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The Permian: Value Drivers and Further Growth

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UPSTREAM | MIDSTREAM | DOWNSTREAM | FUEL & TRANSPORT



Value Drivers for Permian Performance

What drives good results and generates good economics?

There are a number of factors that result in a positive value for a drilling campaign, however the ultimate result can be judged on these basic factors:

1. Upstream Market Outlook

Where will prices be?

2. Geographic Location of Basin

Why is it valuable?

3. Completion Design

How are wells being drilled and at what cost?

4. EUR (Estimated Ultimate Recovery)

How much does the well produce?

| Upstream Outlook | Location | Completion | EUR |
|---------------------------|------------------------|---------------------------|---------------------------|
| Where are prices heading? | Where should we drill? | What works? at what cost? | How much does it produce? |
| ? Price | ? Basin | ? Technique ? Capex | ? Mboe/Well |

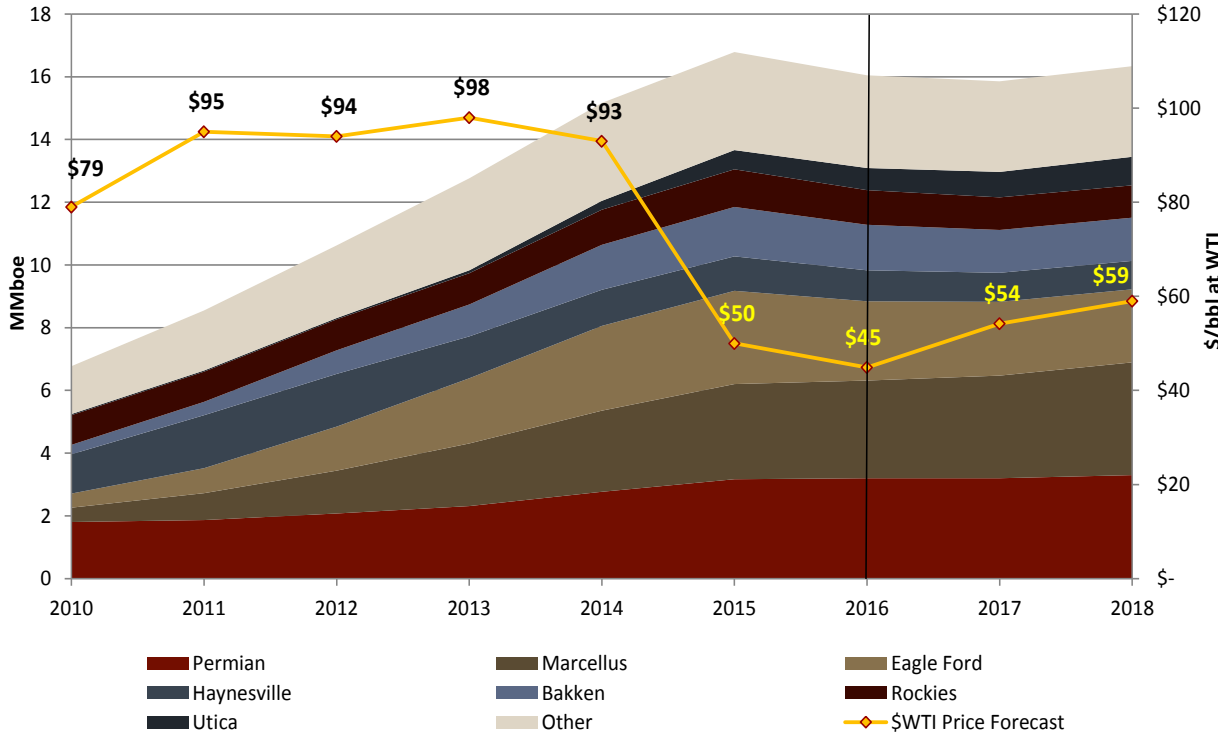


Upstream Market Outlook

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Upstream Outlook

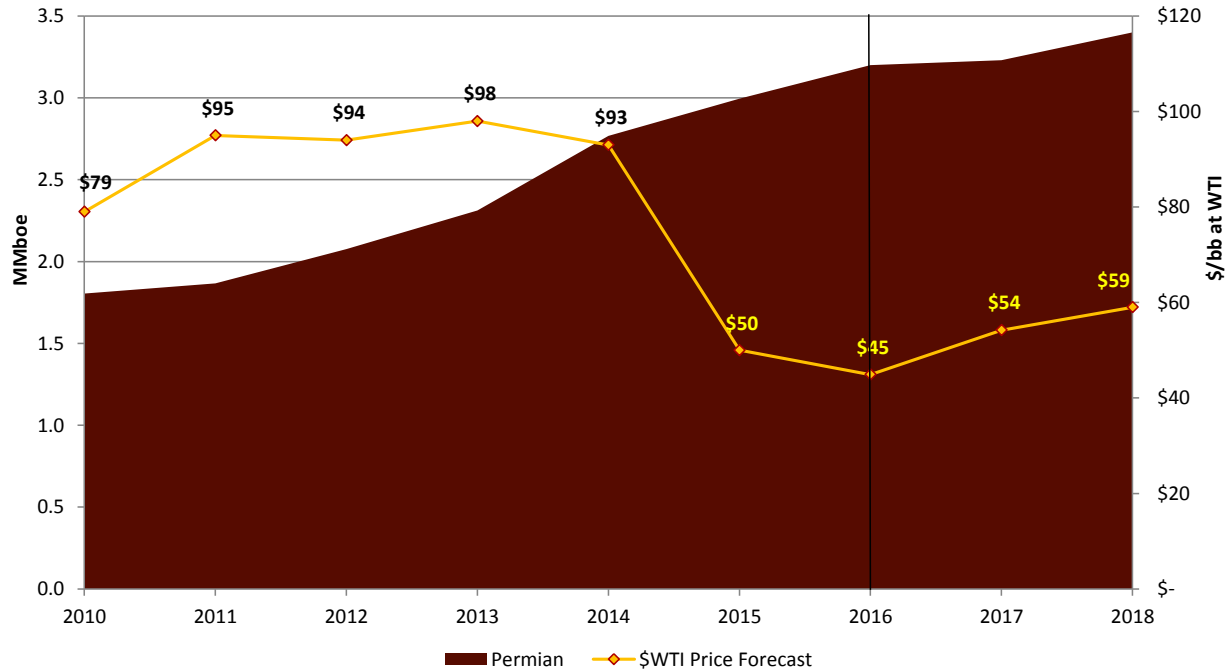
How will prices affect overall production?



- Shale resiliency to the depressed markets was tough at first; however, production has clearly been in decline more recently.
- Shale is expected to continue its struggle over the next couple years. Pent-up supply in Iran & Iraq, combined with challenged financial restructurings present notable hurdles to growing market share for US onshore.
- We estimate prices will begin to recover in 2017 and increase to over \$50/Bbl at WTI
- Across the US, multiple plays have declined or shown a materially reduced rate of increase:
 - › Eagle Ford (decline)
 - › Bakken (decline)
 - › Rockies region (decline)
 - › Gassy-Regions (slowing)

Highlighting the Permian

An Oasis in a Tough Environment



The Permian continues to increase despite the current market environment.

Multiple basins continue to attract investment:

- › Several stacked pay zones allow for multiple hydrocarbon targets,
- › With BE's in the low **\$30/bbl** range for the top 25% of wells, the Permian reflects some of the lowest BE prices in US shale (high IP/EUR combined with easier access to transportation infrastructure)
- › Large inventory of previously drilled VT and HZ wells

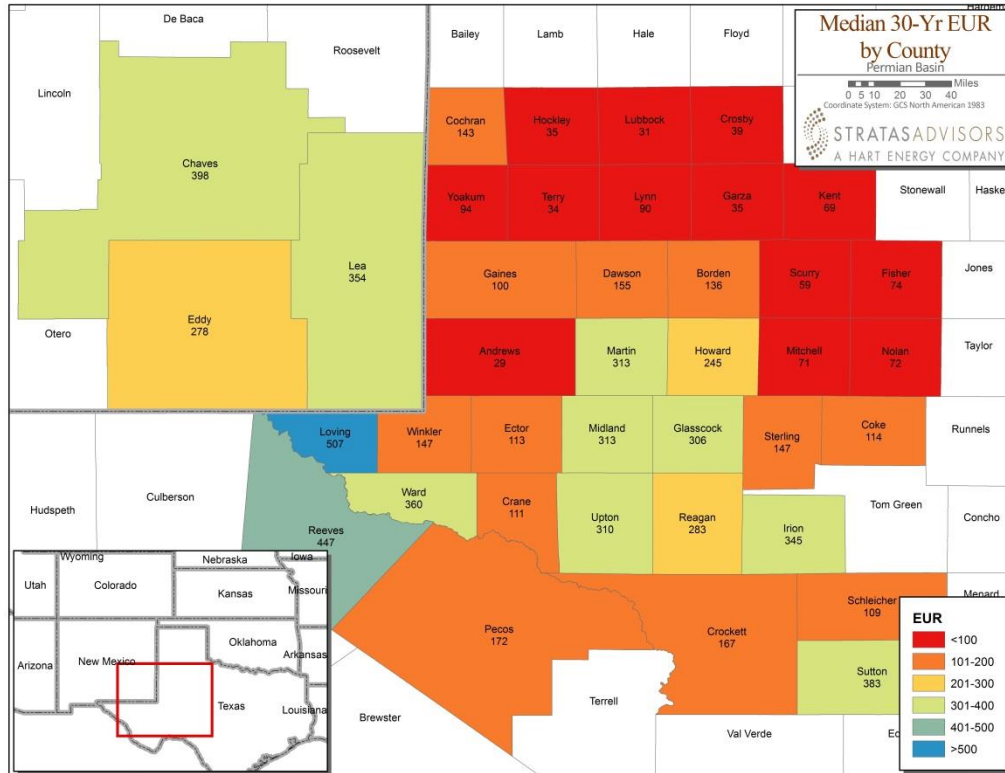


What basin is best?

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Permian Economics

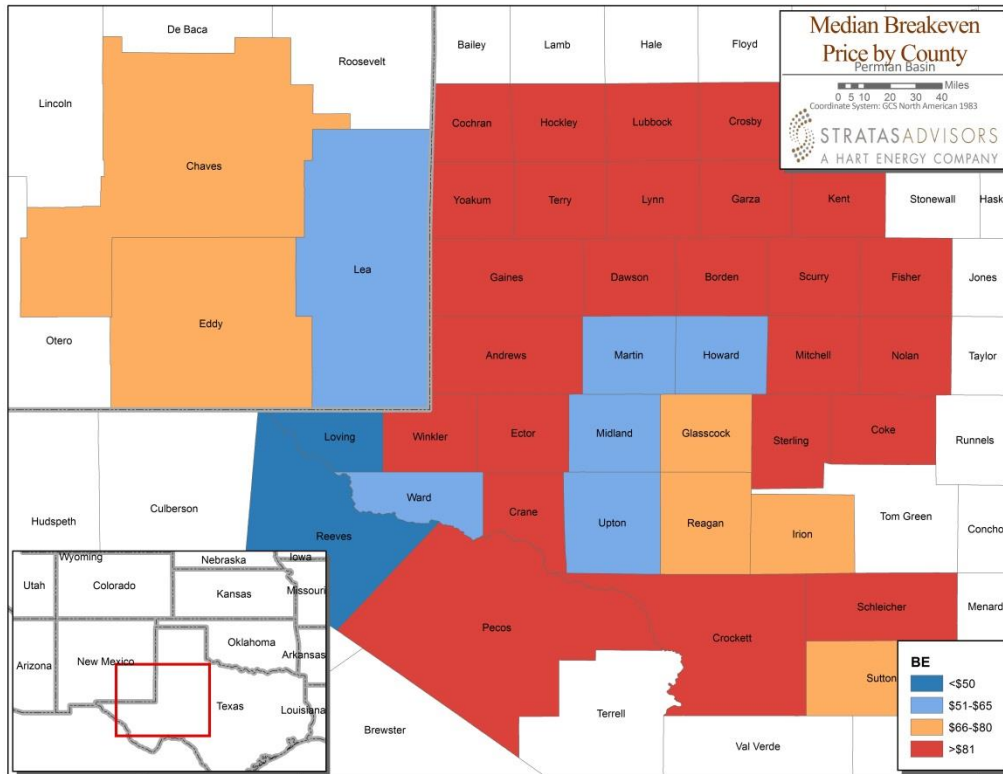
Where, within the core, are the best economics? (Assuming \$6.0mm per well D&C)



- Currently, unconventional drilling accounts for 65% of total completions in the Permian.
 - › Prior to 2014, the Midland basin accounted for ~50% of completions and the Central Basin Platform (CBP) accounted for ~24%. (Focused within SW Midland basin counties and southern CBP counties)
- Median 30-Yr EUR's increase to the west of the Permian basin.
 - › Total Permian basin average EUR = 340 Mboe
- Median breakeven values range from low \$40/bbl to above \$70/bbl on a county-wide basis.
 - When highlighting the top 25% of wells drilled within each county, the median BE lowers to a range between \$20-35/bbl.

Permian Economics

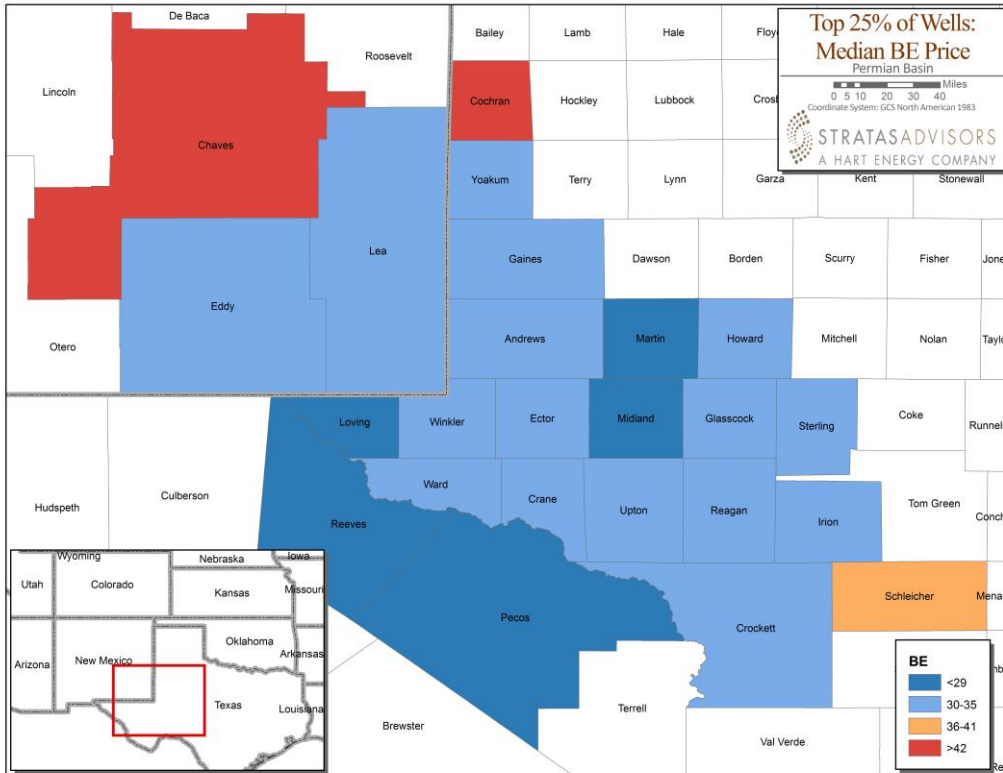
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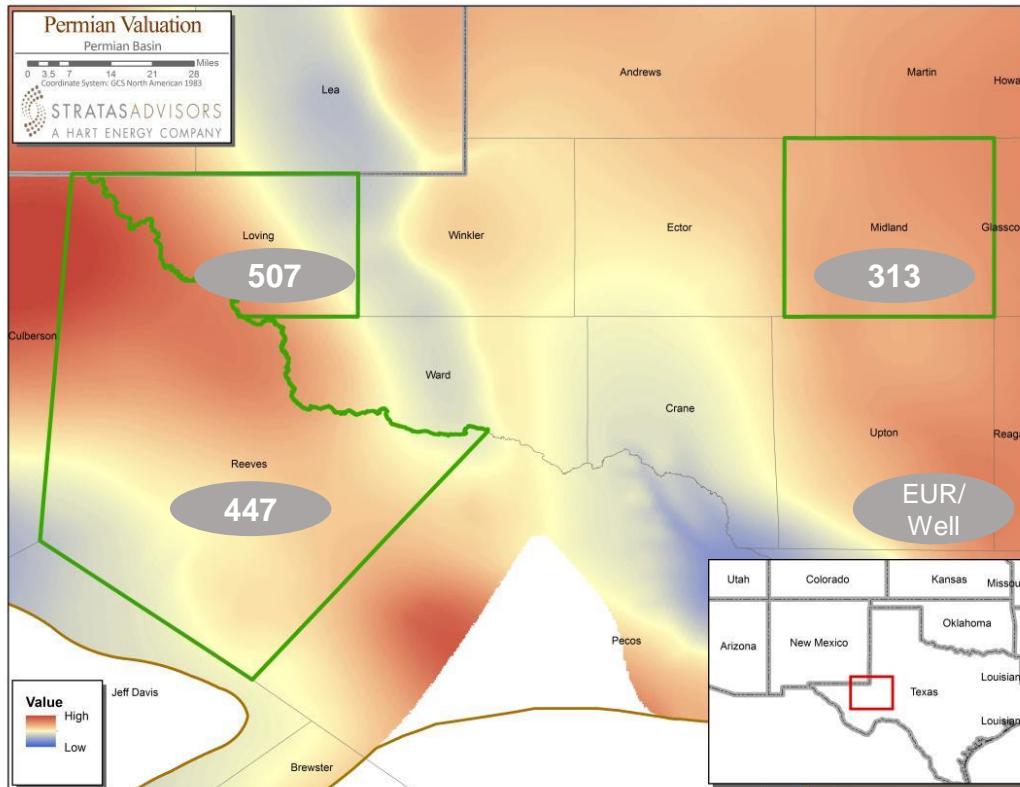
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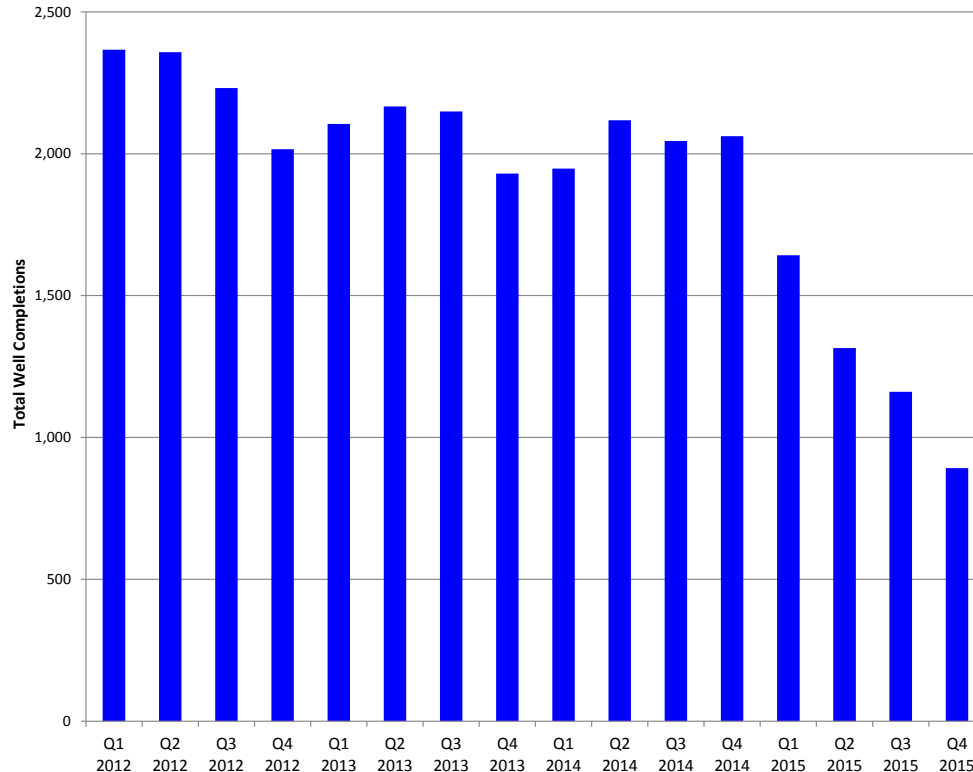
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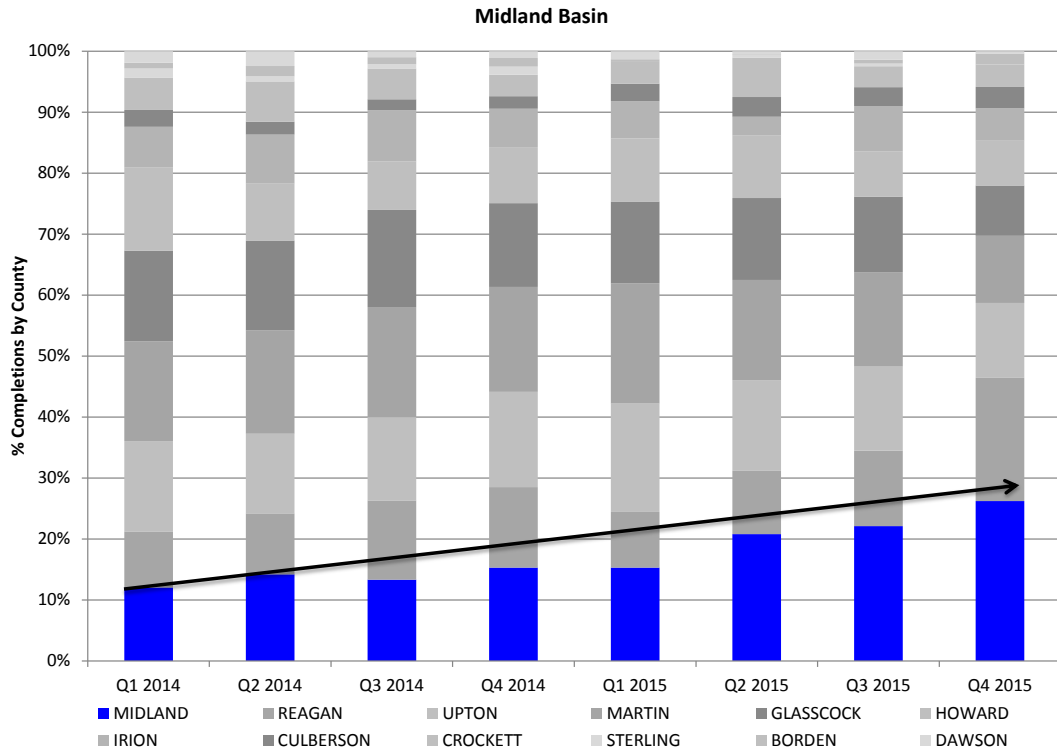
Where is Activity Focusing?



- In 2012, almost 9,000 wells were completed within the overall Permian basin (TX + NM)
 - 62% stemmed from the Midland basin, and
 - 22% came from the Delaware.
- In 2014, well completions decreased by 10% over 2012 levels, and in 2015 completions dropped 47% over the same period.
- In 2015, completion trends in the Midland basin have held steady while completions in the Delaware have increased by ~22%.
- Despite drops in completions, production continues to rise due to efficiency gains, expanding target formations, and aligning proppant type to completion designs.
- New drill locations have begun to hone in on core counties within the Midland and Delaware basins:
 - Delaware: Reeves and Loving
 - Midland: Reagan and Midland

Permian Basin

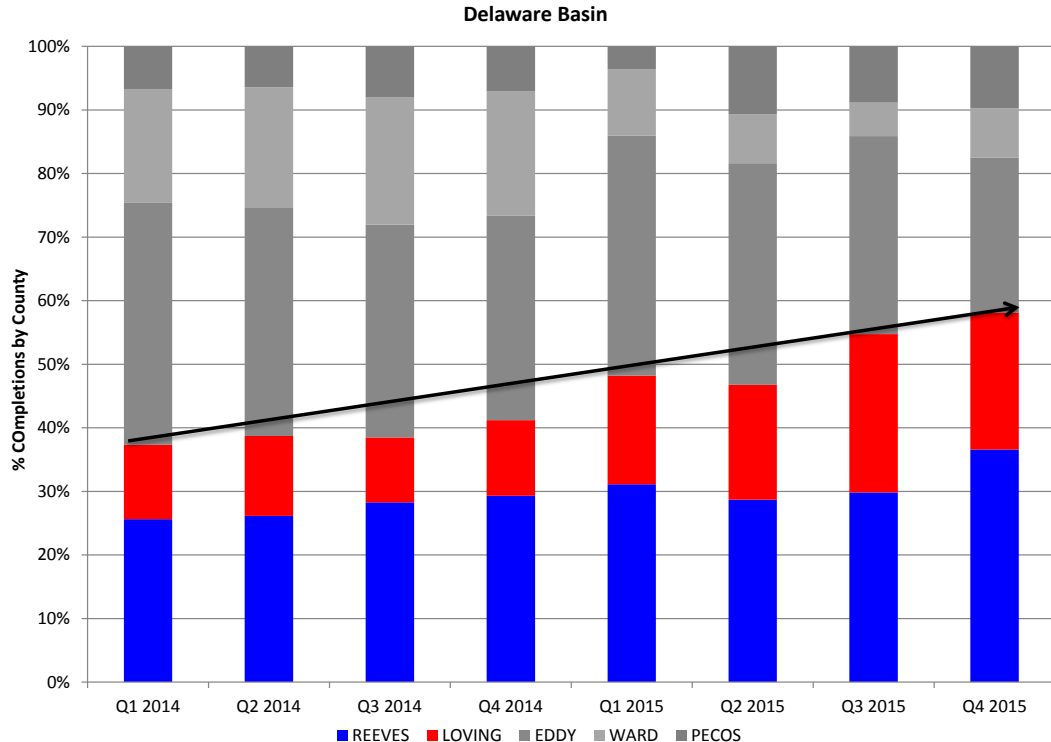
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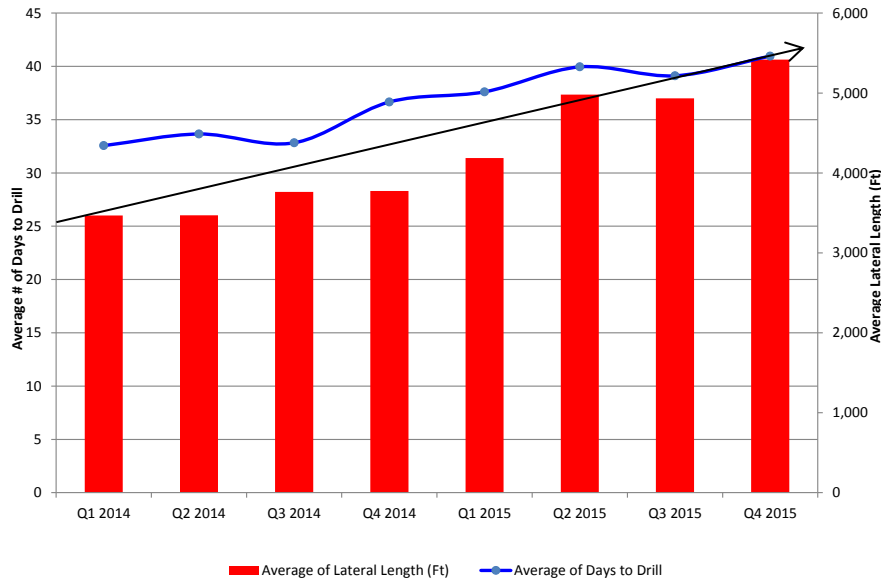
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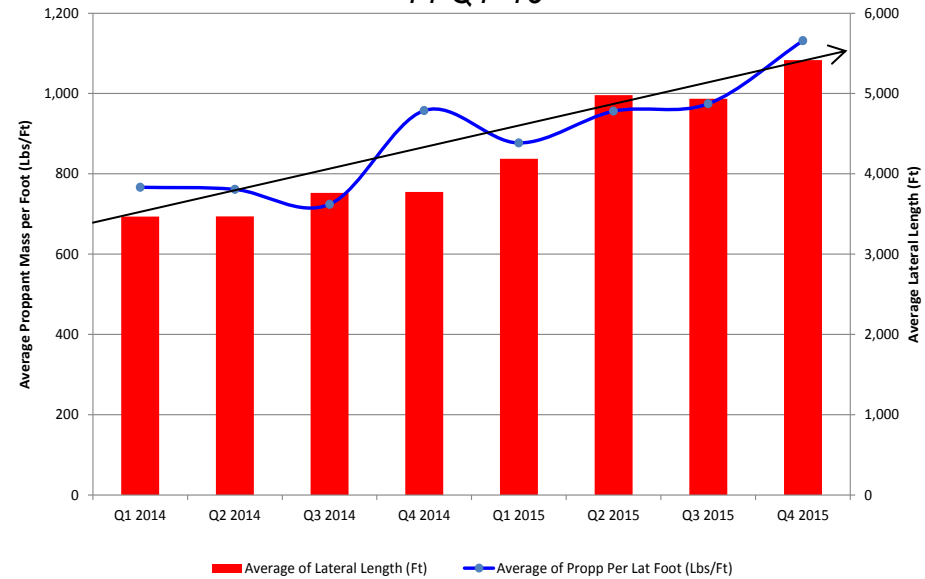
Permian Basin

What is happening with lateral lengths and cycle times?

Avg Days to Drill vs. Lateral Length: Q1 '14-Q1 '16



Avg Proppant per Lateral Foot vs. Lateral Length: Q1 '14-Q1 '16

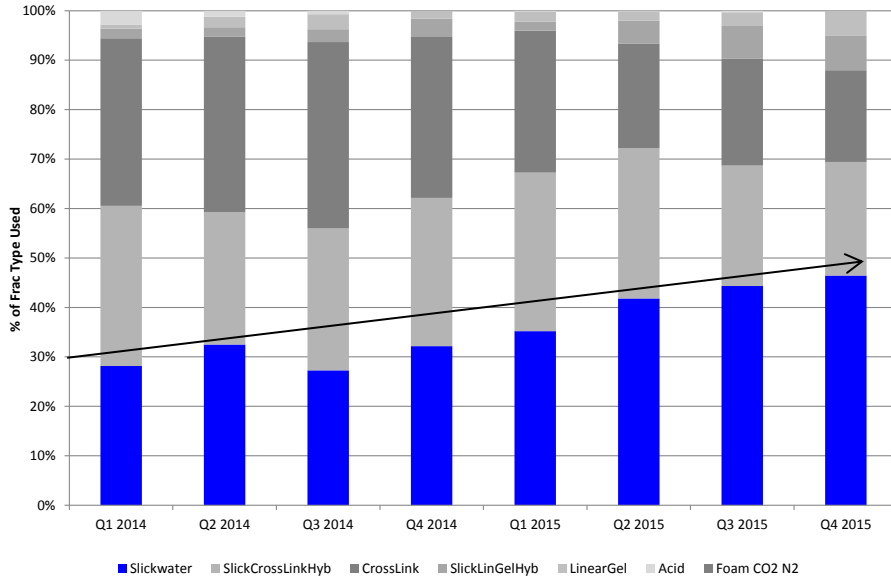


- Average lateral lengths in the basin are currently 4,875 ft, up over 80% from early 2012 levels, which averaged only 2,687 Ft.
- Current proppant per lateral foot (1,153 lbs/ft) has more than doubled since early 2012 (572 lbs/ft).

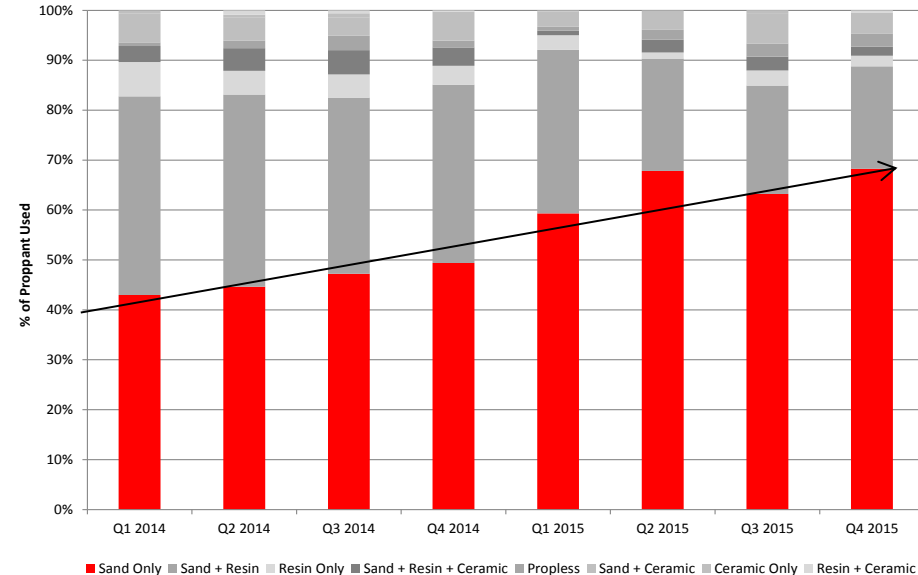
Permian Basin

How are wells being completed?

Frac Type Market Share: Q1 '14-Q1 '16



Proppant Type Market Share: Q1 '14-Q1 '16

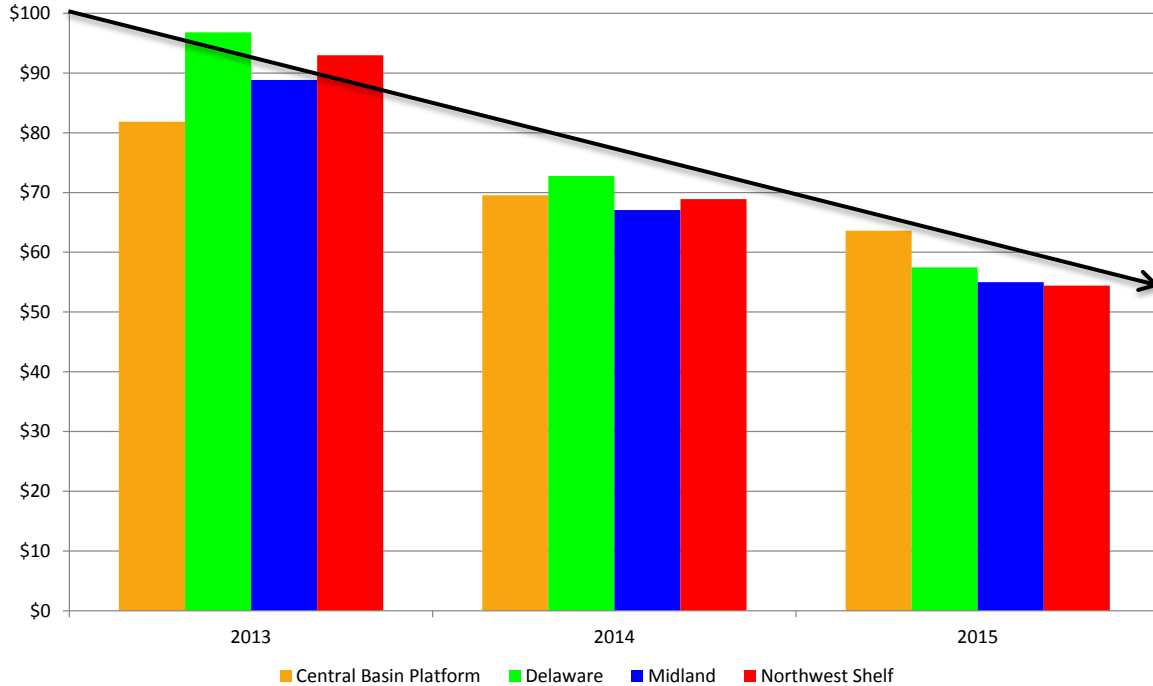


- The Permian has shifted to using slickwater fracs. Data since Jan. 2016 indicates this method in over 50% of completions, basin-wide.
- Sand has typically been widely used as the preferred proppant type; however, starting in 2015, it became the dominate proppant type, reflected in almost 65% of all completions.

Permian Basin

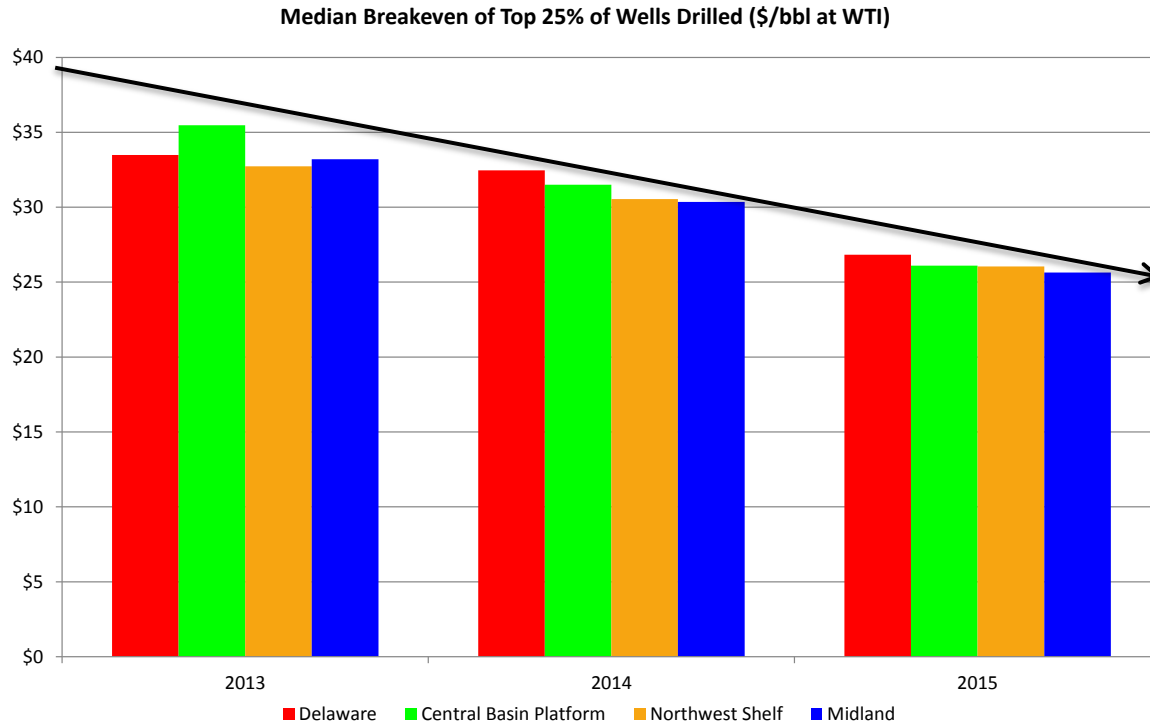
Breakeven versus EUR profile

Median BE by SubBasin (\$/bbl at WTI)



Permian Basin

Breakeven versus EUR profile



Top 25% of Wells Drilled: 2012-2015

| SubBasin | Median EUR (Mboe) | Median BE (\$/bbl at WTI) |
|------------------------|-------------------|---------------------------|
| Northwest Shelf | 258 | \$ 31.80 |
| Delaware | 269 | \$ 33.00 |
| Midland | 264 | \$ 30.60 |
| Central Basin Platform | 275 | \$ 31.80 |

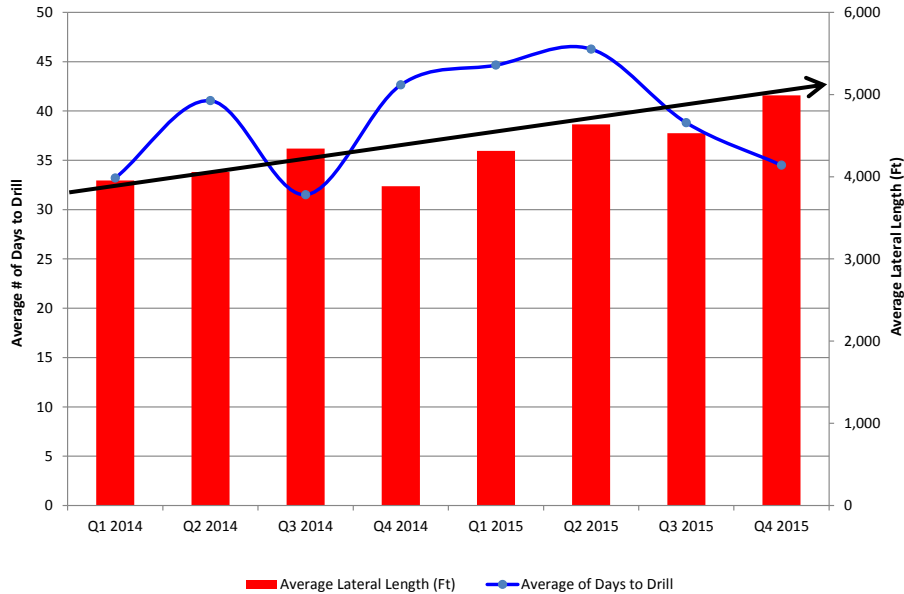


Core County Case Studies

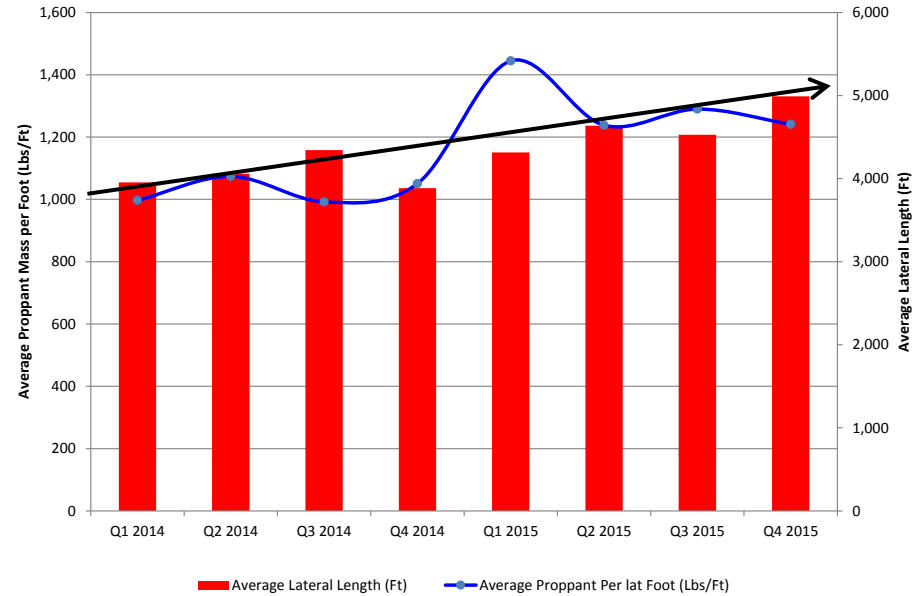
Loving County

Median EUR of 507 Mboe and Median BE of \$28/bbl for Top 25% of Wells

Avg Days to Drill vs. Lateral Length: Q1 '14-Q1 '16



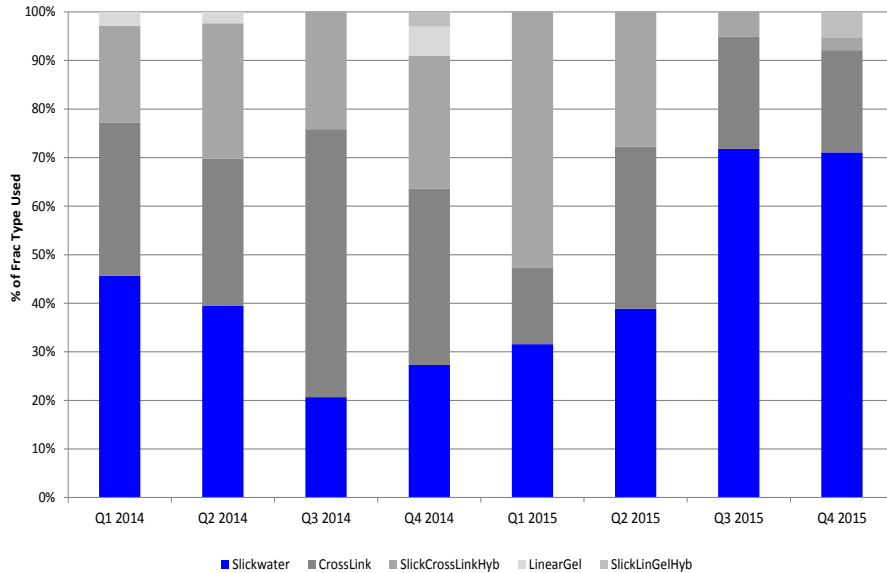
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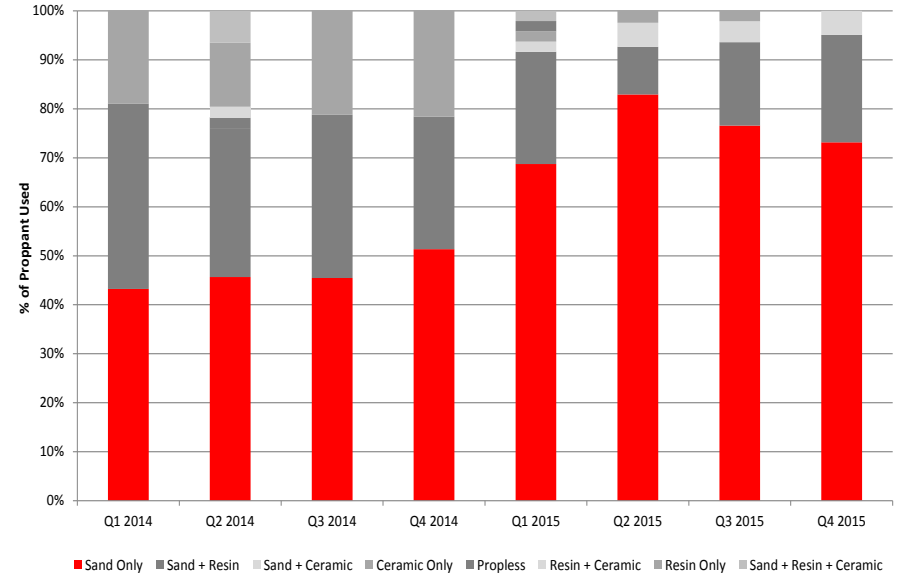
Loving County

How are wells being completed?

Frac Type Market Share: Q1 '14-Q1 '16



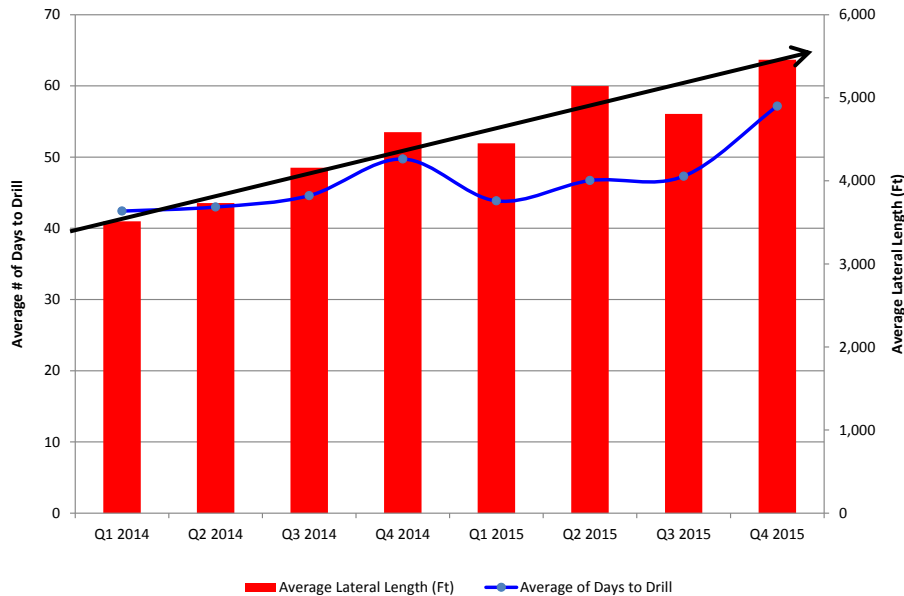
Proppant Type Market Share: Q1 '14-Q1 '16



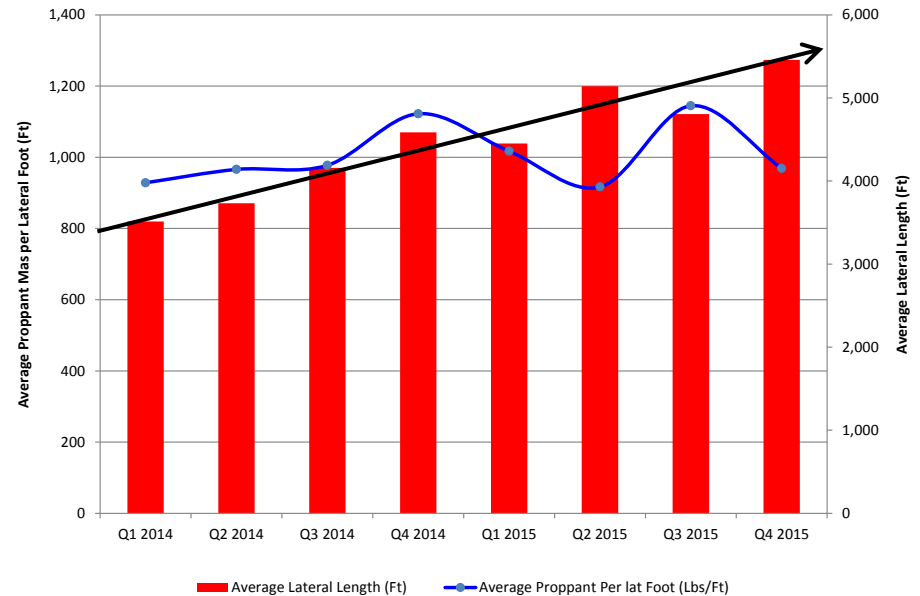
Reeves County

Median EUR of 447 Mboe and Median BE of \$26/bbl for Top 25% of Wells

Avg Days to Drill vs. Lateral Length: Q1 '14-Q1 '16



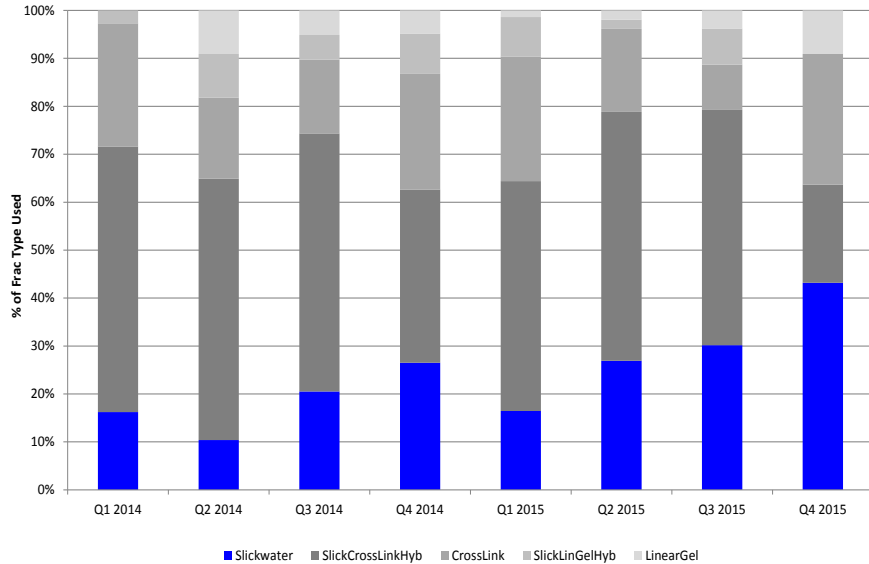
Avg Proppant per Lateral Foot vs. Lateral Length: Q1 '14-Q1 '16



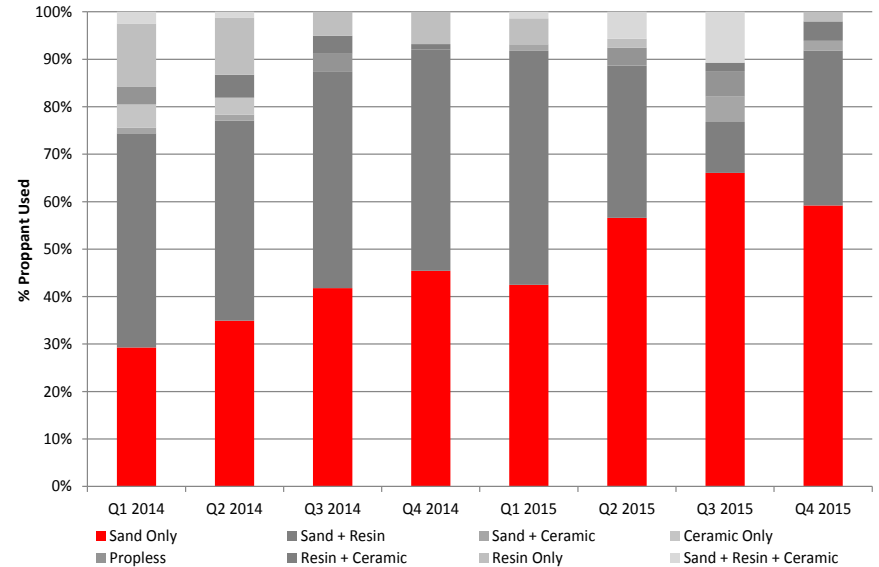
Reeves County

How are wells being completed?

Frac Type Market Share: Q1 '14-Q1 '16



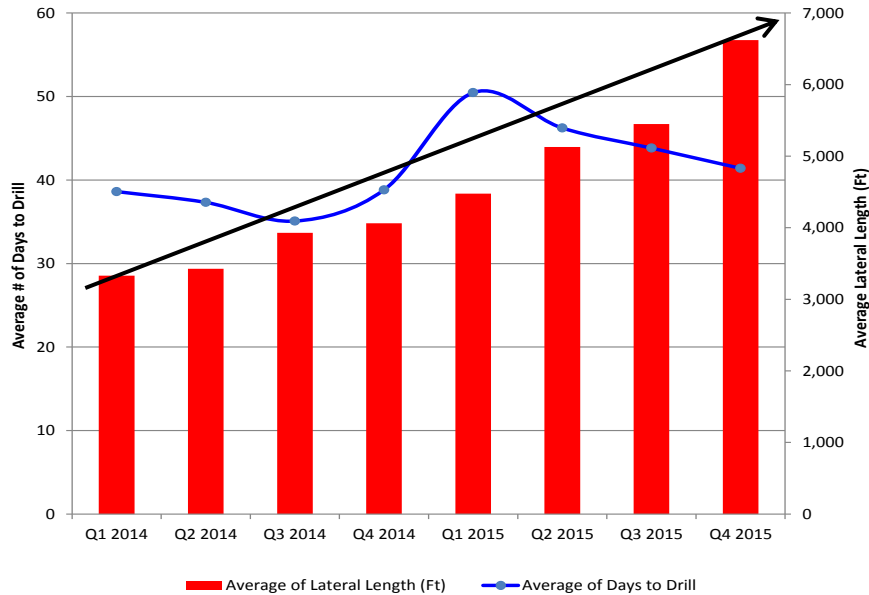
Proppant Type Market Share: Q1 '14-Q1 '16



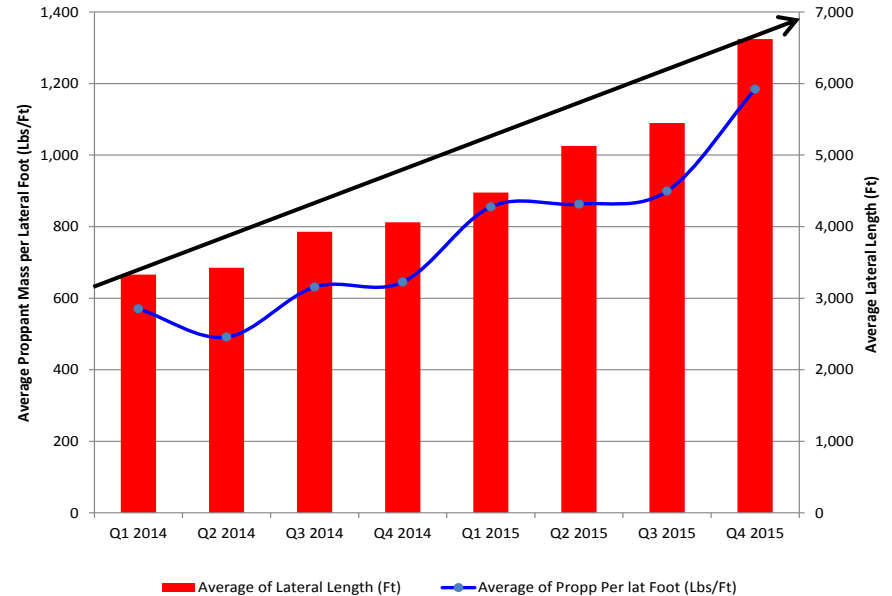
Midland County

Median EUR of 313 Mboe and Median BE of \$26/bbl for Top 25% of Wells

Avg Days to Drill vs. Lateral Length: Q1 '14-Q1 '16



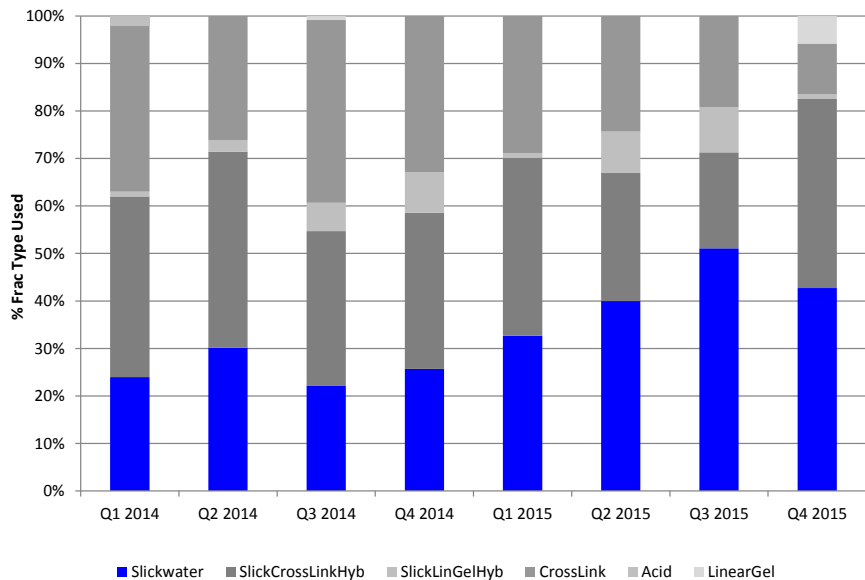
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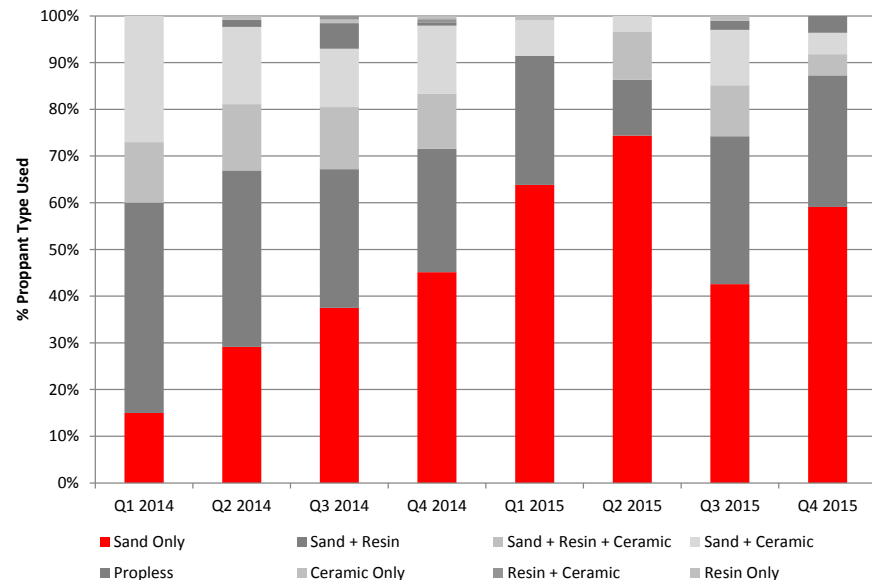
Midland County

How are wells being completed?

Frac Type Market Share: Q1 '14-Q1 '16



Proppant Type Market Share: Q1 '14-Q1 '16



In Conclusion

Do the economics in the Permian work within today's market?

- The core of the Permian resides heavily within approximately 4 counties in terms of EUR and BE's below \$50-60/bbl. These counties demonstrate median EUR's >250 Mboe, with the largest EUR of 507 Mboe in Loving County.
 - The “core of the core” lives within Loving, Reeves, and Midland counties.
 - With a median BE below \$30/bbl and EUR between 300-500 Mboe within the top 25% of wells drilled, within these top 3 counties, the core of the play can continue unharmed in the current market.
- Completions trends have shifted to using more raw sands as the main proppant source. Operators are also increasing the use of slickwater fracturing as a cheaper yet effective method for enhancing ultimate recovery rates.
- Under an assumed market price of approximately \$44/Bbl, the Permian will likely continue its forward momentum and remain the top producer in terms of activity and cost in NA. We will likely see more A&D and activity shifts into the basin where operators can maximize recovery potential under minimal capital investment.
- Stratas Advisors expects that the upstream market will continue to show signs of improvement through 2017, with average WTI prices hovering around or above \$50/bbl, which we believe will allow other areas to rebuild and ultimately grow market share.



Q & A

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