



*The PetroNerds Podcast – Episode 1:
OPEC and Oil Prices, Dakota Access Pipeline
(DAPL), Enbridge Spectra Energy Merger,
Apache’s “Alpine High” Permian Basin
Discovery, and EOG’s purchase of Yates
Petroleum*

September 2016

Trisha Curtis – Co-Founder, PetroNerds, LLC



About PetroNerds

PetroNerds, LLC is a Denver, CO based energy analytics and consulting firm with a focus on oil, gas, and biofuels.

We provide detailed, data-driven, and actionable insights into the activity of energy companies, markets, and policy developments. PetroNerds seeks to work closely with its clients and provided personalized services. We tailor our projects to the exact requirements of our clients, large and small.

The founders of PetroNerds have nearly 15 years of experience in the oil and gas industry. They have led research contracts with US Department of Defense and US Department of Energy, presented at some of the world's foremost oil and gas venues and universities, published in publications such as *Oil & Gas Journal* and *World Oil*, and been quoted by the *Economist* and the *Financial Times*.

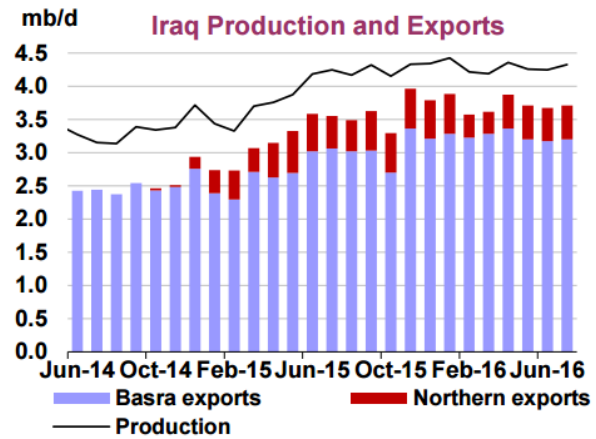
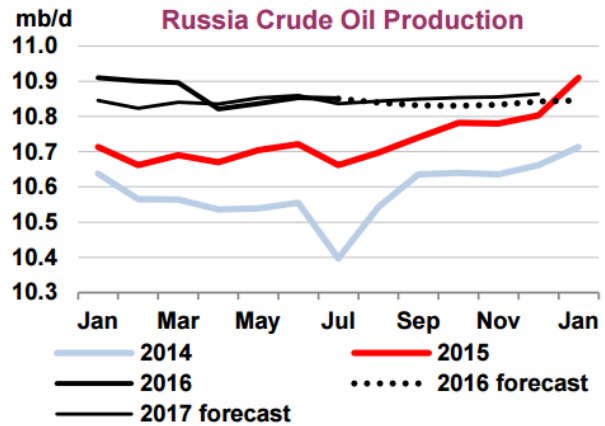
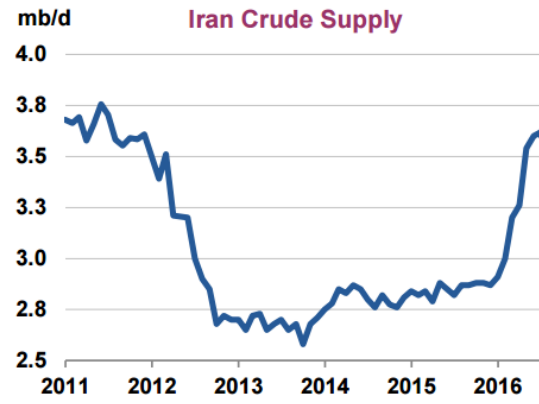
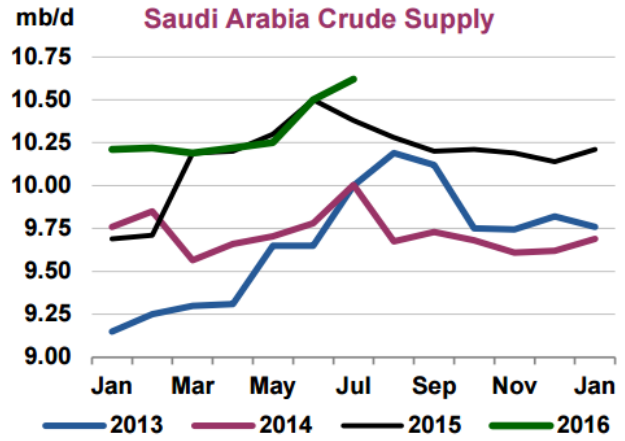
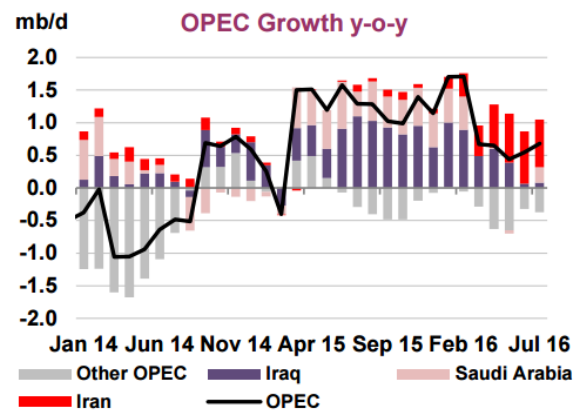
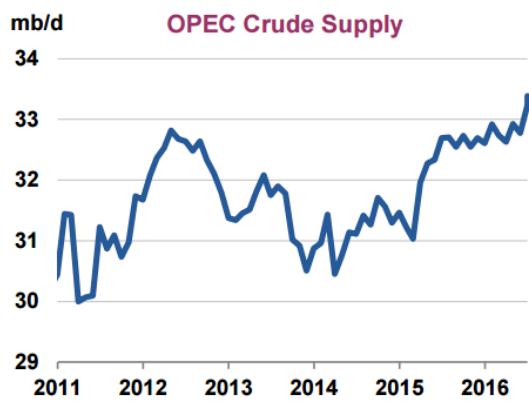
Your host, Trisha Curtis, is a co-founder of PetroNerds, LLC. She was formerly the Director of Research, Upstream and Midstream, at the Energy Policy Research Foundation, Inc. Trisha is a research fellow at the Oxford Institute for Energy Studies (OIES) and a non-resident fellow at the Energy Policy Research Foundation, Inc.



Podcast Outline

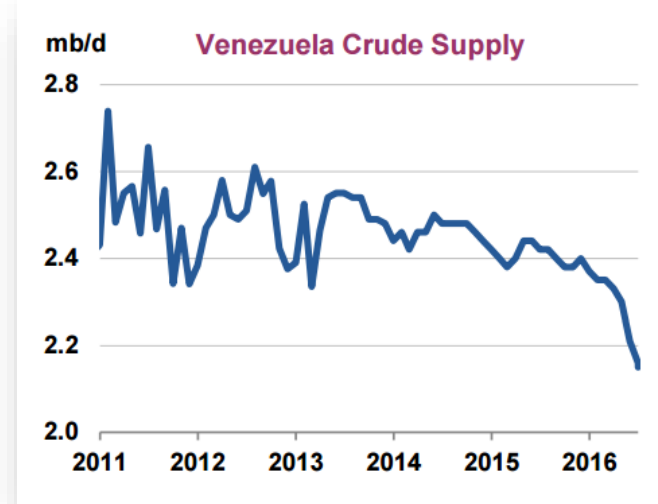
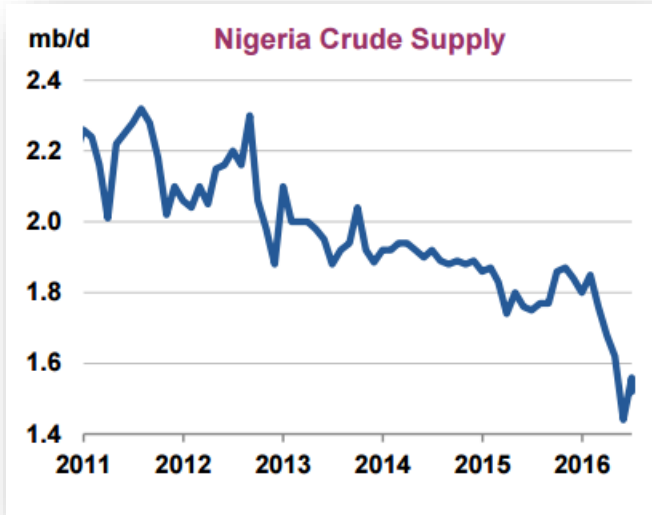
- **Why are prices so stagnant?**
- **What is the Dakota Access Pipeline?**
- **Spectra Energy and Enbridge Merger**
- **Apache's "Alpine High" discovery**
- **Yates Petroleum Acquisition by EOG**

Surprises to the Upside?

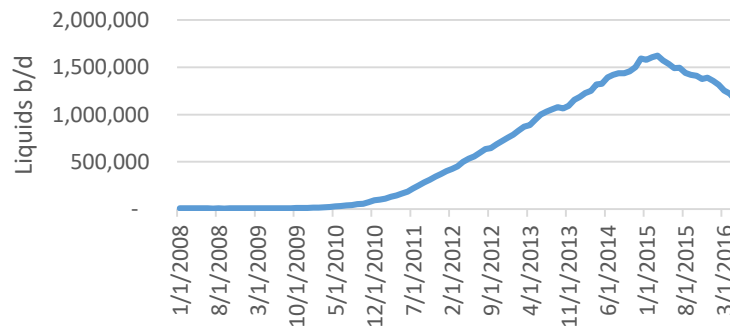


Source: IEA

Where are those production declines?



Eagle Ford Reservoir Production (Texas Only)



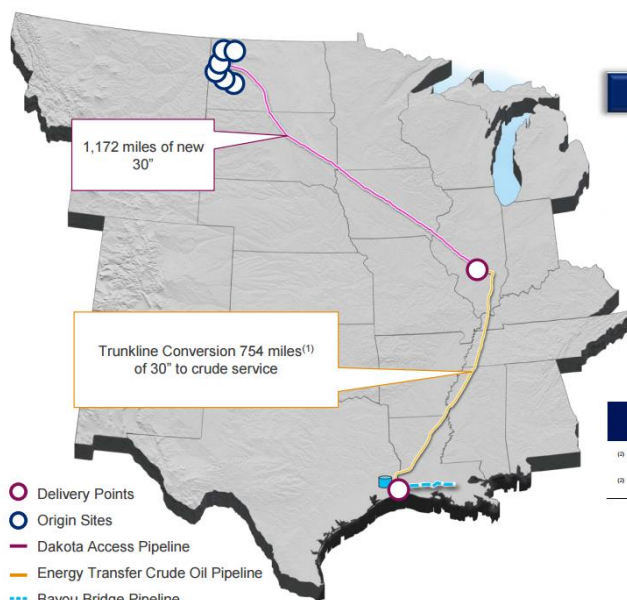
Source: IEA, DrillingInfo raw data, PetroNerds



DAPL

Energy Transfer Partners – DAPL - Bakken Pipeline Project

BAKKEN PIPELINE



- Delivery Points
- Origin Sites
- Dakota Access Pipeline
- Energy Transfer Crude Oil Pipeline
- Bayou Bridge Pipeline
- Nederland Terminal

Project Details

- Dakota Access Pipeline will connect Bakken production to Patoka Hub, IL with interconnection to Energy Transfer Crude Oil Pipeline (Trunkline conversion) to reach Nederland and the Gulf Coast
 - Supported by long-term, fee-based contracts with large, creditworthy counterparties
 - Currently expected to deliver in excess of 470,000 barrels per day
 - Expandable to 570,000 barrels per day

Project Name	Asset Type	Miles	Project Cost (\$bn)	Ready for Service	Average Contract Duration
⁽¹⁾ Dakota Access	Crude pipelines	1,172	\$4.8	4Q 2016	9 yrs
⁽²⁾ ETCO Pipeline	Crude pipelines	754 ⁽¹⁾			

Note: Gross JV project cost where applicable
 (1) 686 miles of converted pipeline + 68 miles of new build
 (2) Bakken Crude Pipelines owned 45% ETP, 30% SXL (operator), 25% P66 (post closing of Bakken equity sale, ownership will be ETP and SXL-38.25%, MarEn- 36.75%, and P66- 25%)

BAYOU BRIDGE PIPELINE PROJECT

Project Details

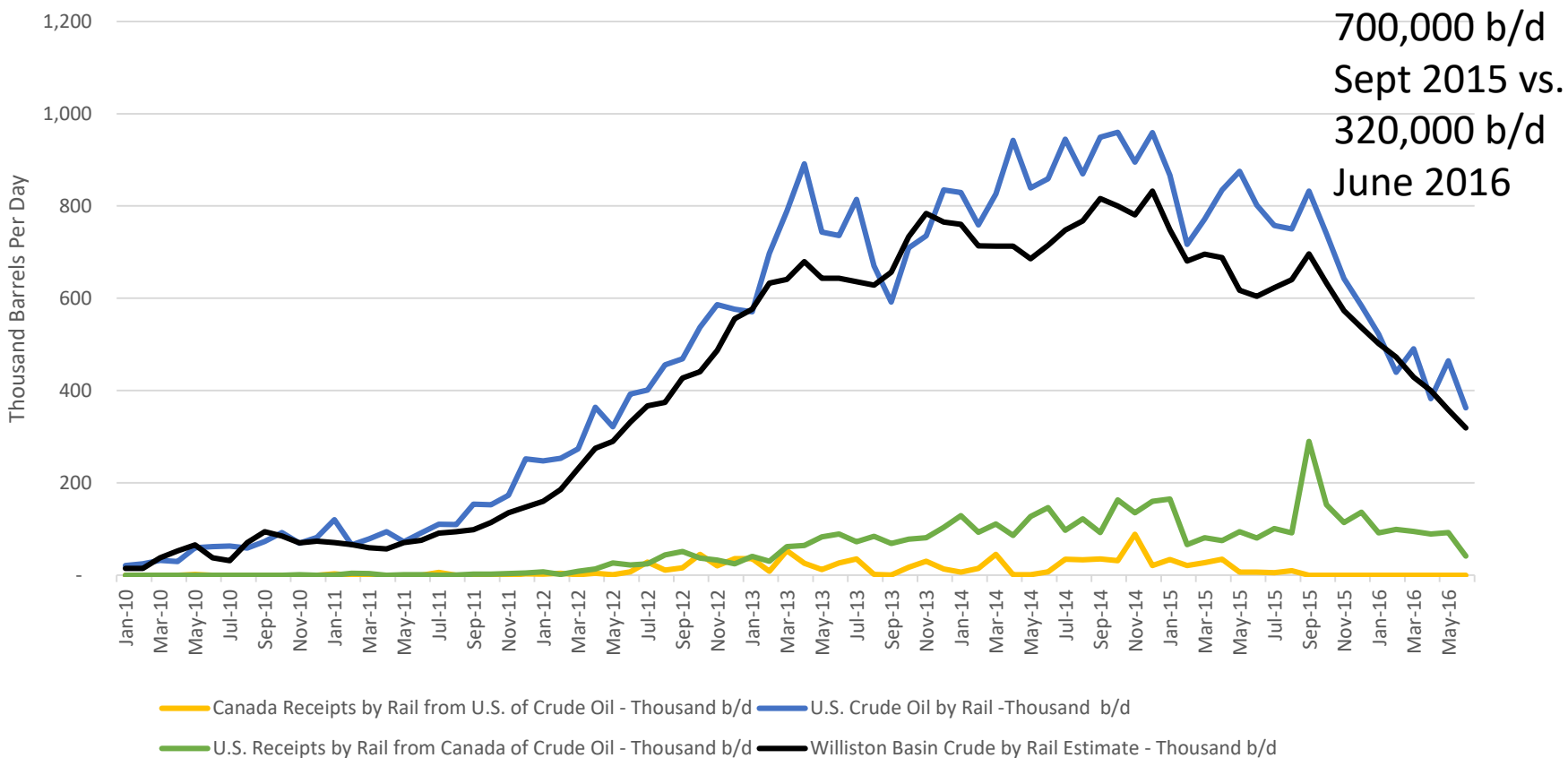
- Crude oil transportation – joint venture between Phillips 66 Partners (40%), SXL (30% operator) and ETP (30%)
 - Phillips 66 Partners = construction manager for segment 1 – Nederland to Lake Charles, Louisiana
 - ETP = construction manager for segment 2 – Lake Charles to St. James, Louisiana
- 30" Nederland to Lake Charles segment went into service in April 2016
- 24" St. James segment expected in-service 2nd half of 2017
- Light and heavy service
- Project highlights synergistic nature of ETP and SXL crude platforms and creates additional growth opportunities and market diversification

Bayou Bridge Pipeline Map



U.S. crude by rail volumes continue decline – 363,000 b/d

U.S. and Williston Basin Crude by Rail Volumes

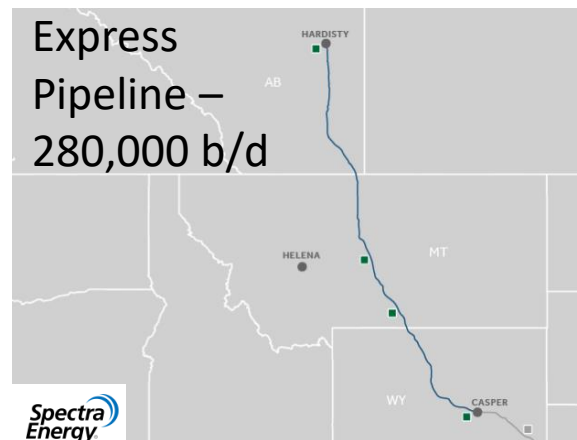
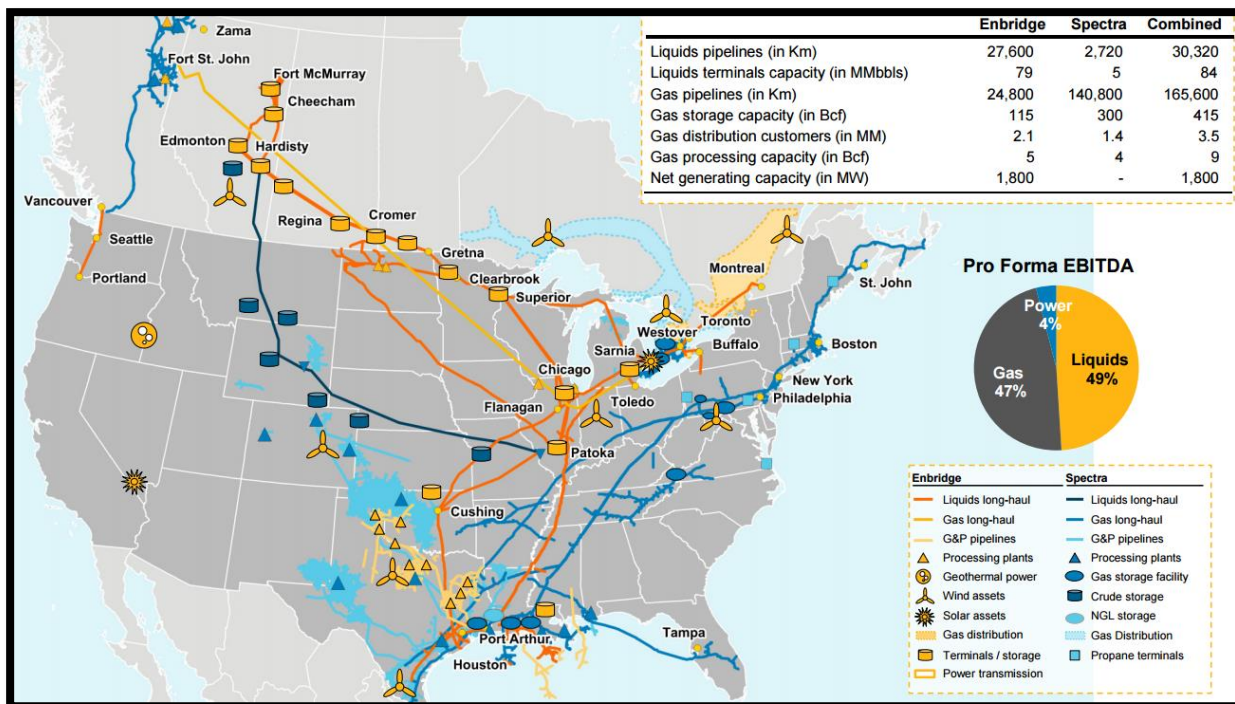


Source: EIA, NDPA



Enbridge Spectra Merger

Enbridge Spectra (potential) Merger – Sept 6, 2016



Platte Pipeline – 164,000 b/d from Casper to Guernsey; 145,000 b/d Guernsey to Wood River



Source: Enbridge and Spectra Energy investor presentation, Sept 6, 2016



“Alpine High”

Apache’s southwestern Permian Basin discovery

Apache Recent Permian Discovery – “Alpine High”



September 7, 2016

Apache Corporation Discovers Significant New Resource Play In Southern Delaware Basin

Company secures 307,000 contiguous net acres in wet gas and oil window

HOUSTON, Sept. 7, 2016 /PRNewswire/ -- Apache Corporation (NYSE, Nasdaq: APA) today announced that after more than two years of extensive geologic and geophysical work, methodical acreage accumulation, and strategic testing and delineation drilling, the company can confirm the discovery of a significant new resource play, the "Alpine High." Apache's Alpine High acreage lies in the southern portion of the Delaware Basin, primarily in Reeves County, Texas. The company estimates hydrocarbons in place on its acreage position are 75 trillion cubic feet (Tcf) of rich gas (more than 1,300 British Thermal Units) and 3 billion barrels of oil in the Barnett and Woodford formations alone. Apache also sees significant oil potential in the shallower Pennsylvanian, Bone Springs and Wolfcamp formations.

307,000
Contiguous Net Acres

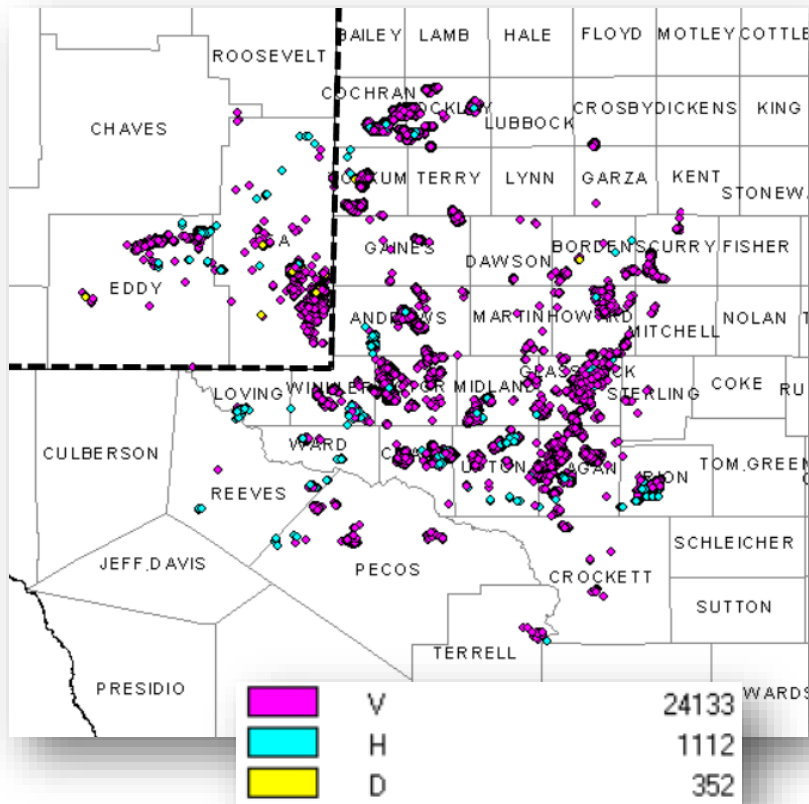
- Methodically accumulated over the last 18 months, ~20% of Reeves Co.
- Apache controls 352,000 gross acres, the vast majority of the play
- ~\$1,300/net acre average leasehold cost

4,000’-5,000’
Wet Gas and Oil Column

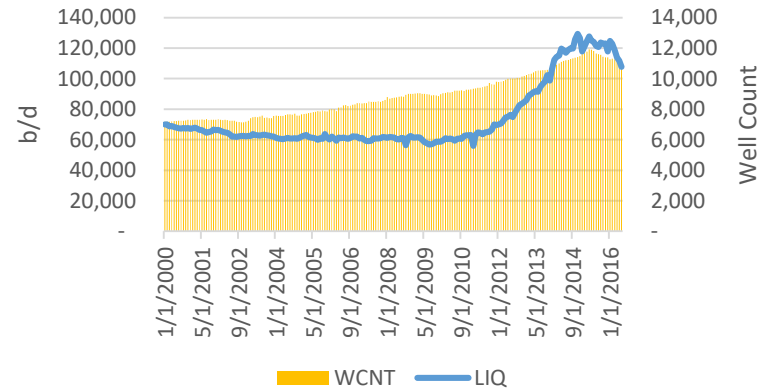
- World class source rock in the Woodford, Barnett and Pennsylvanian
- Estimated resource in place (Barnett and Woodford only): 75 Tcf of rich gas (~1,300 BTU) and 3 billion barrels of oil
- Confirmed oil bearing potential in the Bone Springs and Wolfcamp

Source: Apache Corporation website PDF and Barclays presentation, Sept 7, 2016

Apache's Permian Position



Apache Liquid Production in Permian Basin

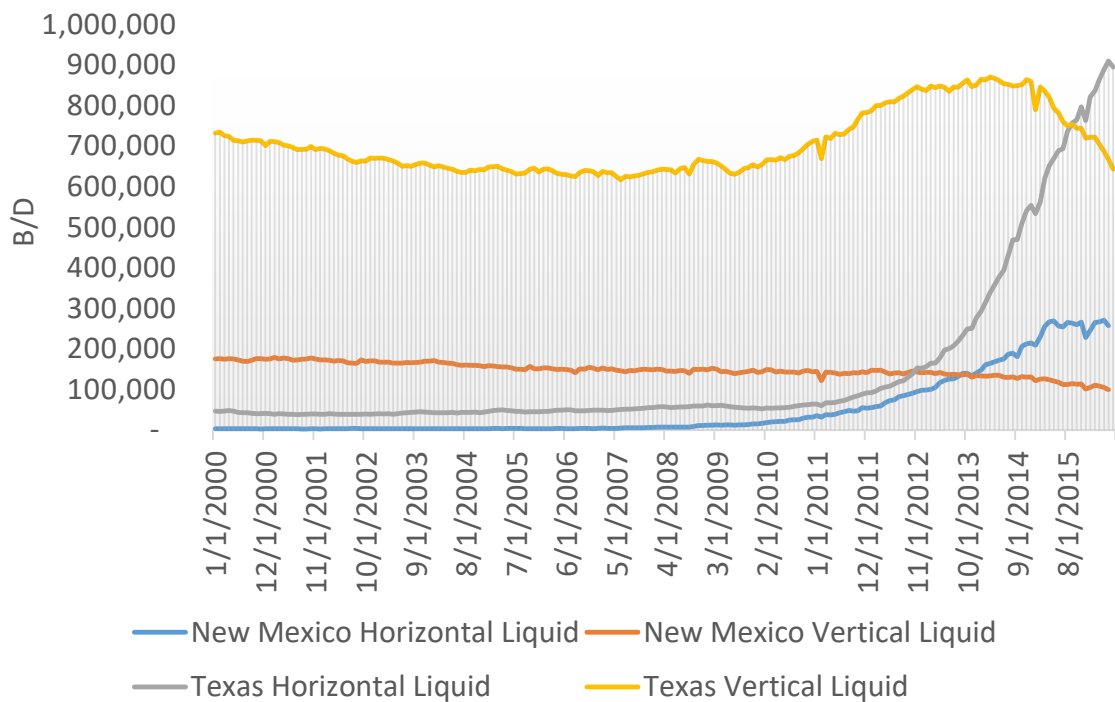


June 2016 – Apache's production in the Permian Basin: 108,000 b/d

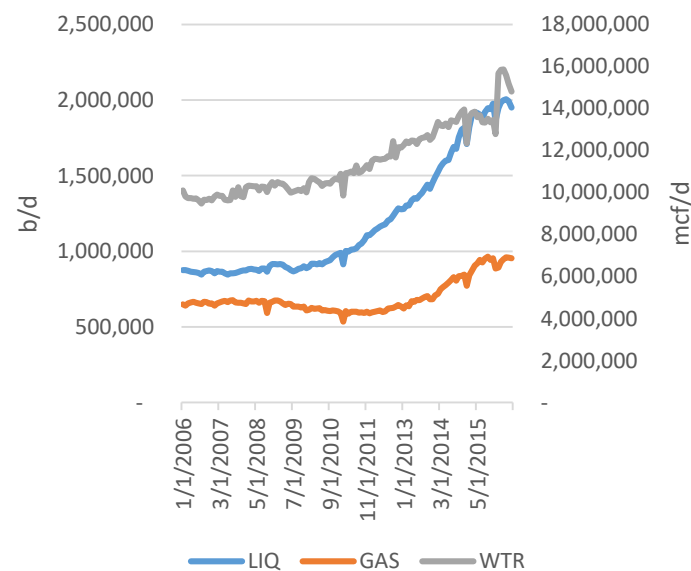
Source: DrillingInfo raw data Sept 13 2016, PetroNerds

Permian Basin Production by State and Drill Type

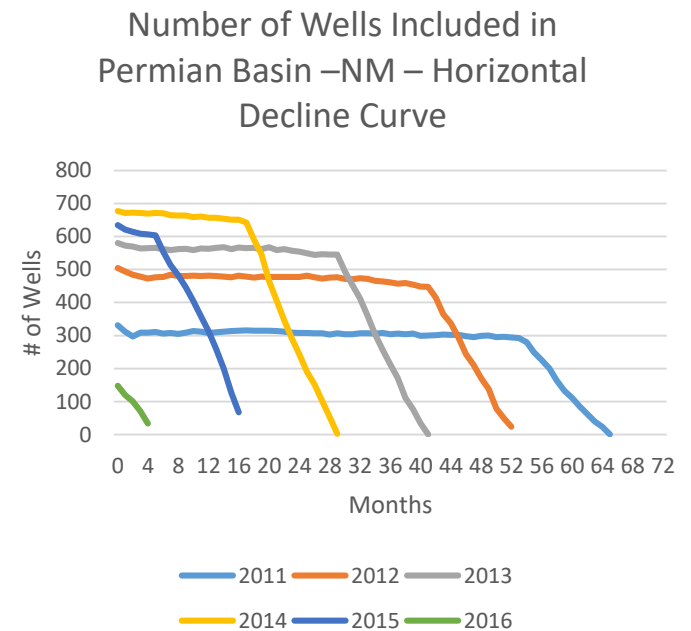
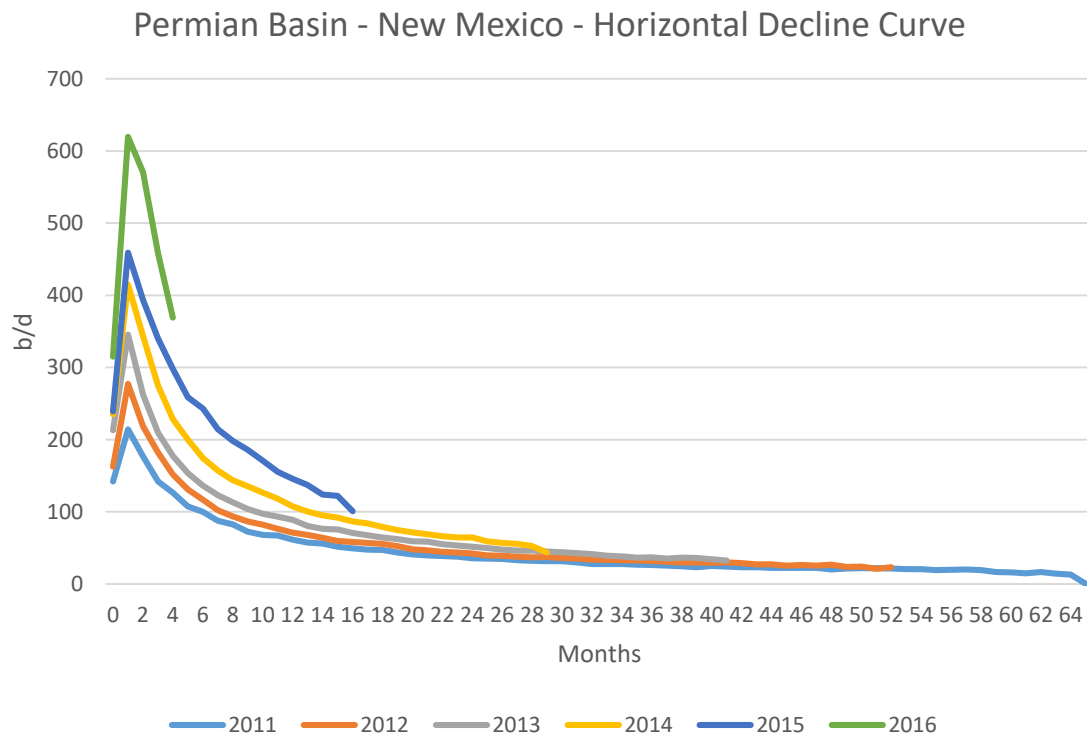
Permian Basin Production by State and Drill Type



Permian Basin Production



New Mexico – Permian Basin – Horizontal Decline Curve

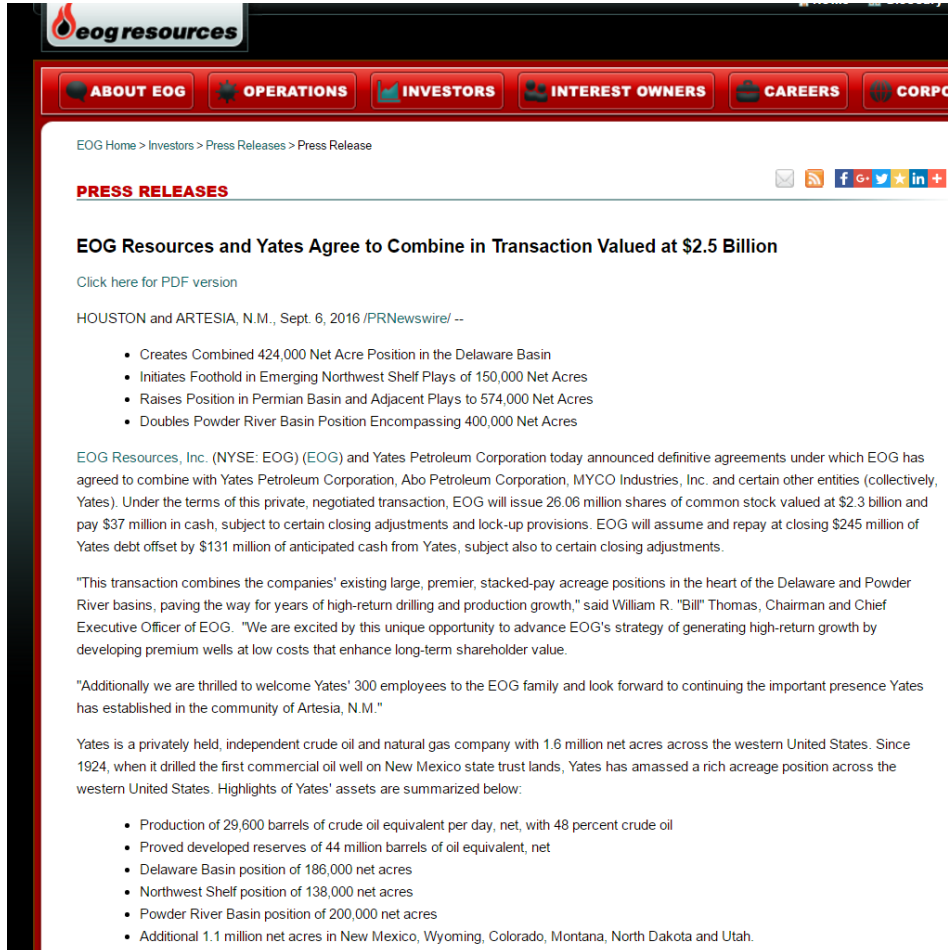


Source: DrillingInfo raw data Aug 28 2016, PetroNerds



EOG's purchase of Yates Petroleum

“EOG Resources and Yates Agree to Combine”



The screenshot shows the EOG Resources website with a red navigation bar containing links for ABOUT EOG, OPERATIONS, INVESTORS, INTEREST OWNERS, CAREERS, and CORPORATE. The main content area is titled "EOG Resources and Yates Agree to Combine in Transaction Valued at \$2.5 Billion" and includes a PDF version link, a date of Sept. 6, 2016, and a bulleted list of key transaction details. The text describes the combination of EOG and Yates, the value of the transaction, and the resulting asset positions in various basins.

EOG Resources and Yates Agree to Combine in Transaction Valued at \$2.5 Billion

[Click here for PDF version](#)

HOUSTON and ARTESIA, N.M., Sept. 6, 2016 /PRNewswire/ --

- Creates Combined 424,000 Net Acre Position in the Delaware Basin
- Initiates Foothold in Emerging Northwest Shelf Plays of 150,000 Net Acres
- Raises Position in Permian Basin and Adjacent Plays to 574,000 Net Acres
- Doubles Powder River Basin Position Encompassing 400,000 Net Acres

EOG Resources, Inc. (NYSE: EOG) (EOG) and Yates Petroleum Corporation today announced definitive agreements under which EOG has agreed to combine with Yates Petroleum Corporation, Abo Petroleum Corporation, MYCO Industries, Inc. and certain other entities (collectively, Yates). Under the terms of this private, negotiated transaction, EOG will issue 26.06 million shares of common stock valued at \$2.3 billion and pay \$37 million in cash, subject to certain closing adjustments and lock-up provisions. EOG will assume and repay at closing \$245 million of Yates debt offset by \$131 million of anticipated cash from Yates, subject also to certain closing adjustments.

"This transaction combines the companies' existing large, premier, stacked-pay acreage positions in the heart of the Delaware and Powder River basins, paving the way for years of high-return drilling and production growth," said William R. "Bill" Thomas, Chairman and Chief Executive Officer of EOG. "We are excited by this unique opportunity to advance EOG's strategy of generating high-return growth by developing premium wells at low costs that enhance long-term shareholder value.

"Additionally we are thrilled to welcome Yates' 300 employees to the EOG family and look forward to continuing the important presence Yates has established in the community of Artesia, N.M."

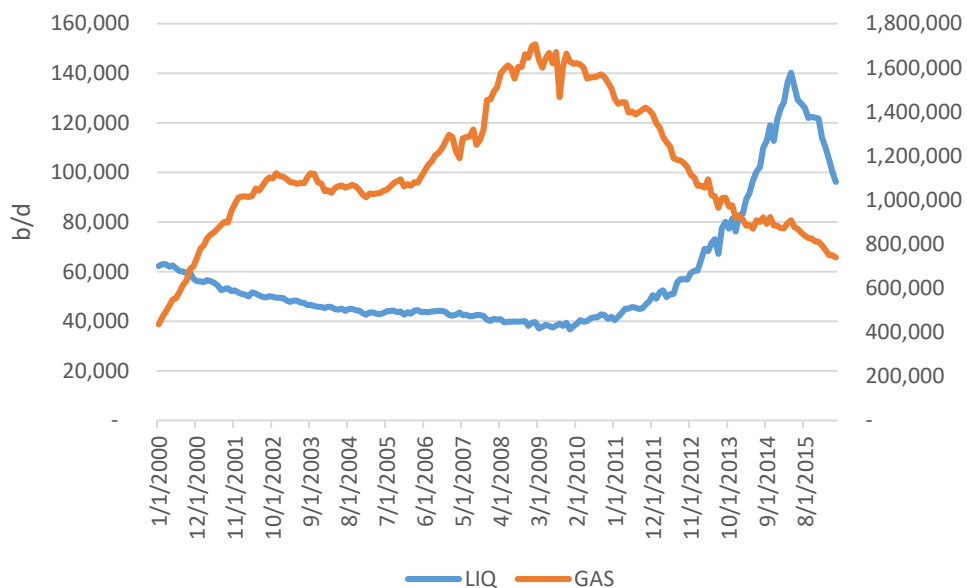
Yates is a privately held, independent crude oil and natural gas company with 1.6 million net acres across the western United States. Since 1924, when it drilled the first commercial oil well on New Mexico state trust lands, Yates has amassed a rich acreage position across the western United States. Highlights of Yates' assets are summarized below:

- Production of 29,600 barrels of crude oil equivalent per day, net, with 48 percent crude oil
- Proved developed reserves of 44 million barrels of oil equivalent, net
- Delaware Basin position of 186,000 net acres
- Northwest Shelf position of 138,000 net acres
- Powder River Basin position of 200,000 net acres
- Additional 1.1 million net acres in New Mexico, Wyoming, Colorado, Montana, North Dakota and Utah.

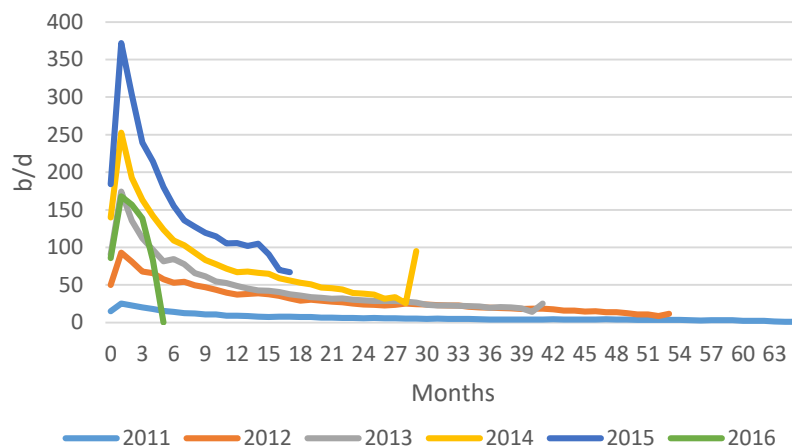
Source: EOG website press release

Powder River Basin Production and Decline Curve

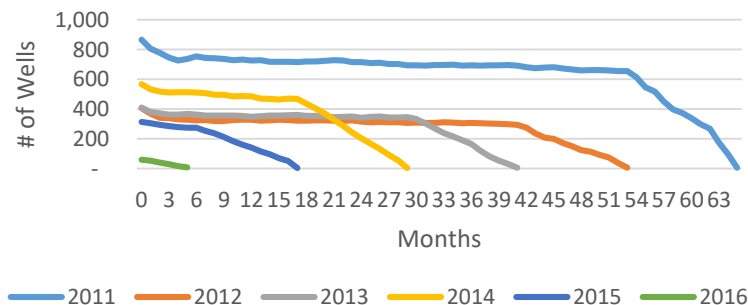
Powder River Basin Production



Powder River Basin Decline Curve



Powder River Basin Wells Included



Source: DrillingInfo raw data Sept 2016, PetroNerds