,673           | (146)          | -8.7%          | 152                       | 9,906                   | 27.3%            | nm          | 65,245x              |
| <b>Average</b>           |        | <b>6,677</b>    | <b>2,076</b>   | <b>30.8%</b>   | <b>533</b>                | <b>32,246</b>           | <b>22.6%</b>     | <b>17x</b>  | <b>60,814x</b>       |
| <b>Median</b>            |        | <b>4,424</b>    | <b>1,409</b>   | <b>32.0%</b>   | <b>397</b>                | <b>24,081</b>           | <b>27.3%</b>     | <b>13x</b>  | <b>60,565x</b>       |

Presented in \$000,000s, as of 12/30/2016  
Source: Bloomberg L.P.

## Appendix B

## Selected Public Company Information

as of 12/30/2016

| 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) |                |                           |                         |                  |            |                     |
| <b>Other North American E&amp;P</b> |        |                 |                |                |                           |                         |                  |            |                     |
| Legacy Reserves                     | LGCY   | 379             | 130            | 34.3%          | 42                        | 1,550                   | -13.8%           | 12x        | 36,709x             |
| EXCO Resources                      | XCO    | 300             | (107)          | -35.6%         | na                        | 1,546                   | -9.5%            | nm         | na                  |
| EV Energy Partners                  | EVEP   | 243             | (42)           | -17.5%         | 32                        | 704                     | -12.6%           | nm         | 22,125x             |
| Encana Corp.                        | ECA    | 2,918           | (1,022)        | -35.0%         | 329                       | 14,846                  | 57.6%            | nm         | 45,127x             |
| Devon                               | DVN    | 10,338          | (1,069)        | -10.3%         | 539                       | 36,556                  | 31.4%            | nm         | 67,759x             |
| Contango Oil & Gas                  | MCF    | 81              | 12             | 15.3%          | 11                        | 290                     | 21.1%            | 23x        | 25,514x             |
| Bill Barrett Corp                   | BBG    | 274             | 168            | 61.2%          | 17                        | 952                     | 9.2%             | 6x         | 55,534x             |
| Denbury Resources Inc               | DNR    | 1,045           | (1,021)        | -97.7%         | 60                        | 4,458                   | 11.6%            | nm         | 73,831x             |
| Bonanza Creek Energy Inc            | BCEI   | 214             | 3              | 1.5%           | 17                        | 940                     | -16.5%           | 298x       | 55,844x             |
| Enerplus                            | ERF    | 607             | 440            | 72.5%          | 87                        | 2,850                   | 79.8%            | 6x         | 32,629x             |
| QEP Resources Inc                   | SXL    | 1,511           | (596)          | -39.4%         | 157                       | 5,987                   | 43.1%            | nm         | 38,109x             |
| Abraxas Petroleum Corp.             | AXAS   | 58              | na             | na             | 7                         | 452                     | 80.7%            | nm         | 63,368x             |
| WPX Energy                          | WPX    | 992             | 241            | 24.3%          | 91                        | 7,338                   | 44.4%            | 30x        | 80,310x             |
| EQT                                 | EQT    | 2,135           | 1,189          | 55.7%          | 368                       | 16,743                  | 35.1%            | 14x        | 45,541x             |
| Chesapeake Energy                   | CHK    | 8,690           | (2,255)        | -25.9%         | 558                       | 17,817                  | 10.1%            | nm         | 31,947x             |
| Matador Resources                   | MTDR   | 306             | (14)           | -4.5%          | 31                        | 2,924                   | 44.6%            | nm         | 93,333x             |
| Comstock Resources                  | CRK    | 176             | 42             | 23.7%          | 29                        | 1,111                   | -7.8%            | 27x        | 37,809x             |
| <b>Average</b>                      |        | <b>1,780</b>    | <b>(244)</b>   | <b>1.4%</b>    | <b>149</b>                | <b>6,886</b>            | <b>24.0%</b>     | <b>52x</b> | <b>50,343x</b>      |
| <b>Median</b>                       |        | <b>379</b>      | <b>(5)</b>     | <b>-1.5%</b>   | <b>51</b>                 | <b>2,850</b>            | <b>21.1%</b>     | <b>19x</b> | <b>45,334x</b>      |

Presented in \$000,000s, as of 12/30/2016

Source: Bloomberg L.P.

## Appendix B

## Selected Public Company Information

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

as of 12/30/2016

| 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) |                |                           |                         |                  |             |                      |
| <b>Bakken</b>                |        |                 |                |                |                           |                         |                  |             |                      |
| Continental Resources        | CLR    | 2,141           | 1,600          | 74.7%          | 217                       | 25,867                  | 65.0%            | 16x         | 119,319x             |
| Whiting Petroleum Corp       | WLL    | 1,285           | 428            | 33.3%          | 119                       | 6,905                   | -3.0%            | 16x         | 58,255x              |
| Halcon Resources Corp        | HK     | 671             | (843)          | -125.7%        | 39                        | 2,075                   | na               | nm          | 52,557x              |
| Oasis Petro                  | OAS    | 827             | 469            | 56.8%          | 64                        | 5,865                   | 76.7%            | 12x         | 92,258x              |
| Crescent Point Energy        | CPG    | 2,653           | 1,647          | 62.1%          | 171                       | 10,193                  | 12.2%            | 6x          | 59,684x              |
| <b>Average</b>               |        | <b>1,515</b>    | <b>660</b>     | <b>20.2%</b>   | <b>122</b>                | <b>10,181</b>           | <b>37.7%</b>     | <b>13x</b>  | <b>76,415x</b>       |
| <b>Median</b>                |        | <b>1,285</b>    | <b>469</b>     | <b>56.8%</b>   | <b>119</b>                | <b>6,905</b>            | <b>38.6%</b>     | <b>14x</b>  | <b>59,684x</b>       |
| <b>Marcellus &amp; Utica</b> |        |                 |                |                |                           |                         |                  |             |                      |
| Range Resources              | RRC    | 1,709           | 574            | 33.6%          | 327                       | 12,265                  | 79.9%            | 21x         | 37,487x              |
| Cabot Oil and Gas            | COG    | 1,193           | 89             | 7.5%           | 302                       | 11,888                  | 27.2%            | 133x        | 39,355x              |
| Rice                         | RICE   | 980             | 521            | 53.2%          | 194                       | 7,756                   | 127.0%           | 15x         | 39,885x              |
| REX Energy Corp              | REXX   | 142             | (73)           | -51.3%         | 33                        | 842                     | -16.3%           | nm          | 25,233x              |
| Antero Resources Corp        | AR     | 3,164           | 1,361          | 43.0%          | 339                       | 13,563                  | 12.3%            | 10x         | 39,980x              |
| Eclipse Resources Corp.      | ECR    | 261             | 57             | 21.9%          | 46                        | 987                     | 31.9%            | 17x         | 21,456x              |
| Gulfport Energy              | GPOR   | 386             | (622)          | -161.2%        | 148                       | 3,755                   | 7.5%             | nm          | 25,331x              |
| Southwestern Energy Co       | SWN    | 2,475           | (1,720)        | -69.5%         | 382                       | 10,316                  | 12.5%            | nm          | 27,007x              |
| <b>Average</b>               |        | <b>1,289</b>    | <b>23</b>      | <b>-15.4%</b>  | <b>222</b>                | <b>7,671</b>            | <b>35.3%</b>     | <b>39x</b>  | <b>31,966x</b>       |
| <b>Median</b>                |        | <b>1,086</b>    | <b>73</b>      | <b>14.7%</b>   | <b>248</b>                | <b>9,036</b>            | <b>19.8%</b>     | <b>17x</b>  | <b>32,247x</b>       |

Presented in \$000,000s, as of 12/30/2016  
Source: Bloomberg L.P.



## Appendix B

## Selected Public Company Information

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

as of 12/30/2016

| 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) |                |                           |                         |                  |             |                      |
| <b>Permian Basin</b>          |        |                 |                |                |                           |                         |                  |             |                      |
| Concho                        | CXO    | 2,260           | 169            | 7.5%           | 171                       | 22,054                  | 46.1%            | 130x        | 128,965x             |
| Callon Petroleum Co           | CPE    | 219             | 43             | 19.9%          | 21                        | 2,900                   | 173.7%           | 67x         | 136,357x             |
| Parsley Energy                | PEIX   | 505             | 348            | 68.9%          | 49                        | 8,291                   | 152.2%           | 24x         | 167,518x             |
| Diamondback Energy            | FANG   | 528             | 111            | 20.9%          | 54                        | 8,711                   | 68.7%            | 79x         | 161,197x             |
| Earthstone Energy, Inc.       | ESTE   | 46              | nm             | nm             | 6                         | 296                     | 72.0%            | nm          | 46,117x              |
| RSP Permian Inc               | RSPP   | 352             | 225            | 63.8%          | 46                        | 6,774                   | 124.7%           | 30x         | 147,209x             |
| Laredo Petroleum Inc.         | LPI    | 783             | 246            | 31.4%          | 54                        | 4,742                   | 53.3%            | 19x         | 88,480x              |
| Approach Resources Inc        | AREX   | 96              | 44             | 45.9%          | 12                        | 639                     | 12.0%            | 14x         | 53,475x              |
| Ring Energy                   | REI    | 31              | (46)           | -147.6%        | 3                         | 558                     | 118.3%           | nm          | 183,490x             |
| Pioneer Natural Resources Co. | PXD    | 4,640           | 1,664          | 35.9%          | 254                       | 31,223                  | 48.7%            | 19x         | 122,693x             |
| Cimarex Energy Co.            | XEC    | 1,257           | (139)          | -11.1%         | 175                       | 13,741                  | 50.0%            | nm          | 78,490x              |
| Clayton Williams Energy Inc.  | CWEI   | 289             | 172            | 59.6%          | 12                        | 2,361                   | 115.7%           | 14x         | 203,942x             |
| Energen Corp                  | EGN    | 604             | 308            | 51.0%          | 57                        | 5,764                   | 44.0%            | 19x         | 101,423x             |
| <b>Average</b>                |        | <b>893</b>      | <b>262</b>     | <b>20.5%</b>   | <b>70</b>                 | <b>8,312</b>            | <b>83.0%</b>     | <b>41x</b>  | <b>124,566x</b>      |
| <b>Median</b>                 |        | <b>505</b>      | <b>171</b>     | <b>33.6%</b>   | <b>49</b>                 | <b>5,764</b>            | <b>68.7%</b>     | <b>22x</b>  | <b>128,965x</b>      |

Presented in \$000,000s, as of 12/30/2016  
Source: Bloomberg L.P.

## Appendix B

## Selected Public Company Information

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

as of 12/30/2016

| 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) |                |                           |                         |                  |             |                      |
| <b>Eagle Ford</b>                          |        |                 |                |                |                           |                         |                  |             |                      |
| Carrizo Oil & Gas Inc.                     | CRZO   | 563             | (212)          | -37.6%         | 46                        | 3,754                   | 28.6%            | nm          | 81,633x              |
| Baytex Energy                              | BTE    | 699             | (24)           | -3.4%          | 68                        | 2,441                   | 20.7%            | nm          | 35,931x              |
| Sanchez Energy                             | SN     | 567             | 104            | 18.3%          | 51                        | 2,079                   | 15.1%            | 20x         | 40,411x              |
| SM Energy<br>(St. Mary Land & Exploration) | SM     | 1,180           | (203)          | -17.2%         | 145                       | 6,211                   | 61.2%            | nm          | 42,744x              |
| EOG Resources                              | EOG    | 7,522           | 2,552          | 33.9%          | 592                       | 63,673                  | 41.9%            | 25x         | 107,542x             |
| Swift Energy Co.                           | SWTF   | 144             | 781            | 541.1%         | na                        | 536                     | na               | 1x          | na                   |
| <b>Average</b>                             |        | <b>1,779</b>    | <b>500</b>     | <b>89.2%</b>   | <b>181</b>                | <b>13,116</b>           | <b>33.5%</b>     | <b>15x</b>  | <b>61,652x</b>       |
| <b>Median</b>                              |        | <b>633</b>      | <b>40</b>      | <b>7.4%</b>    | <b>68</b>                 | <b>3,098</b>            | <b>28.6%</b>     | <b>20x</b>  | <b>42,744x</b>       |

Presented in \$000,000s, as of 12/30/2016  
Source: Bloomberg L.P.

## Appendix B

## Selected Public Company Information

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

as of 12/30/2016

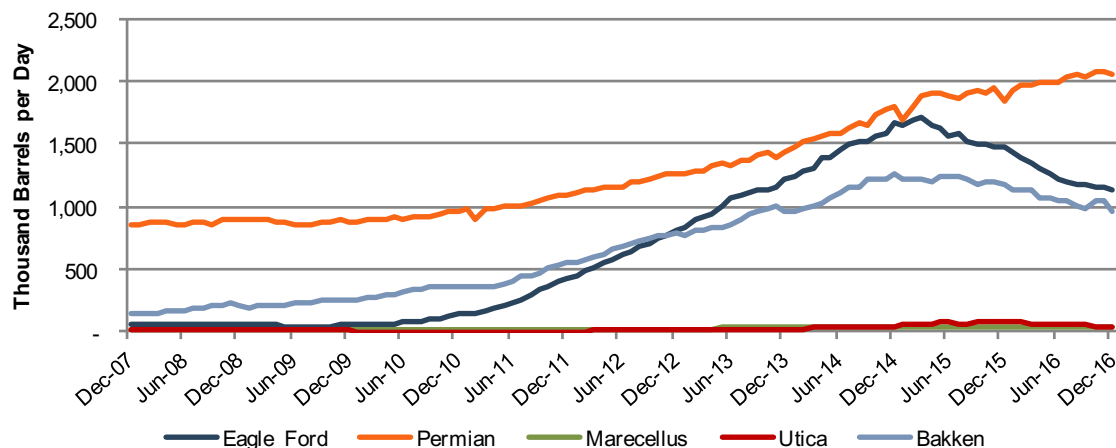
| Company Name           | Ticker | LTM             |                | EBITDAX Margin | Daily Production (MBOE/D) | Enterprise Value (\$MM) | YOY Change in EV | EV/ EBITDAX | EV/ Total Production |
|------------------------|--------|-----------------|----------------|----------------|---------------------------|-------------------------|------------------|-------------|----------------------|
|                        |        | Revenues (\$MM) | EBITDAX (\$MM) |                |                           |                         |                  |             |                      |
| <b>Focused E&amp;P</b> |        |                 |                |                |                           |                         |                  |             |                      |
| Average                |        | 1,255           | 311            | 24.5%          | 135                       | 9,344                   | 56.0%            | 32x         | 82,756x              |
| Median                 |        | 685             | 169            | 31.4%          | 64                        | 6,038                   | 47.4%            | 19x         | 59,684x              |
| <b>E&amp;P</b>         |        |                 |                |                |                           |                         |                  |             |                      |
| Average                |        | 2,173           | 406            | 18.7%          | 197                       | 11,825                  | 41.3%            | 34x         | 70,135x              |
| Median                 |        | 827             | 130            | 23.7%          | 91                        | 6,211                   | 31.9%            | 19x         | 55,844x              |
| <b>All</b>             |        |                 |                |                |                           |                         |                  |             |                      |
| Average                |        | 14,239          | 2,014          | 18.6%          | 342                       | 31,071                  | 40.4%            | 31x         | 71,138x              |
| Median                 |        | 1,045           | 172            | 21.9%          | 145                       | 7,338                   | 31.9%            | 17x         | 56,199x              |

Presented in \$000,000s, as of 12/30/2016  
Source: Bloomberg L.P.

Appendix C

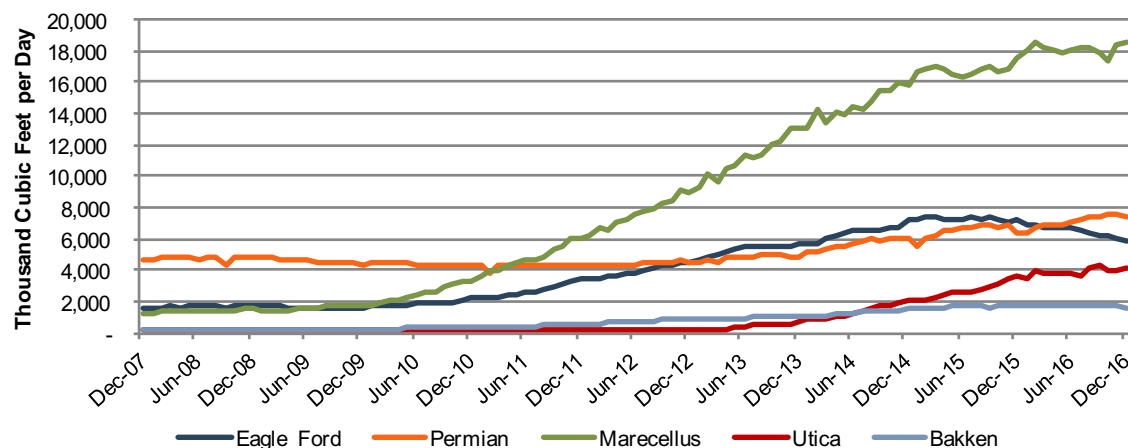
# Production by Region

**Crude Oil Production**



Source: EIA

**Natural Gas Production**

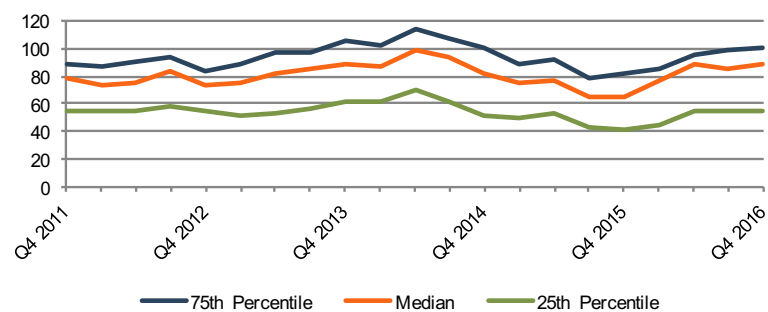


Source: EIA

## Appendix D

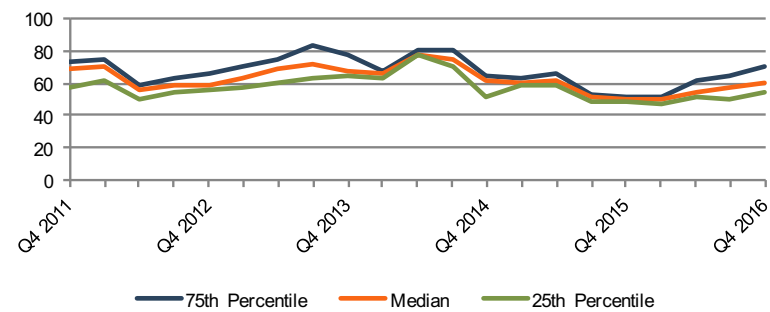
# Historical Valuations

**Global Integrated EV/Total Production**



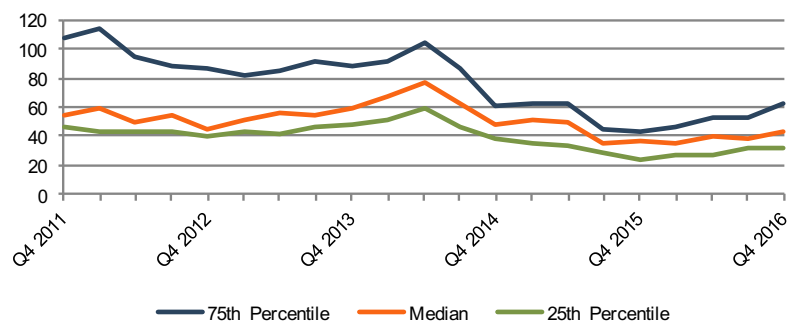
Source: Bloomberg L.P.

**Global E&P EV/Total Production**



Source: Bloomberg L.P.

**North American E&P EV/Total Production**

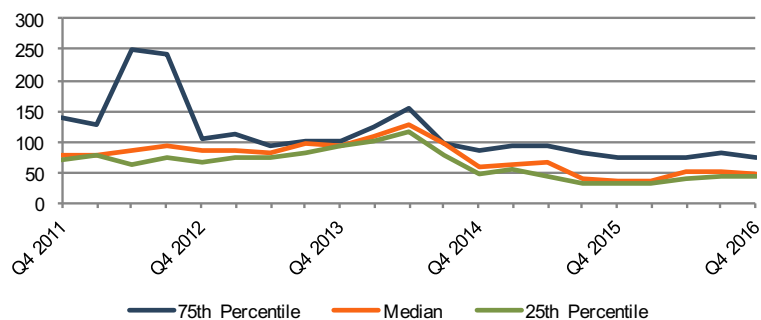


Source: Bloomberg L.P.

## Appendix D

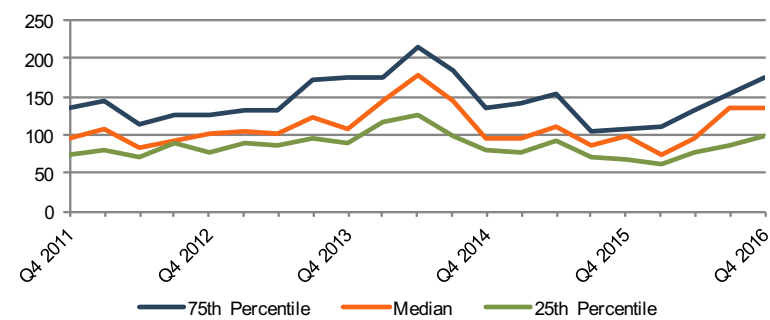
# Historical Valuations

**Eagle Ford EV/Total Production**



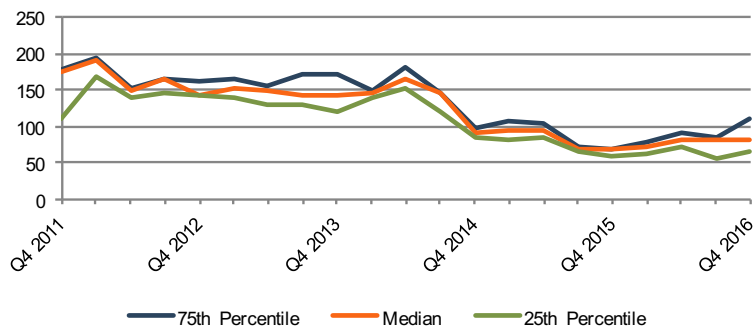
Source: Bloomberg L.P.

**Permian Rig EV/Total Production**



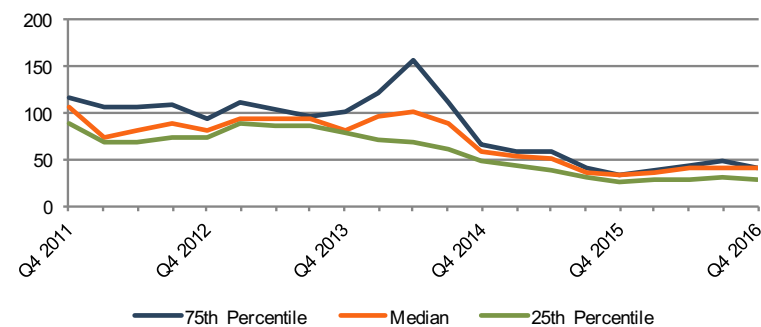
Source: Bloomberg L.P.

**Bakken Rig EV/Total Production**



Source: Bloomberg L.P.

**Marcellus & Utica EV/Total Production**

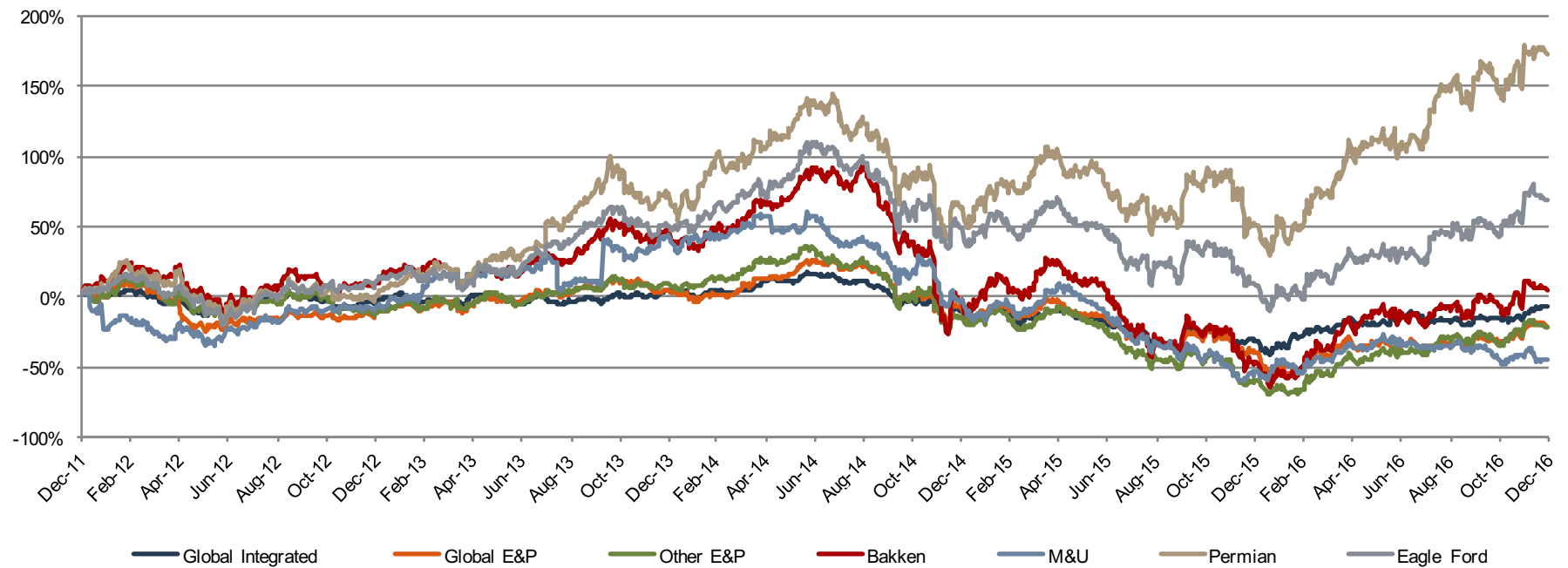


Source: Bloomberg L.P.

## Appendix E

# Stock Performance

### Mercer Capital's Energy Indices Stock Performance



Source: Bloomberg

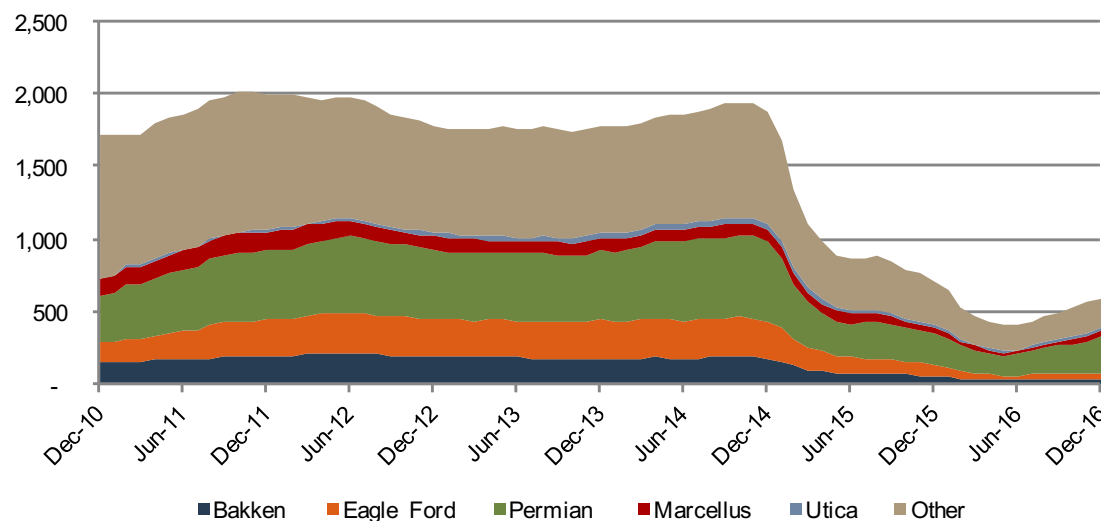
## Appendix F

# 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 December 31, 2016, stood at 597, representing a 16% decrease compared to one year prior and a 68% decrease to two years prior, but over the last three months, the number of rigs increased by 20%. The recent increase reflects a slight pickup in drilling activity.<sup>2</sup> The Permian remains the most active play for drilling followed by the Eagle Ford, Marcellus, Bakken, and Utica.

### Rig Count by Region



Source: Baker Hughes

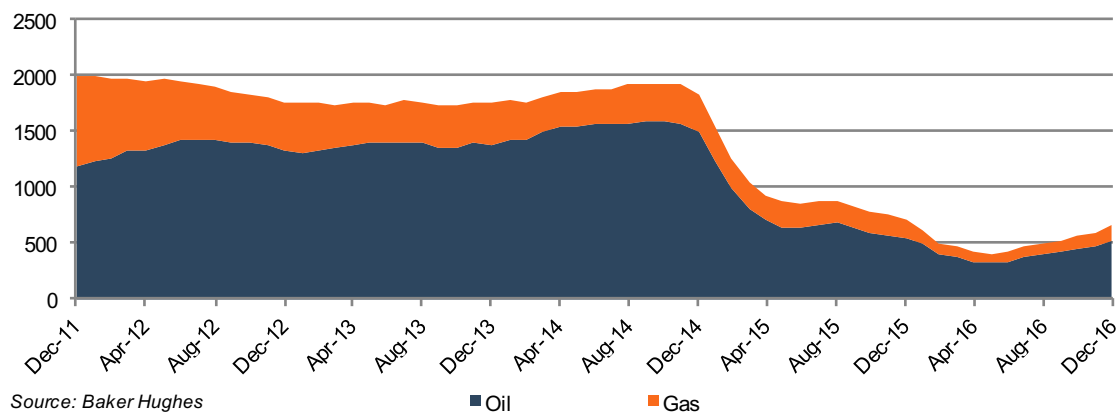
<sup>2</sup> Data provided by Baker Hughes.



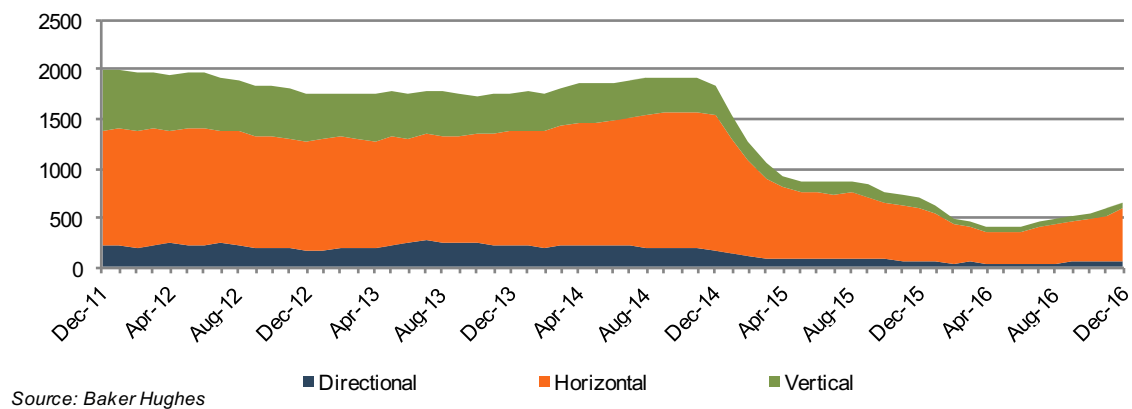
Appendix F

# Rig Count

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



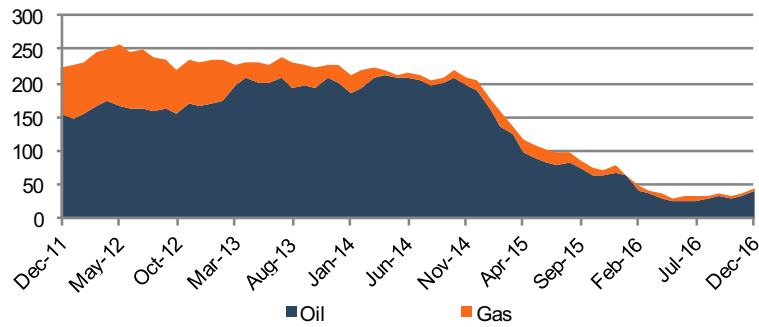
**U.S. Rig Count by Trajectory**



Appendix F

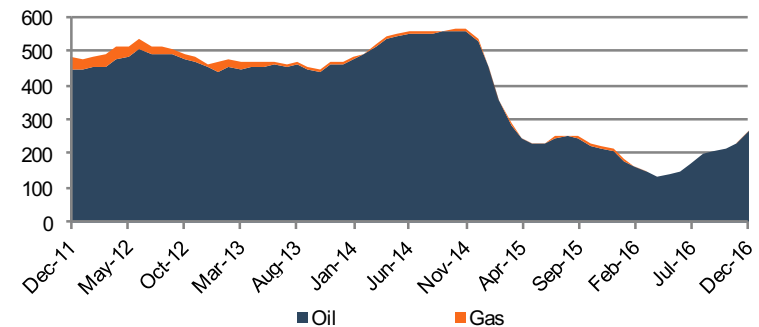
# Rig Count // Oil vs. Natural Gas

**Eagle Ford Rig Count by Oil vs. Natural Gas**



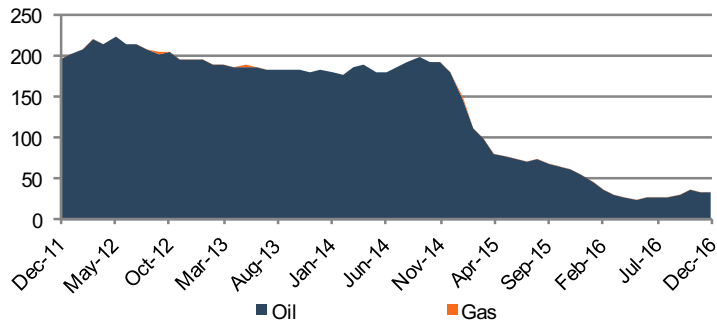
Source: Baker Hughes

**Permian Rig Count by Oil vs. Natural Gas**



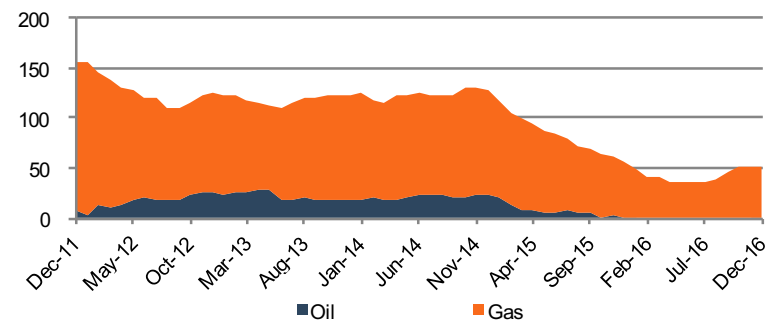
Source: Baker Hughes

**Bakken Rig Count by Oil vs. Natural Gas**



Source: Baker Hughes

**Marcellus & Utica Rig Count by Oil vs. Natural Gas**

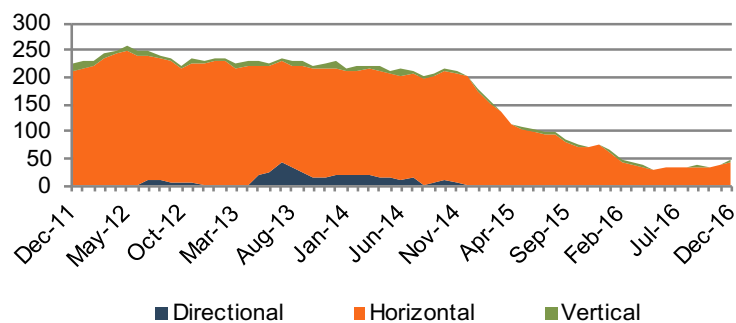


Source: Baker Hughes

## Appendix F

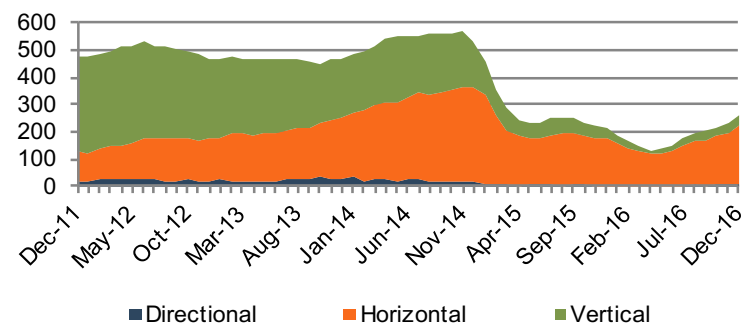
# Rig Count // Trajectory

**Eagle Ford Rig Count by Trajectory**



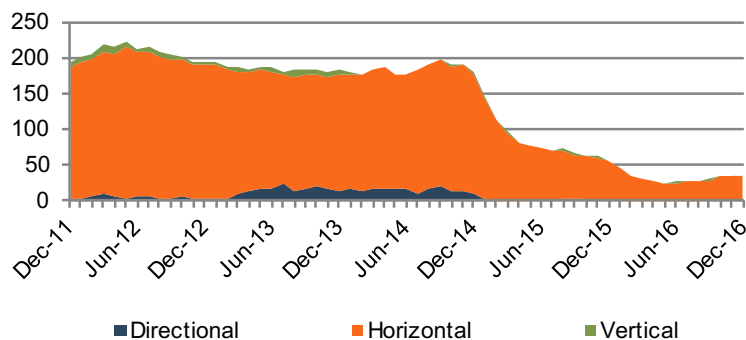
Source: Baker Hughes

**Permian Rig Count by Trajectory**



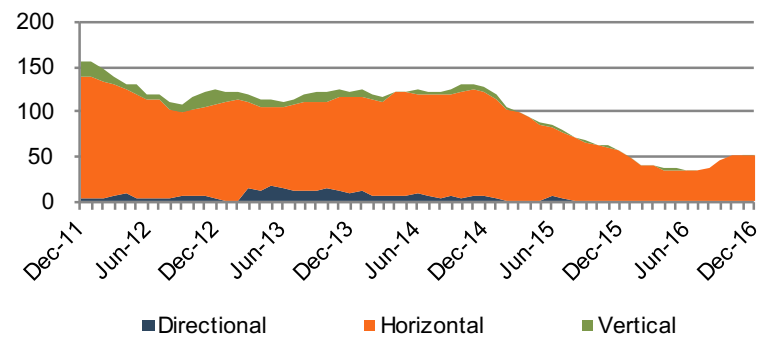
Source: Baker Hughes

**Bakken Rig Count by Trajectory**



Source: Baker Hughes

**Marcellus & Utica Rig Count by Trajectory**



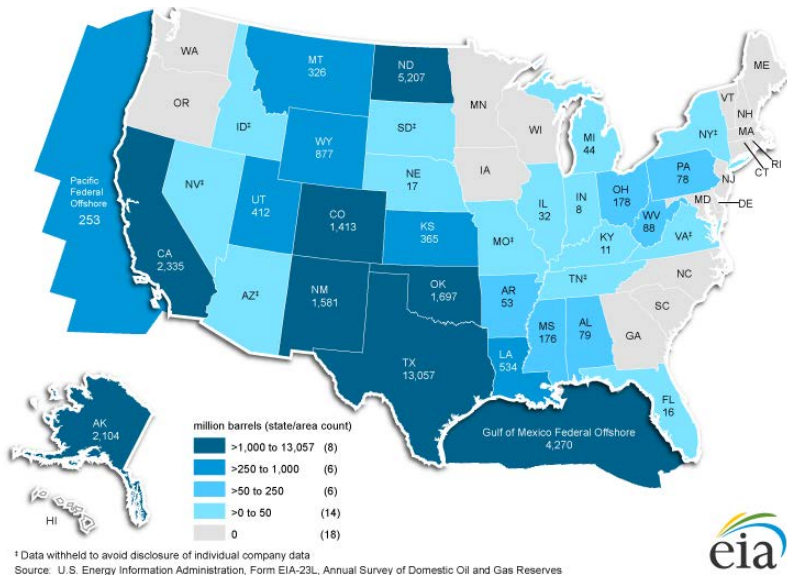
Source: Baker Hughes

Appendix G

# U.S. Oil and Gas Resources

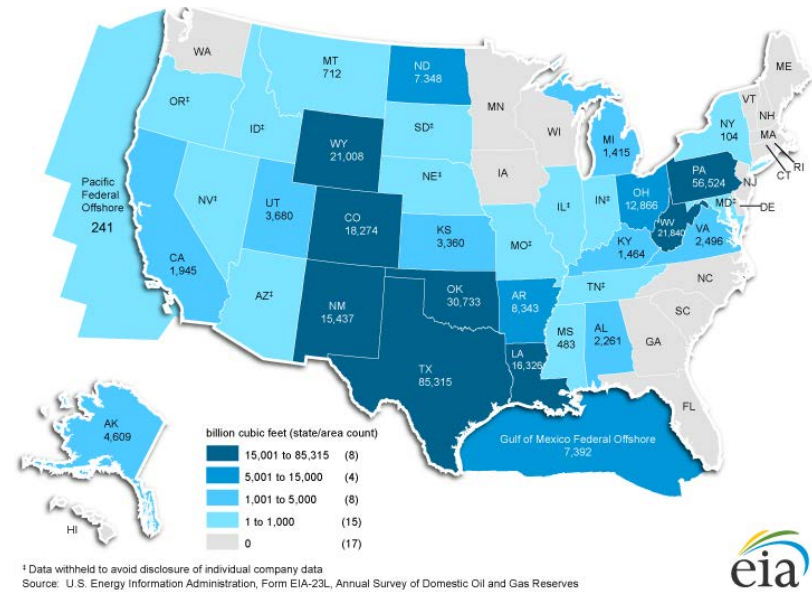
**U.S. Crude Oil and Lease Condensate Proved Reserves Map**

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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