

The Permian Star in an Energy-Challenged World

Allen Brooks

Managing Director

PPHB LP

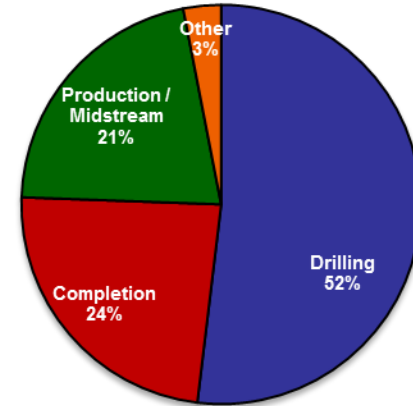
April 3, 2018

Presented to PESA – Midland

PPHB Is Helping Reshape The OFS Industry

- 15 years in business
- 100% focused on energy equipment & services
- 132 transactions completed totaling over \$10 billion

Transactions by Sector



Select Permian Basin Transactions

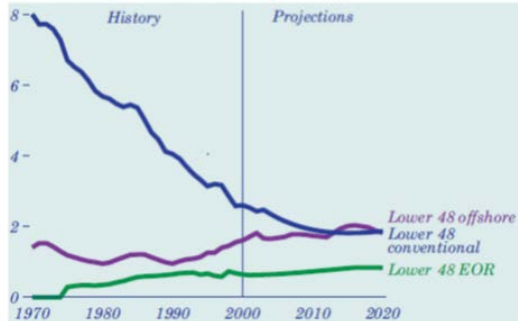
<p>\$825,000,000</p>  <p><i>has been acquired by</i></p>  <p>COMPRESSCO PARTNERS, L.P.</p>	 <p><i>has been acquired by</i></p> 	 <p><i>has been acquired by</i></p> 	 <p><i>has sold a majority interest to</i></p> 	 <p><i>a portfolio company of</i></p>  <p><i>has been acquired by</i></p> 	 <p><i>has been acquired by</i></p>  <p><i>a portfolio company of</i></p> 
---	--	--	---	---	--

Oil World Envisioned Turned Upside Down

How Energy Was Viewed in 2002

Lower 48 Crude Oil Production Continues To Decline

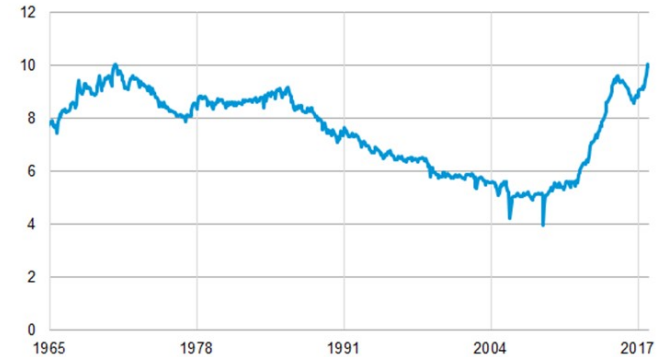
Figure 76. Lower 48 crude oil production by source, 1970-2020 (million barrels per day)



- Oil consumption up
- Oil output falling
- Imports growing

How Different Oil Turned Out

Figure 1. U.S. monthly crude oil production million barrels per day



Source: U.S. Energy Information Administration, *Petroleum Supply Monthly*.

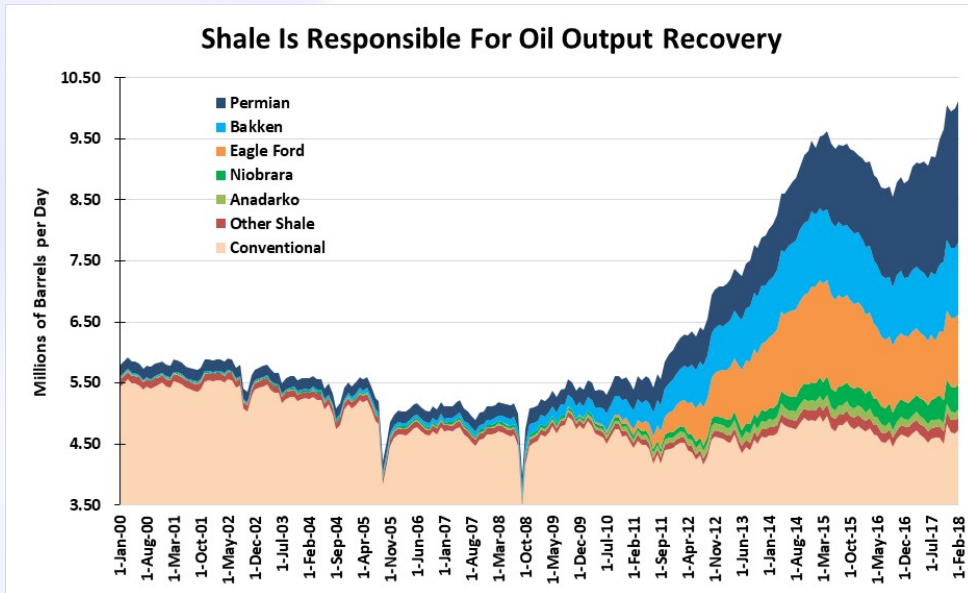
40-Year Oil Export Ban Gone

U.S. crude oil exports (1920-2017) thousand barrels per day



Permian Doing The Heavy Lifting

Can Permian Growth Continue?

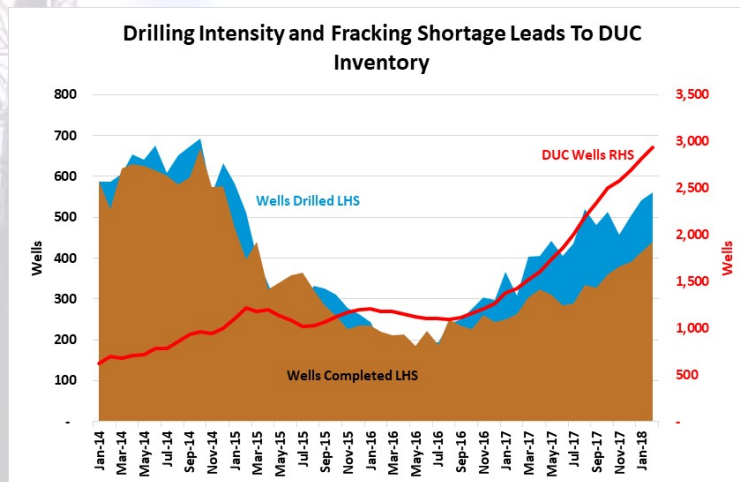
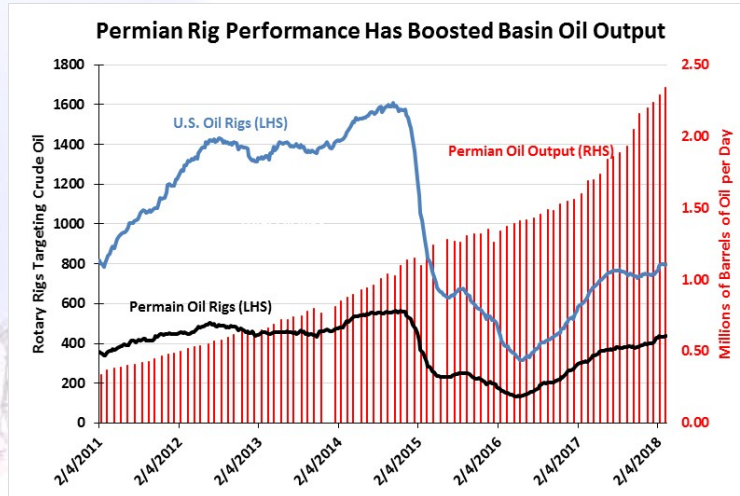


Permian Playing Key Role



- **Shale as % Total Oil Output**
 - > Jan. 2007 7.9%
 - > Feb. 2018 53.4%
- **March 2015 – Feb. 2018**
 - > U.S. Shale +15.1%
 - > Permian +88.7%

The Permian's Challenges

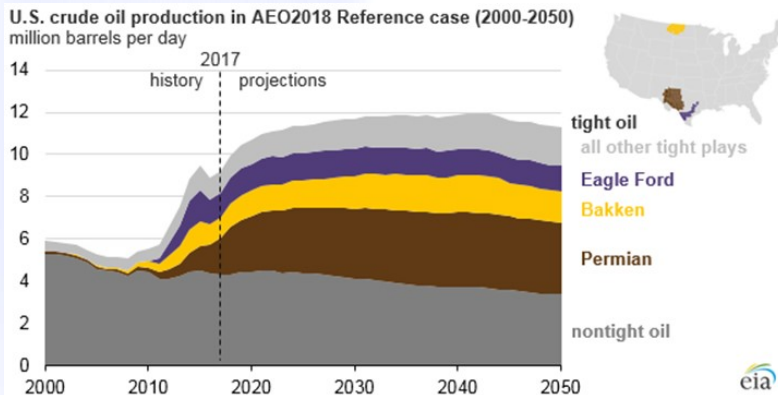


Challenges

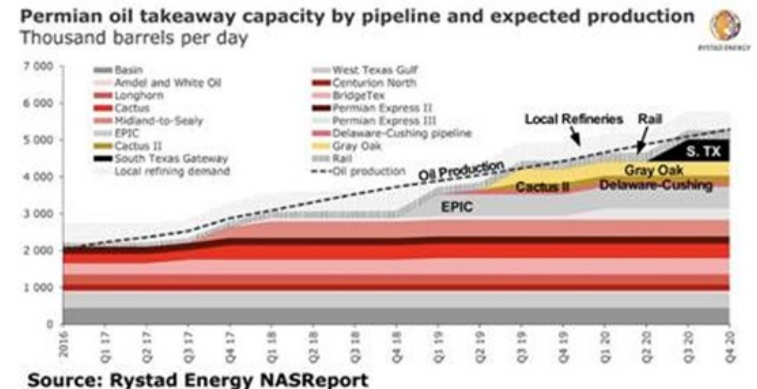
- People
- Equipment
- Logistics
- Technology
- Profitability
- Pipelines
- Oil Quality
- Natural Gas

Permian Oil's Promise and Challenges

Output Projected To Grow Forever



Takeaway Oil Capacity Potential Bottleneck

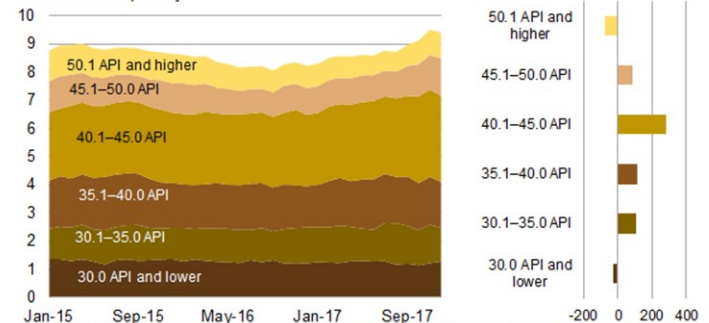


Will Resources Be Available?

- People
- Equipment
- Capital

More Light Oil Is A Refining Challenge

Figure 4. Lower 48 states crude oil production by API gravity
million barrels per day



Source: U.S. Energy Information Administration, *Monthly Crude Oil, Lease Condensate, and Natural Gas Production Report*. API is the American Petroleum Institute's measure of specific gravity of crude oil. Excludes Unknown category.

Oil Market's L-T Challenges



What Matters:

- **Scale**
 - > E&P and OFS
 - > Assets
 - > Costs
- **Oil Prices**
 - > Demand
 - > Alternatives
 - > OPEC
- **Climate Change**
 - > Regulation
 - > Courts
 - > Technology
- **Capital**
 - > Equity
 - > Debt

Thank You