Top 10 Upstream & Midstream Energy Themes in 2017

Tailwinds More than Offset Headwinds

Summary

In this joint upstream-midstream 2017 outlook, we expect the tailwinds of a commodity price/volume recovery and generally improved energy regulatory backdrop to outweigh headwinds of higher interest rates and uncertainty on corporate tax reform, FERC pipeline regulations, service cost inflation and the impact of associated gas production growth. Our top E&P picks are FANG, NBL, RICE and SWN. Our top midstream MLP picks are VLP, PSXP, MPLX and EEP.

Key Points

Top 10 Upstream & Midstream Energy Themes. 1) Commodity price recovery - our '17 price deck assumes oil, natural gas, natural gas liquids rise 27%, 34%, 32% YoY. 2) Permian production growth - key driver of higher US oil production; pipeline takeaway capacity to tighten in late '17. 3) Associated gas - we believe market is overly pessimistic on impact of associated gas production to pricing. 4) Appalachian gas pipeline projects - we remain out-of-consensus with our positive outlook for gas prices and gassy E&Ps amid uncertainty in Appalachia. 5) Federal regulation/taxes - we view net positive for energy complex, likely muted for E&Ps, mixed bag for MLPs. 6) Rising interest rates - potential headwind for MLPs, but we believe impact is manageable. 7) General partner restructurings - expect to continue in '17 but potentially shifting to high-growth MLPs for cost of capital improvement. 8) Cost inflation - we do not model widespread inflation and think continued efficiencies should offset any modest 2H17 inflation. 9) Midstream rotation into growth - we expect high-growth MLPs to perform better in '17 after largely underperforming the AMZ Index in '16. 10) Capital market access/M&A landscape - we think improving commodity prices and a more benign regulatory backdrop will improve capital market access in '17, expect further consolidation of private E&Ps in core basins, funded largely with equity; investment grade MLPs with no IDRs well positioned to be consolidators.

Upstream Outlook. We remain cautiously optimistic on the E&P sector in '17. While the oil price rally was the driven factor behind '16's price action, and recent macro factors (specifically, OPEC news and nervousness on the medium-term gas price outlook) have driven E&P equities since late November, we expect bottoms-up stock-picking to become more important throughout '17. Given that backdrop, our top picks are a combination of contrarian names with underappreciated asset bases (SWN, NBL) and best-in-breed pure-play operators offering exposure to cores of premier shale basins (FANG, RICE).

Midstream Outlook. We remain constructive on the midstream MLP sector as gradually improving oil, gas, and NGL fundamentals and more favorable broader federal regulatory landscape should more than offset headwinds of rising interest rates, uncertainty on corporate tax reform and FERC oil pipeline regulatory review. We expect additional general partner/incentive distribution rights restructurings will take place to lower MLP cost of capital and improve long-term growth outlook. We anticipate a gradual rotation into growthier MLPs as the yield-plus-growth value proposition comes back into favor, with the caveat that '17 financings are done in a clear, concise and perhaps in a "one-and-done" fashion. We expect the generally favorable backdrop to support improved volumes, capital market access and cash flow growth. The MLP sector offers an attractive value proposition of 7% distribution yield plus 4-5% growth, in our view. Our top MLP picks are VLP, PSXP, MPLX (growth at a reasonable price) and EEP (attractive yield).

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Top 10 Upstream & Midstream Energy Themes in 2017

Commodity Price Recovery

We forecast oil (WTI)/gas (Henry Hub) prices to rise 27%/34% YoY to $55/$3.30 in 2017. On NGLs, we forecast Mont Belvieu price to rise 32% YoY to $0.63 per gallon ($26.50 per barrel) in 2017. On oil, the OPEC and non-OPEC production cuts will help accelerate the rebalancing of supply and demand in 2017. Tempering oil price upside are high inventories and gradual US oil production growth, in our view. We expect the tailwind of a commodity price and resulting volume recovery to be the top energy theme in 2017, outweighing potential headwinds of higher interest rates, uncertainty on corporate tax reform, FERC pipeline regulations, service cost inflation and impact of associated gas production growth.

Looking at the domestic natural gas market, we remain optimistic we can see a $3+/mcf world persist through 2018. This year, there are clear tailwinds to prices, from both increasing demand (LNG exports, pipeline exports, coal-to-gas switching) and moderating supply (2017E U.S. natural gas production expected to increase <2 Bcf/d). We note that many investors do not share our optimism through 2018, citing de-bottlenecking of Appalachia gas production and associated gas production from both the Permian Basin and Oklahoma's SCOOP/STACK plays as drivers of higher production. We believe this focus ignores the secular demand improvement story, with LNG exports expected to reach 6.8 Bcf/d by 2020 and pipeline exports to Mexico likely to surpass 7 Bcf/d by 2020

Our NGL price forecast is based on our assumptions of higher oil price and rising ethane demand growth from petchems. Ethane demand from petchems is expected to growth 15% YoY to 1.2 mm b/d in 2017, according to S&P Global Platts Analytics. From a midstream perspective, in our coverage universe companies with meaningful NGL exposure are EPD, ETP, ETE, MPLX, PSXP, SXL and TLLP.

Exhibit 1: Mizuho Commodity Price Deck

	Price Deck	2016A	1Q17E	2Q17E	3Q17E	4Q17E	2017E	1Q18E	2Q18E	3Q18E	4Q18E	2018E
HHub	**Mizuho Securities USA**	**$2.46**	**$3.30**	**$3.20**	**$3.20**	**$3.50**	**$3.30**	**$3.25**	**$3.25**	**$3.25**	**$3.25**	**$3.25**
	NYMEX Strip ($/mcf)	*$2.46*	*$3.71*	*$3.43*	*$3.43*	*$3.50*	*$3.52*	*$3.52*	*$3.60*	*$2.87*	*$2.86*	*$3.07*
	Consensus ($/mcf)	*$2.50*	*$3.24*	*$3.06*	*$3.09*	*$3.28*	*$3.11*	*$3.31*	*$3.06*	*$3.11*	*$3.23*	*$3.17*
WTI	**Mizuho Securities USA**	**$ 43.18**	**$52.00**	**$54.00**	**$56.00**	**$58.00**	**$ 55.00**	**$59.00**	**$60.00**	**$60.00**	**$61.00**	**$ 60.00**
	NYMEX Strip ($/b)	*$43.37*	*$51.49*	*$53.78*	*$54.53*	*$54.64*	*$53.61*	*$53.61*	*$54.90*	*$54.80*	*$54.75*	*$54.81*
	Consensus ($/b)	*$43.83*	*$51.61*	*$53.31*	*$55.76*	*$56.19*	*$53.68*	*$57.75*	*$58.84*	*$59.70*	*$60.44*	*$59.17*
Brent	**Mizuho Securities USA**	**$44.88**	**$54.00**	**$56.00**	**$58.00**	**$60.00**	**$57.00**	**$61.00**	**$62.00**	**$62.00**	**$63.00**	**$62.00**
	ICE Strip ($/b)	*$45.09*	*$54.92*	*$55.97*	*$56.43*	*$55.57*	*$55.72*	*$55.72*	*$56.88*	*$57.01*	*$57.07*	*$56.98*
	Consensus ($/b)	*$45.33*	*$53.14*	*$55.22*	*$57.97*	*$59.28*	*$54.84*	*$56.39*	*$58.57*	*$59.60*	*$60.48*	*$61.33*

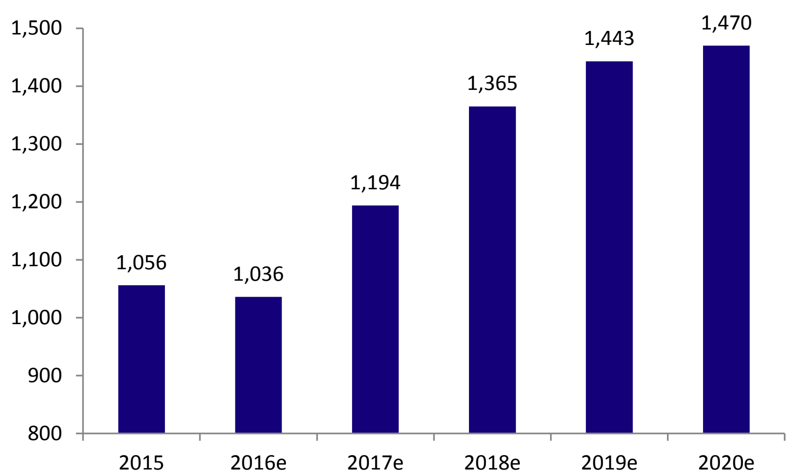
Source: Bloomberg, Mizuho Securities USA estimates

Exhibit 2: New U.S. Petrochemical Plants Entering Service

Company	Ethane consumption (mb/d)	Location	In Service
Occidental/Mexichem	**33**	Ingleside, TX	late 2016
Chevron Phillips	**90**	Cedar Bayou, TX	2017
Dow	**90**	Freeport, TX	2017
Exxon Mobil	**90**	Baytown, TX	2017
Indorama	**30**	Lake Charles, LA	2017
Sasol	**90**	Lake Charles, LA	2018
Shintech	**30**	Plaquemine, LA	2018
Formosa Plastics	**95**	Point Comfort, TX	2019
Axiall/Lotte	**60**	Lake Charles, LA	2019
Total	**60**	Port Arthur, TX	2019
Shell	**95**	Monaca, PA	2021-2022
Total	**763**		

Source: American Chemistry Council, Enterprise Products Partners

Exhibit 3: Driving Rising Petrochemical Demand for Ethane (mb/d)



Source: S&P Global Platts Analytics

Permian Production Growth

Oil production from the Permian is expected to continue ramping this decade, given the robust drilling activity being seen today (267 rigs today, up from 209 a year ago and a low of 120 in May 2016) and promising drilling economics in a $50+/b oil world. We believe Permian oil production could grow 300-400 mb/d in 2017 and average approximately 300 mb/d growth thereafter, which would translate to production of approximately 3.3 mmb/d in 2020. While existing infrastructure can handle current production of 2.1 mmb/d, there are early indications that takeaway may become an issue in late 2017/early 2018, illustrated by local oil futures curves.

While WTI Midland crude currently trades at a modest premium to WTI Cushing, futures curves indicate a reversal starting in mid-2017 (See Exhibit 4) that is expected to persist through 2020. In anticipation of a falling differential, several Permian operators have entered into basis swaps to hedge the differential between WTI and Midland below $2/b. Operators' ability to: 1) hedge oil production in the low/mid $50's, and 2) secure sub-$2/b basis swaps, insulates near-term realizations and gives us confidence that short-term bottlenecks will not be a material limiting factor for Permian-focused E&Ps.

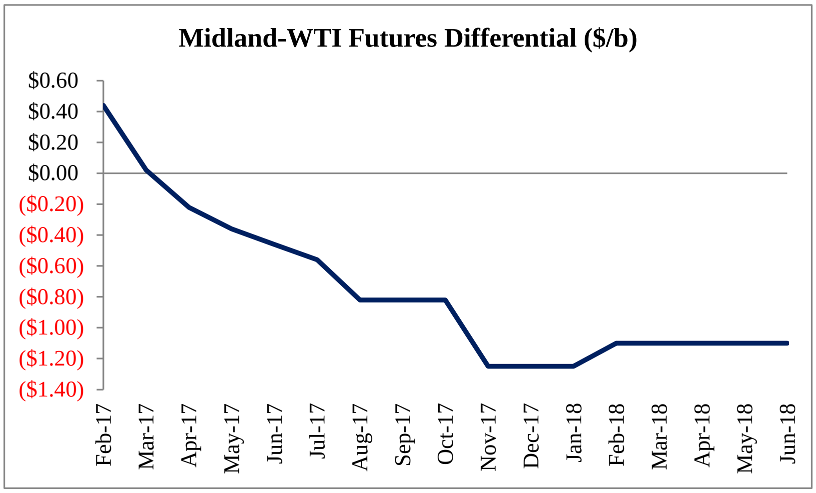
Our expectation is that rising oil production will drive rising gas and NGL production in the Permian. Gross gas production is forecasted to rise from 6.9 Bcf/d in 2016 to 10.1 Bcf/d by 2021, while Permian raw mix production is estimated increase from 541 mb/d in 2016 to 811 Mb/d in 2021, according to S&P Global Platts Analytics.

From a midstream perspective, we believe current Permian crude oil pipeline takeaway capacity of 2.5 mmb/d (includes 0.4 mmb/d of local refining demand) is adequate through 3Q17 but will tighten from 4Q17 to May 2018 due to anticipated production growth. From 4Q17 to May 2018, Permian basis differentials should widen, which could benefit crude marketers. In May 2018, EPD's Midland-Sealy pipeline will increase Permian pipe takeaway capacity by 300 mb/d to approximately 2.8 mmb/d. In addition, we estimate Permian pipeline takeaway can grow by an additional 500 mb/d to approximately 3.3 mmb/d from expanding existing pipes (Cactus, BridgeTex, Midland-Sealy, Permian Express II) through more pump stations (the low-cost expansions would take approximately 6-9 months). If Permian crude production growth averages 300 mb/d, we believe one new-build pipeline would be necessary to provide adequate takeaway for 2019-2020. We estimate lead time for a newbuild pipeline of 1.5 to 2 years. Worth noting if near-term pipeline takeaway capacity is tighter than expected (faster production growth coupled with local refinery downtime), crude-by-rail (with loading capacity of 300-400 mb/d) could serve as a short-term shock absorber.

E&P companies in our coverage universe with Permian exposure include CPE, CRZO, EGN, FANG, MTDR, NBL, OXY, PDCE, PXD and QEP.

Midstream companies in our coverage universe with Permian crude pipeline exposure are ETP, SXL, MMP, and EPD. Midstream companies not in our coverage universe with Permian crude pipeline exposure are PAA and PAGP.

Exhibit 4: WTI Midland Crude Differentials to WTI Cushing



Source: Bloomberg

Exhibit 5: Permian Oil Pipeline Takeaway Capacity (mb/d)

Pipeline	**2017**	**2018**	**Owners**
Basin	450	450	PAA, EPD
Centurion	100	100	OXY
West Texas Gulf	400	400	SXL
Longhorn	275	275	MMP
BridgeTex	300	300	MMP, PAA
Permian Express II	200	200	SXL
Cactus	330	330	PAA
Midland-Sealy	0	300	EPD
Total Pipeline Capacity	2,055	2,355	
Total Local Refining Capacity	447	447	
Total Pipeline and Refining Capacity	**2,502**	**2,802**	
Potential Expansions of Existings Pipes		500	
Total Potential Pipeline and Refining Capacity	**2,502**	**3,302**	

Source: Mizuho Securities USA, Inc.

Associated Gas/Gas Price Outlook

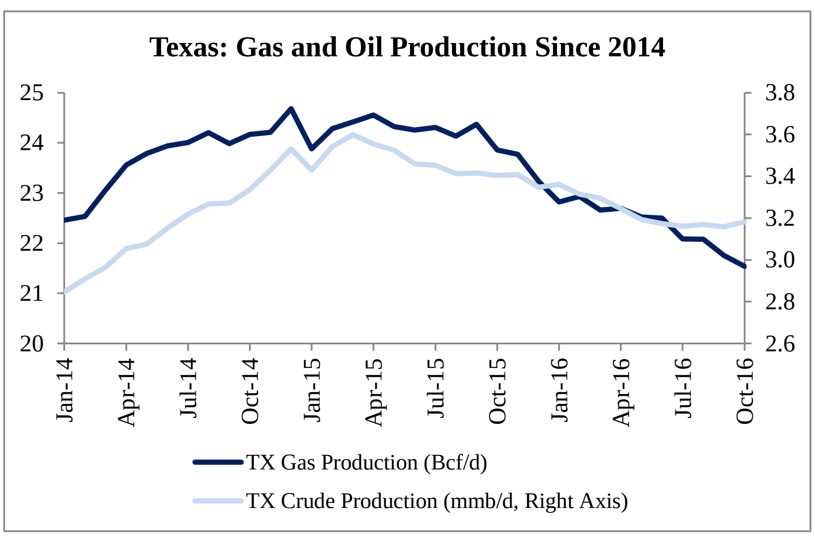
We believe investors and our peers are taking an overly pessimistic view of the impact of associated gas production to pricing by 2018. A common concern among investors with whom we speak is a sharp decrease in gas prices by 2018 due to growth in associated gas volumes from liquids-focused drilling, such as in the Permian Basin, and in Oklahoma's SCOOP/STACK plays. We believe available data does not support this claim.

Looking at region-specific gas production, we do not expect the recent decline in overall U.S. gas production (down to 70.3 Bcf/d in January, versus 72.6 Bcf/d a year ago, per Platts) to fully reverse itself in 2017. We believe a y/y production increase back over 72 Bcf/d by y/e 2017 is possible, but the real backbone to our (relatively) bullish thesis on natural gas prices is visibility on improving demand dynamics that can absorb the modest growth we expect. Drilling down specifically into Texas, we note that from 2014-2016, despite the increase in drilling activity in the Permian Basin, we saw both oil and gas decline steadily from their peaks in early 2015 (see Exhibit 6). The impact of declines in gas production from shale plays with lower rig counts at the current time (Barnett Shale, Eagle Ford Shale, to name two) should offset much of the increase in associated gas from the Permian Basin.

Lastly, short-term storage dynamics are bullish, with U.S. natural gas inventories of 3.31 Tcf now below the five-year average, and drawdowns of 150-180 Bcf expected to be reported in each of the next two weeks.

From a midstream perspective, most gas pipelines are supported by long-term capacity payments. As such, contracted gas pipelines don't have direct natural gas price commodity price exposure until contracts are up for renewal with shippers.

Exhibit 6: Texas Gas and Oil Production Since 2014



Source: EIA

Appalachia Pipeline Projects

Mixed/negative sentiment on the pace of de-bottlenecking in Appalachia has weighed heavily on E&Ps with exposure to the region. Major debate points among investors include: 1) the ultimate timing of major pipeline projects (see Exhibit 7), 2) the outlook for regional gas prices as de-bottlenecking occurs, and 3) the 2018 production growth outlook for natural gas, given Appalachia de-bottlenecking and associated gas growth.

We find ourselves increasingly out-of-consensus with our positive outlook for both natural gas prices and gassy E&Ps amid uncertainty in Appalachia. Gassy E&Ps have been clear underperformers since the OPEC supply cut news in late November. Since the start of December, four gassy E&Ps under coverage have a -12.0% return, versus a -4.2% return for oily/combo E&Ps. We would increase exposure to gassy E&Ps, given this weakness. While delays on Appalachia pipelines create uncertainty, we still expect all projects except Constitution Pipeline to get built. The incremental delays are painful to Appalachia operators for sure. But they are beneficial to E&Ps with gas exposure outside of the region, as they help defer U.S. gas production growth and allow incremental gas production to come on more in lockstep with the improving demand scenario we envision (pipeline exports to Mexico and LNG exports both expected to average 7 Bcf/d in 2020).

While investors are concerned by a potential ramp in U.S. gas production in 2018, the fact remains that U.S. natural gas production has declined steadily since it peaked at 73.9 Bcf/d in February 2016, averaging just 70.3 Bcf/d now. We do not expect 2017 production to exceed the 2015 or 2016 annual average production (72.4 and 72.0 Bcf/d, respectively). Looking to 2018, weather will always be impactful on the margin, but we simply do not see enough incremental growth from the Permian Basin (producing 7.5 Bcf/d of gas now), Oklahoma (6.7 Bcf/d now) or the Haynesville Shale (6.0 Bcf/d now) to swamp the impact of incremental demand, especially with most legacy gas shale plays expected to remain in decline.

Buy-rated companies under coverage have a robust portfolio of FT arrangements and commodity hedges can withstand this uncertainty without seeing significant CF impact, other than to volumes exposed to weak in-basin pricing. We acknowledge that uncertainty on de-bottlenecking is expected to continue weighing on in-basin pricing, as seen with the current Dominion South futures strip (Exhibit 8).

Several E&P coverage companies have exposure to Appalachia. CHK, CRZO and SWN have exposure to Northeast Pennsylvania. CHK, GPOR, NBL, RICE and SWN have exposure to Southwest Pennsylvania/West Virginia/Ohio. We are Buy-rated on three of the four gassy E&Ps under coverage (RICE, SWN, and GPOR) and believe the equities are oversold at current levels.

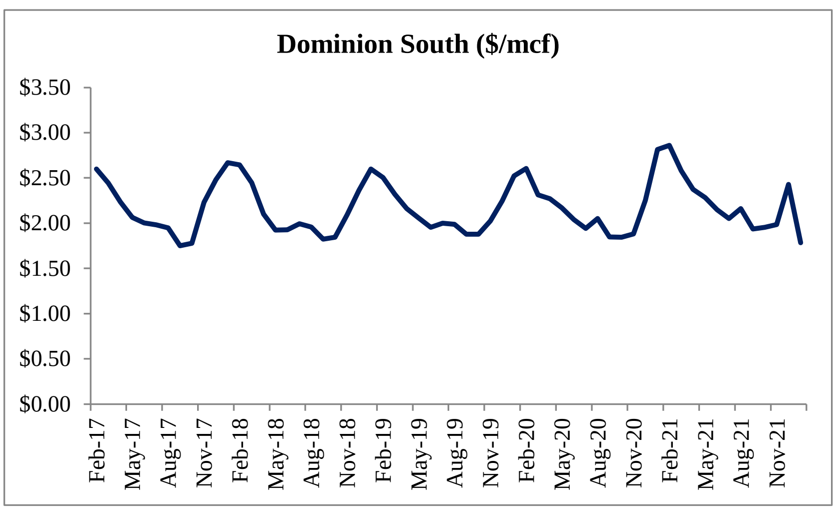
In our midstream coverage universe, ETP (65% stake, privately-held Traverse owns 35%) is awaiting final FERC regulatory approval on its $4 billion, 3.25 Bcf/d capacity Rover natural gas pipeline project. Rover is expected to enter service to Defiance, OH mid-2017 and Vector/Dawn Hub in November 2017, however construction has not yet begun due to the pending receipt of the FERC certificate.

Exhibit 7: Appalachian Pipeline Buildout Status

Pipeline	Company	(Bcf/d) Capacity	Original Start Date	Current Status
Northern Supply Access Project	BWP	0.38	Apr-17	On schedule
Northern Access Project	NFG	0.49	Nov-17	On schedule
Gulf Markets Expansion Phase 2	Spectra Energy Partners (SEP)	0.40	Aug-17	On schedule
Rover Pipeline	ETP, Traverse	3.25	Jun-17	Delayed until mid/late 2017
Atlantic Sunrise	WPZ	1.70	Jul-17	Delayed until late 2017/mid 2018
Southwest Louisiana	KMI	0.90	Sep-17	Delayed until early 2018
Lebanon Extension	SEP	0.10	Nov-17	Delayed until late 2017/early 2018
Adair Southwest	SEP	0.20	Nov-17	Delayed until late 2017/early 2018
Access South	SEP	0.32	Nov-17	Delayed until late 2017/early 2018
PennEast Pipeline	SEP and JV Partners	1.10	Nov-17	Delayed until 3Q18
Leach Xpress	TRP	1.50	Nov-17	Delayed until 1Q18
NEXUS Gas Transmission	SEP, ENB, DTE	1.50	Nov-17	Delayed until late 2017
Mountain Valley Pipeline	NEE, RGC Resources, EQM, WGL, ED	2.00	Nov-17	Delayed 4Q18
Constitution Pipeline	WPZ, COG, PNY, WGL	0.70	2H17	Delayed by NY State
Total (projects underway)		**14.54**		

Source: Company press releases

Exhibit 8: Dominion South Natural Gas Futures



Source: Bloomberg

Regulations and Taxes

From a high level, we believe the new Administration and Republican-controlled Congress will be a net positive for the U.S. energy complex.

From an E&P perspective, we believe the impact will be more muted. Conversations with operators since the election suggest little optimism that working relationships with the Bureau of Land Management (BLM) will materially improve, and that protracted delays for permits on federal land will persist. On the taxation side, potential changes on the deductibility of interest expense remain a concern.

From an MLP sector perspective, we expect a more supportive regulatory backdrop for energy production and pipeline development. We expect the new Administration will approve the high-profile Dakota Access crude oil pipeline project (JV among ETP, SXL, PSX, MPLX, EEP/ENB). However, we believe some state regulations in the Northeast will continue to act as headwind for some gas pipeline projects.

From an MLP perspective, while pipeline approval the federal level should improve, potential headwinds include uncertainty on corporate tax reform and FERC regulations. While we don’t believe MLP and other tax-advantaged structures are targets for elimination, uncertainty exists on details of how the corporate tax rate cut will be revenue neutral. At FERC, pipeline regulations could potentially change tax allowance and oil pipeline indexation.

Rising Interest Rates

From an MLP sector perspective, rising interest rates are a headwind, all other variables held constant, for valuation and borrowing costs. However, the impact depends on how quickly rates rise and the commodity price backdrop (among other variables), in our view. We believe a gradual increase in the 10-Year Treasury is manageable (Mizuho forecasts rates to increase to 2.75%-3.0% during 2017 but then exit at 2.5%, vs. Bloomberg consensus of 2.77% and 2.4% currently). From an income perspective, worth noting the MLP sector index (AMZ) trades at a 95 basis point discount on a yield spread basis (465 vs. 370 basis points 10-year average). In addition, we forecast WTI oil prices to average $55 in 2017 and $60 in 2018, up from $43 in 2016.

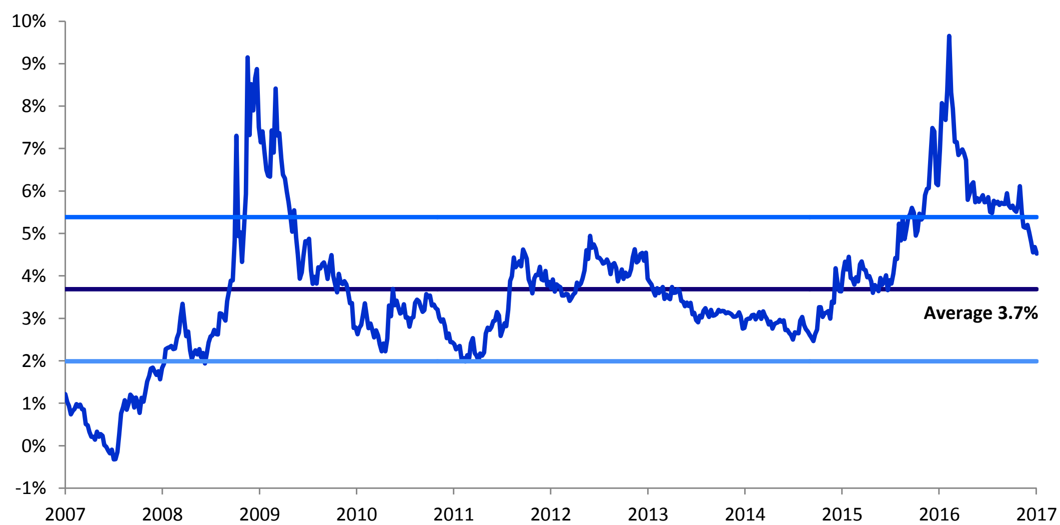
Given the MLP sector is both an energy and income asset class, commodity prices generally play a more significant role than interest rates in MLP sector performance. For example in 2H16, the 10-Year Treasury yield rose 100 bps while the AMZ index declined only 0.6% (to 316) vs. the UTY index (Utilities) drop of 6.9% (to 619). We believe in 2H16 the MLP sector’s relatively steady performance was attributable to rising oil prices (WTI increased 11% to $54) and improved federal energy regulatory backdrop from the November election more than offset the negative impact of rising interest rates. Looking at history, the MLP sector (AMZ index) has generally posted positive returns during rising interest rate environments. We believe MLP distribution growth and generally improving economic conditions during rising rate environments typically offset higher rates.

Exhibit 9: MLPs Generally Perform Well In Rising Interest Rate Environments

Start Date	End Date	10-Year Treasury Change (bps)	AMZ Yield Change (bps)	AMZ Yield Spread Change (bps)	AMZ Price Change (%)
10/5/1998	1/21/2000	263	141	(122)	-9.1%
11/7/2001	4/1/2002	122	22	(100)	-4.5%
6/13/2003	6/14/2004	176	29	(147)	2.1%
6/2/2005	6/28/2006	136	68	(68)	0.3%
12/18/2008	6/10/2009	187	(359)	(546)	28.5%
10/8/2010	2/8/2011	134	(23)	(157)	6.6%
7/24/2012	9/5/2013	161	(10)	(171)	10.3%
7/8/2016	12/15/2016	125	20	(105)	-4.4%

Source: Bloomberg, FactSet

Exhibit 10: MLP Sector Trades at Discount - AMZ Index Yield Spread to U.S. 10-Year Treasury



Source: Bloomberg, FactSet

General Partner Restructurings

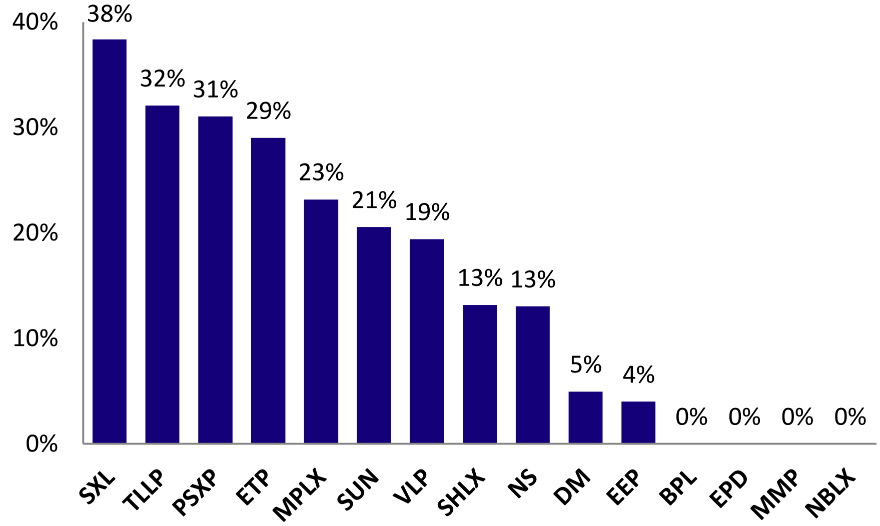
From an MLP perspective, we believe general partner incentive distribution restructurings will continue to occur in 2017 however with a twist from 2016. In 2016, most of the general partner restructurings were done by MLPs with high costs of equity capital and either cutting or not growing their cash distributions (per unit), such as Plains All American Pipeline-Plains GP Holdings, Semgroup-Rose Rock Midstream, Targa Resources Corp-Targa Resources Partners. In 2017, we expect the GP IDR restructurings to shift more to the high growth MLPs to enhance long-term growth visibility.

The first data point of the year is MPLX's 1/3 announcement to eliminate its IDRs through a GP buy-in. Noteworthy that MPLX marks the first high-growth (we define as double-digit distribution growth) MLP to eliminate its IDR structure. We believe high-growth peers in the high GP splits such as PSXP, SHLX, VLP, TLLP (while DM is expected to enter high splits in 2017, we view IDR change unlikely near term) might give more consideration to IDR restructuring to improve their equity cost of capital. Rather than a one-size-fits-all approach, we expect management teams will evaluate different actions to lower equity cost of capital, which could range from temporary IDR reductions (TLLP has $100 mm total waiver 2017-18), permanent IDR reductions, IDR resets, IDR caps or GP buy-ins.

Outside of the dropdown MLPs, we believe the combined ETP/SXL, assuming the merger is approved 1Q, may consider IDR changes later in 2017. While the combined entity's distribution coverage will be helped by lower ETP-related distribution payments and the $1.08 billion in IDR waivers, the cost of equity remains elevated. In addition, approximately 75% of the $1.08 billion in IDR waivers for ETP/SXL expire at the end of 2017. We are curious to see if Energy Transfer family member SUN will receive an IDR waiver in 2017 to help boost distribution coverage. In addition, we could potentially see more internal MLP consolidation. EEP parent ENB is conducting a strategic review of its MLP strategy given addition of SEP from SE merger (expected close 1Q17). While we believe it is unlikely SEP would merge with EEP anytime soon, one scenario is ENB acquiring the remaining LP interests it doesn't own in EEP. Also, TLLP parent TSO has a pending merger with WNR (expected close 1H17), in which it will also acquire the GP and related LP interests in midstream MLP WNRL.

In our coverage universe, the top 5 MLPs with the highest average general partner percentage of total distributions (3Q16 declared) are SXL 38%, TLLP 32%, PSXP 31%, ETP 29%, MPLX 23%.

Exhibit 11: General Partner % of Total Distributions (3Q16)



Source: Mizuho Securities USA, Inc.

Cost Inflation

From an E&P perspective, we believe cost concessions from services providers have largely been achieved, but do not see meaningful cost inflation on the horizon. We note that many of the cost reductions were driven by drilling and operational efficiencies, with companies reducing total drilling activity and focusing in core areas with little geologic uncertainty and ample infrastructure is in place. Those efficiencies should remain.

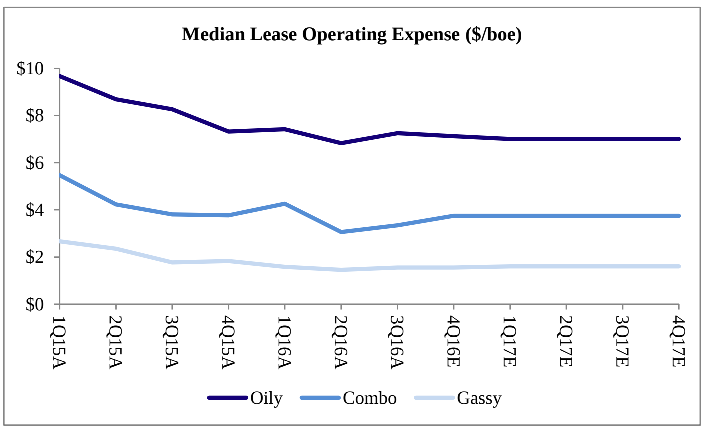
In 2016, our entire E&P coverage universe saw reductions in LOE. For example, oily producers under coverage saw their average LOE fall by 16% to $7.10/boe from $8.47/boe. We estimate service cost reductions accounted for 50% of the reduction, with the balance coming from increased efficiencies. At the present time, we conservatively expect LOE to be mostly flat in 2017, but acknowledge that marginal, incremental efficiency gains may still occur. We saw similar results when reviewing y/e 2015 F&D costs for oily producers under coverage. They decreased by an average of $2.22/boe from the 2014 level. When 2016 year-end reserve numbers are reported in the weeks ahead, we expect they will show another move down in F&D costs, reflecting lower well costs and higher recoveries from wells drilled in 2016.

The bigger uncertainty in the marketplace is this: if substantial reductions in drilling & completion costs are largely a thing of the past, how soon will service companies regain pricing power? Well cost reductions have been a consistent theme in 2015/2016 as newer rigs drilled wells faster at cheaper day rates, and service companies cut prices on completions. In 2017, we expect overall well costs in development areas to remain flattish. This reflects modest upticks in drilling speeds offset by the continued transition to larger, more proppant-heavy completions that are more energy (and financially) intensive.

For investors looking for a tangible moment when they can expect the return of service cost inflation, we would focus on the rig count. We believe there are about 800 of the latest generation drilling rigs in the marketplace today. A ramp in activity toward that level would embolden service companies to seek stronger pricing for services. The most recent U.S. rig count was reported at 665.

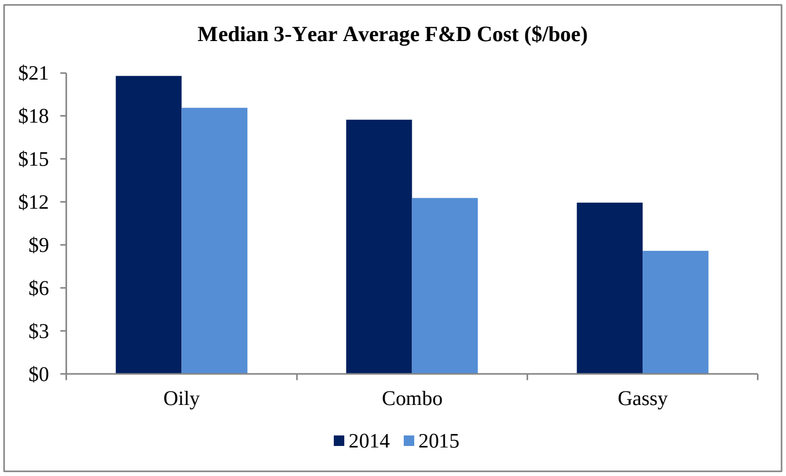
From a midstream perspective, we do not expect cost inflation to be an issue for organic projects. The exception is potential cost increases stemming from regulatory delays.

Exhibit 12: LOE Deflation Trends for E&P Coverage Universe



Source: Company reports, Mizuho Securities USA estimates

Exhibit 13: F&D Cost Deflation for E&P Coverage Universe



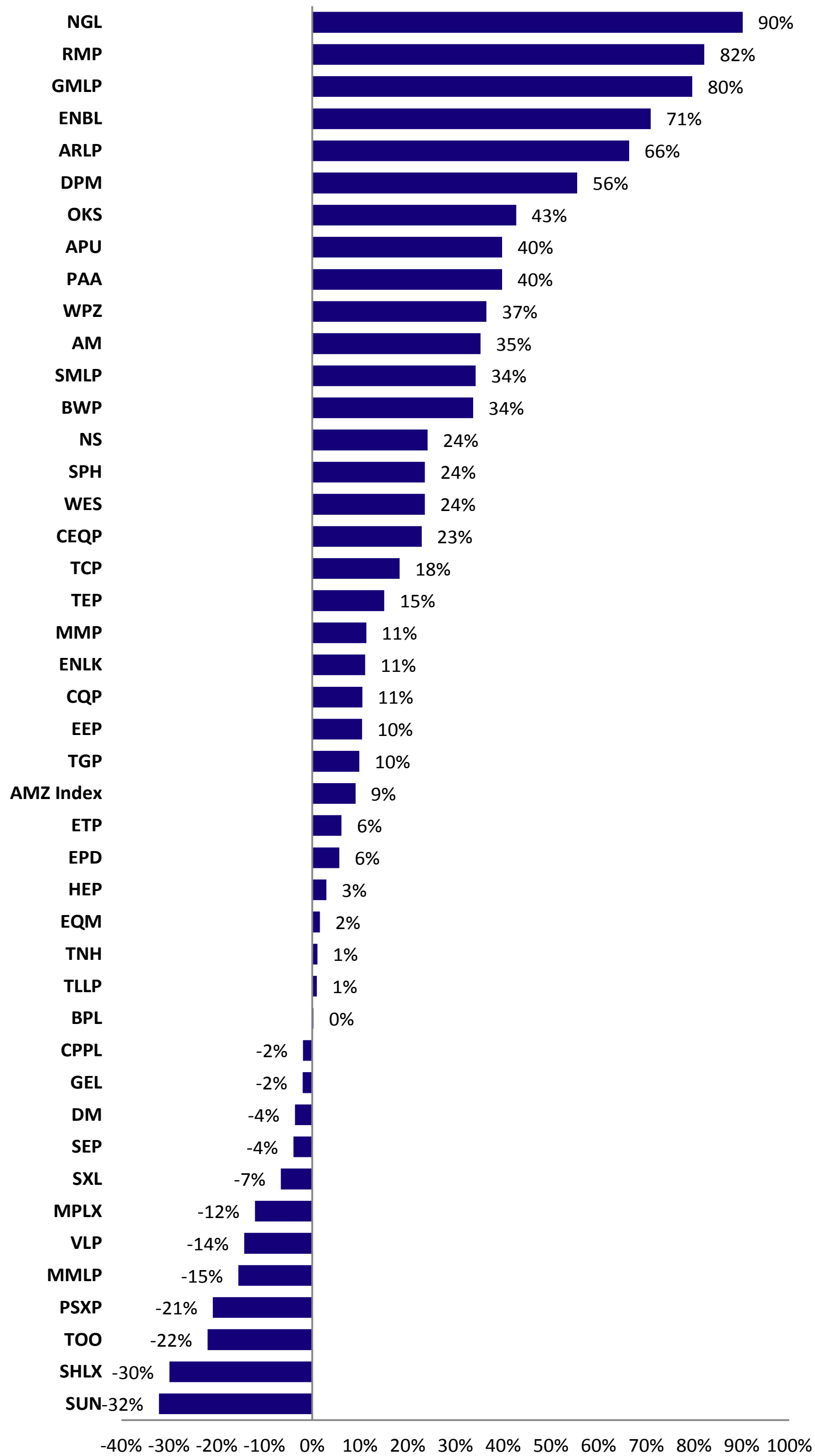
Source: Company reports, Mizuho Securities USA estimates

Gradual Midstream Rotation into Growth

From a midstream perspective, we expect high-growth MLPs (more than 10% distribution growth) should perform better in 2017 than 2016, in which they largely underperformed the AMZ Index. We believe the “yield+growth” value proposition will become more appealing to investors after the yield-compression trades of 2016 have largely played out and equity capital market access should improve. Financing messaging by management teams is important. If possible, we believe a “one-and-done” approach to equity financing in 2017 is the best option for dropdown MLPs. It is our view that MLPs may consider mirroring DM’s financing structure for its $1.7 billion Questar gas pipeline announced in November, which resulted in no planned equity financing needs until 2H18.

In our coverage universe, companies with more than 10% expected distribution growth in 2017 and 2018 (based on our estimates) are DM, MPLX, PSXP, SHLX, TLLP, VLP. All six of these high-growth MLPs underperformed the AMZ Index on price performance in 2016 with SHLX -30%, PSXP -21%, VLP -14%, MPLX -12%, DM -4%. TLLP +1% vs. AMZ Index +9%. The top 10 stock performers in the AMZ Index (except RMP) generally had low, no or negative distribution growth in 2016. Top performer NGL (90% price appreciation) cut its distribution 39% (in 2Q), while #5 performer ARLP (66% price appreciation) cut its distribution 35% (in 2Q) and #9 performer PAA (40% price appreciation) cut its distribution 21% (in 4Q). WPZ, the #10 performer (37% price appreciation) announced on 1/9/17 plans to cut its distribution 29%.

Exhibit 14: High Growth MLPs Largely Lagged (2016 Price Change)



Source: FactSet

Improving Capital Market Access and the M&A Landscape

Our expectation of an improved commodity price and energy regulatory backdrop should increase capital market access for E&Ps and midstream MLPs, in our view.

For E&Ps, we expect consolidation of PE-backed private companies to continue being the main M&A focus. Recent discussions with coverage companies suggest a robust portfolio of privately-held assets remains in the marketplace, even after an active year of Permian Basin deal flow in 2016. We expect M&A to increasingly be focused on public companies acquiring smaller, private companies, using equity currency to fund deals.

Private equity companies' willingness to take public equity back broadens the opportunity set for small/mid cap E&Ps. We know of at least six deals made in the last five months between public acquirors and PE-backed sellers that featured the issuance of common equity directly to PE sellers as a component of the deal. Along with giving equity directly to the PE sellers (at deal closing), the public acquirors issued equity to help fund the acquisition. Exhibit 12 below highlights the six deals that have used this format. We expect the format to continue this year as consolidation in key basins continues.

Exhibit 15: Recent Acquisitions of Private E&Ps with Common Shares Given to Sellers

Acquiror Ticker	Company	Deal Size ($B)	Shares Given to PE Seller ($B)	% of Funding From Shares	Deal Date	Basin
PDCE	PDC Energy	1.5	0.6	40%	Aug-2016	Delaware
EOG	EOG Resources	2.5	2.3	92%	Sep-2016	Delaware/PRB
RICE	Rice Energy	2.7	1.0	37%	Sep-2016	Marcellus
RSPP	RSP Permian	2.4	1.2	50%	Oct-2016	Delaware
FANG	Diamondback Energy	2.4	0.8	33%	Dec-2016	Delaware
GPOR	Gulfport Energy	1.9	0.5	27%	Dec-2016	SCOOP

Source: Company press releases

From a midstream perspective, MLPs require capital market access as most of their growth capex is financed with external capital due to the high distribution payout ratio. We believe improved capital market access will support increased investor demand for dropdown MLPs which generally underperformed the AMZ index in 2016. However, messaging and execution of equity financing in 2017 will be important for dropdown MLPs as investors are wary of too-much, too-soon issuance. While debt capital markets were open for most MLPs in 2016, equity capital markets were less so on a relative basis. Given the strong stock performance of NBLX (up 66% from offering price), the first midstream MLP IPO in 2016, and an improved commodity price backdrop, it will be interesting to see if the MLP IPO market picks up steam in 2017. From an M&A perspective, we are not sure if we'll see more large transactions on the scale of Enbridge-Spectra and TransCanada-Columbia Pipeline. From an ability standpoint, investment grade MLPs with no IDRs are better positioned to be consolidators in 2017, in our view.

Exhibit 16: Mizuho E&P Comp Sheet

Company	Ticker	Rating	Price	PT ($/shr)	Shrs Out (MM)	Avg Daily Volume ($MM)	Market Cap ($B)	($B) Net Debt 3Q16A	Ent Value ($B)	Net Debt/ TTM EBITDA 3Q16A	Net Debt/ TTM EBITDA 4Q18E	Discretionary CF 2017E	Discretionary CF 2018E	EV/CF 2017E	EV/CF 2018E	CFPS 2017E	CFPS 2018E	Book Value ($MM)	Price/ Book 3Q16A
Callon	CPE	Neutral	$ 15.40	$18	207.0	93.3	3.2	(0.0)	3.2	(0.3)	0.5	265	431	10.3	7.9	1.28	2.07	1,101	2.9
Carrizo	CRZO	Buy	$ 36.74	$47	66.0	40.3	2.4	1.3	3.8	3.4	1.8	400	478	9.1	7.9	6.06	7.21	(205)	NM
Chesapeake	CHK	Neutral	$ 6.94	$8	777.8	367.2	5.4	9.7	15.1	7.7	2.8	1,761	2,402	8.6	6.2	2.26	3.07	(1,191)	(4.5)
Denbury	DNR	Neutral	$ 3.78	$5.00	389.0	34.5	1.5	2.7	4.2	6.2	3.1	376	544	11.2	7.5	0.97	1.38	847	1.7
Diamondback	FANG	Buy	$ 103.96	$124	97.2	163.6	10.1	0.3	10.4	0.9	0.4	781	1,241	11.9	8.8	8.14	12.71	2,835	3.6
Energen	EGN	Buy	$ 57.36	$72	97.6	45.3	5.6	0.1	5.7	0.2	0.4	523	817	11.1	7.4	5.35	7.68	3,172	1.8
Gulfport	GPOR	Buy	$ 20.88	$36	177.9	113.0	3.7	0.6	4.3	1.5	1.3	672	1,040	5.4	5.1	3.83	5.82	1,725	2.2
Matador	MTDR	Neutral	$ 25.24	$26	95.3	35.5	2.4	0.4	2.8	2.9	2.0	225	282	12.3	10.6	2.37	2.92	438	5.5
Noble	NBL	Buy	$ 37.25	$44	430.6	125.2	16.0	6.0	22.1	2.3	1.3	2,392	3,238	9.1	6.7	5.53	7.45	9,845	1.6
Oasis	OAS	Neutral	$ 15.40	$17	232.5	136.5	3.6	1.9	5.5	3.5	1.6	576	814	9.6	6.7	2.47	3.48	2,388	1.5
Occidental	OXY	Buy	$ 69.45	$87	764.8	293.1	53.1	5.2	58.3	1.6	0.8	5,680	6,884	10.7	8.9	7.41	8.94	22,296	2.4
Par Pacific Holdings	PARR	Buy	$ 13.43	$20	45.6	4.1	0.6	0.3	0.9	15.9	0.0	74	88	8.3	7.0	1.63	1.92	352	1.7
PDC Energy	PDCE	Neutral	$ 76.32	$81	65.7	60.6	5.0	(0.2)	4.9	(0.4)	0.4	645	1,025	8.9	5.7	9.81	15.53	1,986	2.5
Pioneer	PXD	Neutral	$ 183.53	$200	170.2	249.1	31.2	0.6	31.8	0.3	0.1	2,189	3,339	14.6	9.7	12.83	19.49	10,431	3.0
QEP Resources	QEP	Buy	$ 18.00	$25	240.2	50.4	4.3	1.0	5.3	1.4	1.2	717	1,038	8.2	5.9	2.96	4.25	3,635	1.2
Rice Energy	RICE	Buy	$ 20.34	$43	244.4	87.0	5.0	1.2	6.5	2.3	1.1	933	1,208	6.9	5.7	3.81	4.89	3,769	1.3
Southwestern	SWN	Buy	$ 10.12	$20	483.7	130.8	4.9	3.2	8.1	4.5	1.0	1,387	1,741	5.8	4.4	2.85	3.54	1,123	4.4
Viper Energy	VNOM	Neutral	$ 16.73	$18	86.9	1.7	1.5	0.0	1.5	0.7	0.2	107	149	14.0	10.0	1.23	1.71	549	2.6
Whiting	WLL	Neutral	$ 12.91	$10	290.8	203.8	3.8	4.1	7.8	5.0	1.8	792	1,109	8.4	6.1	2.21	3.08	4,604	0.8
Average (ex-VNOM, PARR)										**2.5**	**1.3**			**9.5**	**7.1**				**2.0**
Median (ex-VNOM, PARR)										**2.3**	**1.2**			**9.1**	**6.7**				**2.0**

Company	Ticker	EBITDA(X) ($MM) 2017E	EBITDA(X) ($MM) 2018E	EV/EBITDA(X) 2017E	EV/EBITDA(X) 2018E	EV/EBITDA(X) Price Target 2017E	EV/EBITDA(X) Price Target 2018E	Hedges (US prod'n) 2016 Oil %	2016 Oil Floor	2017 Oil %	2017 Oil Floor	2016 Gas %	2016 Gas Floor	2017 Gas %	2017 Gas Floor	CAPEX ($MM) 2017E	CAPEX ($MM) 2018E	FCF ($MM) 2017E	FCF ($MM) 2018E
Callon	CPE	269	435	12.6	7.9	12.1	9.0	49%	$52.14	34%	$51.61	33%	$2.65	12%	$3.30	320	500	(670)	(69)
Carrizo	CRZO	466	636	8.1	6.0	9.3	7.0	58%	$56.51	27%	$50.13	0%	$0.00	32%	$3.22	475	550	(115)	(72)
Chesapeake	CHK	2,169	2,810	6.9	5.3	7.4	5.6	69%	$46.71	50%	$49.68	66%	$2.79	63%	$3.08	2,248	2,248	(487)	154
Denbury	DNR	503	671	8.1	6.0	9.3	6.8	62%	$55.82	38%	$47.45	0%	$0.00	0%	$0.00	240	500	136	44
Diamondback	FANG	845	1,305	12.9	8.2	13.3	9.9	7%	$45.01	11%	$51.70	0%	$0.00	44%	$3.30	800	1,000	(19)	241
Energen	EGN	557	851	10.8	7.1	12.9	8.7	60%	$45.28	57%	$51.77	29%	$2.48	54%	$3.05	750	850	(227)	(33)
Gulfport	GPOR	760	1,128	7.0	4.8	8.3	7.1	38%	$57.36	12%	$51.10	84%	$3.19	56%	$3.12	980	1,200	(1,658)	(160)
Matador	MTDR	255	312	11.8	10.2	11.1	9.8	50%	$43.27	44%	$55.00	44%	$2.62	52%	$3.30	460	462	(235)	(181)
Noble	NBL	2,712	3,558	8.1	6.1	9.1	7.0	45%	$68.44	22%	$54.74	27%	$3.30	17%	$3.22	2,200	2,800	19	265
Oasis	OAS	696	938	7.9	5.7	8.5	6.2	76%	$51.05	50%	$51.33	0%	$0.00	8%	$3.21	530	730	46	84
Occidental	OXY	6,000	7,204	10.2	8.4	12.4	10.3	0%	$0.00	0%	$0.00	0%	$0.00	0%	$0.00	3,628	3,638	(286)	875
Par Pacific	PARR	106	120	5.8	5.1	8.6	7.6	NM	NM	NM	NM	NM	NM	NM	NM	20	12	62	76
PDC Energy	PDCE	726	1,106	8.0	5.0	8.3	5.5	55%	$71.72	48%	$50.58	63%	$3.76	52%	$3.56	750	750	(105)	275
Pioneer	PXD	2,379	3,529	13.6	9.0	14.6	10.0	80%	$60.95	78%	$55.00	74%	$3.24	53%	$3.30	2,700	2,700	(525)	639
QEP Resources	QEP	860	1,182	7.1	5.1	8.8	6.6	47%	$53.53	51%	$50.88	66%	$2.68	69%	$2.75	950	1,000	(233)	38
Rice Energy	RICE	1,031	1,305	6.6	5.2	11.6	9.5	0%	$0.00	0%	$0.00	98%	$3.21	77%	$3.04	1,313	1,138	(379)	70
Southwestern	SWN	1,566	1,920	4.9	3.8	8.2	6.5	0%	$0.00	0%	$0.00	21%	$2.74	65%	$3.16	900	1,600	487	141
Viper Energy	VNOM	112	154	13.3	9.7	14.4	10.4	0%	$0.00	0%	$0.00	0%	$0.00	0%	$0.00	NM	NM	NM	NM
Whiting	WLL	1,068	1,383	6.3	4.8	5.5	4.3	66%	$53.24	45%	$55.00	0%	$0.00	0%	$0.00	900	1,050	(108)	59
Average (ex-VNOM, PARR)				**8.9**	**6.4**	**10.0**	**7.6**	**45%**	**$44.77**	**33%**	**$42.70**	**36%**	**$1.92**	**38%**	**$2.62**	**20,144**	**22,716**	**(4,357)**	**2,372**
Median (ex-VNOM, PARR)				**8.1**	**6.0**	**9.3**	**7.0**	**50%**	**$52.14**	**38%**	**$51.10**	**29%**	**$2.65**	**52%**	**$3.16**	**900**	**1,000**	**(227)**	**70**

Source: Company reports, Mizuho Securities USA estimates

Exhibit 17: Mizuho MLP Comp Sheet

Company	Ticker	Mizuho Rating	Price	Distribution Yield		EV/Adjusted EBITDA		Price/DCF		2017e			3-Year Distribution CAGR
				Current	2017e	2017e	2018e	2017e	2018e	Distribution Coverage	Distribution Growth	Debt /EBITDA	
Buckeye Partners	BPL	Neutral	$65.79	7.4%	7.7%	13.2x	12.9x	12.4x	12.0x	1.0x	4.3%	4.3x	4.5%
Dominion Midstream Partners	DM	Buy	$29.90	3.3%	3.9%	13.8x	13.6x	17.4x	15.6x	1.2x	21.6%	2.2x	22.0%
Enbridge Energy Partners	EEP	Buy	$25.37	9.2%	9.2%	12.3x	12.1x	11.7x	11.3x	1.0x	0.0%	4.3x	1.2%
Enterprise Products Partners	EPD	Buy	$26.84	6.0%	6.3%	14.0x	13.1x	12.8x	11.7x	1.2x	5.0%	4.1x	5.3%
Energy Transfer Equity	ETE	Buy	$18.74	6.1%	6.1%	16.6x	11.8x	15.8x	10.5x	1.3x	0.0%	3.9x	9.1%
Energy Transfer Partners	ETP	Buy	$35.61	11.9%	11.9%	9.2x	8.7x	9.4x	8.9x	0.9x	0.0%	4.9x	0.0%
Magellan Midstream Partners	MMP	Neutral	$73.77	4.5%	4.9%	16.5x	15.8x	17.1x	16.2x	1.2x	8.1%	3.5x	6.5%
MPLX	MPLX	Buy	$35.34	5.8%	6.5%	14.5x	12.3x	12.8x	11.2x	1.1x	12.7%	4.1x	8.8%
Noble Midstream Partners	NBLX	Buy	$37.94	4.4%	4.1%	11.2x	9.0x	14.0x	11.7x	1.9x	3.3%	0.8x	20.0%
NuStar Energy	NS	Neutral	$51.19	8.6%	8.6%	13.5x	12.7x	11.3x	10.4x	1.0x	0.0%	5.6x	1.1%
NuStar GP Holdings	NSH	Neutral	$29.70	7.3%	7.3%	13.7x	13.6x	13.5x	13.4x	1.0x	0.0%	0.3x	3.0%
Phillips 66 Partners	PSXP	Buy	$49.08	4.3%	5.1%	14.4x	13.2x	12.5x	11.4x	1.4x	20.5%	4.1x	15.5%
Shell Midstream Partners	SHLX	Buy	$29.96	3.5%	4.1%	16.7x	15.4x	17.2x	14.6x	1.3x	20.2%	2.1x	19.0%
Sunoco	SUN	Neutral	$26.75	12.3%	12.3%	11.3x	10.8x	8.6x	8.2x	1.0x	0.2%	6.2x	0.0%
Sunoco Logistics Partners	SXL	Neutral	$23.85	8.6%	9.1%	13.3x	12.2x	10.3x	9.6x	1.1x	8.0%	4.3x	7.2%
Tesoro Logistics	TLLP	Buy	$52.95	6.6%	7.3%	12.4x	12.1x	12.0x	11.4x	1.1x	13.0%	4.2x	8.3%
Valero Energy Partners	VLP	Buy	$45.56	3.4%	4.1%	15.5x	14.2x	13.6x	12.2x	1.6x	24.9%	3.4x	19.3%
	Average			**6.7%**	**7.0%**	**13.6x**	**12.6x**	**13.1x**	**11.8x**	**1.2x**	**8.3%**	**3.7x**	**8.9%**
	Median			**6.1%**	**6.5%**	**13.7x**	**12.7x**	**12.8x**	**11.4x**	**1.1x**	**5.0%**	**4.1x**	**7.2%**

Notes: Adjusted EBITDA = EBITDA - GP distribution; 3-Year distribution CAGR is for 2017-2020.

Source: Company reports, Mizuho Securities USA estimates

Glossary

AMI	Area of mutual interest
b	Barrel
Bcf	Billion cubic feet
Bcf/d	Billion cubic feet per day
Bcfe	Billion cubic feet equivalent
b/d	Barrels per day
boe	Barrel of oil equivalent
boe/d	Barrel of oil equivalent per day
BTU	British thermal units
CAGR	Compound annual growth rate
CEO	Chief executive officer
CF	Cash flow
CFO	Chief financial officer
CO_2	Carbon dioxide
Discretionary CF	Discretionary Cash Flow (Adjusted EBITDA less interest expense)
DD&A	Depletion, depreciation, and amortization
DUCs	Drilled uncompleted wells
EBITDA	Earnings before interest, taxes, depreciation, and amortization
EBITDAX	Earnings before interest, taxes, depreciation, amortization, and exploration
EBITDX	Earnings before interest, taxes, depreciation, and exploration
E&P	Exploration and production
EPS	Earnings per share
ET	Eastern time
ETF	Exchange traded fund
EUR	Estimated ultimate recovery
EV	Enterprise value
F&D	Finding & Development
FCF	Free cash flow
FT	Firm transportation
FY	Fiscal year
G&A	General and administrative
GP	General partner
IDP	Integrated development plan
IDR	Incentive distribution right
IP	Initial production
IPAA	Independent Petroleum Association of America
IPO	Initial public offering
IRR	Internal rates of return
JDA	Joint development agreement
JV	Joint venture
K	Thousand
LOE	Lease operating expense
LLS	Light Louisiana Sweet
LNG	Liquefied natural gas
LP	Limited partner
M&A	Mergers and acquisitions
mb	Thousand barrels
mb/d	Thousand barrels per day
mboe	Thousand barrels of oil equivalent
mboe/d	Thousand barrels of oil equivalent per day
mcf	Thousand cubic feet
mcf/d	Thousand cubic feet per day
mcfe	Thousand cubic feet equivalent
mcfe/d	Thousand cubic feet equivalent per day
Mdth/d	Decatherms per day
MENA	Middle East North Africa
MLP	Master limited partnership
mmb	Million barrels
mmb/d	Million barrels per day
mmboe	Million barrels of oil equivalent
mmboe/d	Million barrels of oil equivalent per day
mmbtu/d	Million British thermal units per day
mmcf/d	Million cubic feet per day
mmcfe/d	Million cubic feet equivalent per day
MTD	Month to date
MVC	Minimum volume commitments
NAV	Net asset value
NGL	Natural gas liquids
NOL	Net operating loss tax carryforward
NR	Not rated
NYMEX	New York Mercantile Exchange
Opex	Operating expense
PDP	Proved developed producing reserves
PIK	Payment in kind
PT	Price target
PUD	Proved undeveloped reserves
PV-10	Present value of proved reserves, discounted at 10% per annum
Q	quarter
q/q	Quarter over quarter
ROACE	Return on average capital employed
SCOOP	South Central Oklahoma Oil Province
STACK	Sooner Trend Anadarko Canadian and Kingfisher
SEC	Securities and Exchange Commission
SOTP	Sum of the parts
Tcf	Trillion cubic feet
Tcfe	Trillion cubic feet equivalent
TTM	Trailing twelve months
VP	Vice President
WEHLU	West Edmund Hunton Limestone Unit
WI	Working interest
WTD	Week to date
WTI	West Texas Intermediate
Y/E	Year-end
YTD	Year to date
y/y	Year over year
1H	First half
2H	Second half
1P Reserves	Proved reserves
2P Reserves	Probable reserves
3P Reserves	Possible reserves

Price Target Calculation and Key Risks

Buckeye Partners, L.P. (BPL)
Our $76 price target is based on the average of our $77 discounted cash flow model (9% discount rate) and $75 EV/Adjusted EBITDA valuation (14x multiple in 2017) methodologies. Potential risks include fewer organic project opportunities, higher cost of capital and lower energy demand.

Callon Petroleum Company (CPE)
PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Callon, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in CPE shares reflects unbooked resource potential that is not reflected in current earnings or cash flow.

Our $18 PT reflects a target 12x 2017E EV/EBITDA multiple, slightly above the group average, reflecting: 1) the company's core Permian Basin footprint, and 2) a more conservative target multiple than Permian Basin peers, due to the company's smaller size.

Key Risks include but are not limited to:

1) Callon has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make its drilling program economically unfeasible. Callon has approximately 34% of 2017E oil hedged at ~$52/b, based off of our $55/b WTI forecast in '17. Callon currently has only 12% of 2017E gas production hedged at $3.30/mcf, based on our $3.30/mcf forecast in '17.

2) Callon faces execution risk. The company has grown rapidly through four major acquisitions that have totaled over $1.1 billion since 2014 and increased the company's acreage position to well over 50,000 net acres. While the acquisitions have increased inventory, they have also created a more disparate Midland Basin position. Much of the growth in CPE shares has been from the company's strong execution and savvy acquisition history.

3) Callon also faces exploration risk across some of its acreage, which has not been fully derisked. The inability to de-risk zones outside of those that have already been tested, or the inability to tighten spacing assumptions, may limit upside to current inventory counts.

Carrizo Oil & Gas, Inc. (CRZO)
PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Carrizo, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in CRZO shares reflects unbooked resource potential that is not reflected in current earnings or cash flow. This resource potential equates to 1,100 or more horizontal locations across the company's footprint in the Eagle Ford Shale, as well as acreage across the company's exploratory Delaware Basin acreage.

Our $47 PT reflects a target 9x 2017E EV/EBITDA multiple, one-line below the group average. We believe a discounted multiple is warranted, given uncertainty on when/how/if the company may pursue a rationalization of the portfolio in 2017 that allows Carrizo to add scale to core oil basins while deleveraging.

Key Risks include but are not limited to:

1) Carrizo has commodity price risk on its unhedged production. A sustained decrease in crude oil prices below $35/b could make its core Eagle Ford Shale drilling program economically unfeasible. The company hedged ~60% of 2016E oil at an average floor price of $56/b, and 21% of 2017E oil at an average floor of $50/b. All natural gas volumes, which make up over 20% of total production, are presently unhedged.

2) Carrizo also faces exploration risk. At its exploratory northern Delaware Basin acreage, the company has only drilled three wells. The company's ability to highlight the value of this position will depend on successful delineation of one or more zones across its acreage.

Chesapeake Energy Corporation (CHK)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Chesapeake, we rely on multiples-based analysis. Our current $8 PT reflects a target 7.4x 2017E EV/EBITDA multiple, two turns cheap to the group average. Despite an improving price outlook for natural gas, Chesapeake's balance sheet remains overlevered in our view, its portfolio is not competitive to peers in terms of delineated oil inventory, and the company faces several unique financial obligations it must unwind, including onerous midstream contracts and two volumetric production payment (VPP) contracts. For these idiosyncratic reasons, we believe a discounted multiple to the group average is warranted.

Key Risks include but are not limited to:

1) Chesapeake has commodity price risk on its unhedged production, especially as it pertains to natural gas, the predominant hydrocarbon it produces. Another sustained decrease in natural gas prices to/below $2/mcf could make its drilling program economically unfeasible and result in low/no production growth.

2) The company also faces transactional risk as it looks to improve its balance sheet. The company plans to continue selling assets to reduce leverage after selling non-core Haynesville Shale acreage. An inability to execute on asset sales will weigh on investor sentiment.

3) The company also faces refinancing risk. While cash tender offers have refinanced much of the principal amount of notes maturing between 2017-2019, debt maturities remain in 2020 and beyond.

Denbury Resources Inc. (DNR)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Denbury, we rely on multiples-based analysis. We acknowledge SOTP can capture the value of: 1) future secondary/tertiary production that is not reflected in current earnings or cash flow, 2) unbooked CO2 reserves from CO2 wells that will be drilled in the future, and 3) midstream assets that support the company's EOR projects across the Gulf Coast and Rockies. However, we have little visibility into the timetable of bringing Denbury's "next generation" of tertiary production on-line, given the heavy spending on CO2 needed to stimulate the mature oil reservoirs. As long as the value of these floods remains indefinitely suspended, we will prescribe little value to them.

Our $3.25 PT reflects a target 8x 2017E EV/EBITDA multiple, two turns below the group average, reflecting: 1) the company's strong hedge position through 2017, 2) its execution on lowering unit costs, 3) the shallow decline rate the company can maintain by being an EOR-focused oil producer, and 4) the company's elevated leverage position.

Key Risks include but are not limited to:

1) Denbury faces leverage and liquidity risk. The company has managed leverage drift on the balance sheet by reducing debt through debt exchanges and open market debt repurchases. But these actions, amid a prolonged slump in oil prices, have impacted liquidity, which was less than $700 million as of June 30th. And leverage is now approaching 5x. Management has made efforts to reduce total debt, but a flat/declining earnings growth environment continues to weigh on leverage.

2) Denbury has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make many of its EOR projects unfeasible. Denbury has hedges in place covering ~86% of 2016E oil at an average floor price of $52/b, and 56% of 2017E oil at $44/b. The hedges provide some protection against a drop in oil prices, but also limit upside in earnings should oil prices move to/above $50/b in 2017.

3) Denbury faces project uncertainty risk. The company's longer term growth will be driven by EOR floods in its Rockies assets. However, initiating these floods will require hundreds of millions of dollars in expenditures to build CO2 pipelines from existing sources to the fields. Uncertainty on both the commodity price outlook and the company's ability to finance such a build-out continues to weigh on investor sentiment.

Diamondback Energy, Inc. (FANG)
PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Diamondback, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges a portion of the value in FANG shares reflects: 1) unbooked resource potential in the Permian Basin that is not reflected in current earnings or cash flow, and 2) Diamondback's ownership of 72 million LP units of Viper Energy Partners.

Our $124 PT reflects a 12.5x 2017E EV/EBITDA multiple, a premium multiple among our coverage group. We believe a premium multiple to the group is warranted, given: 1) the company's high quality Permian Basin acreage footprint, 2) best-in-basin drilling results and efficiencies, 3) an industry leading low full-cycle cost structure, and 4) liquidity optionality from the company's ownership of LP units of Viper.

Key Risks include but are not limited to:

1) Diamondback has commodity price risk on its unhedged production. A sustained decrease in crude oil prices may impact drilling economics and drive the decision to reduce drilling activity, which will impact production/earnings/cash flow growth. Diamondback has less than 10% of oil production for the remainder of 2016 and 2017 hedged, and volumes are currently hedged between $45-$47/b.

2) Dilution risk is a concern for FANG shareholders. Diamondback has liberally used secondary equity issuances, instead of debt financing, to fund acreage acquisitions. Equity shareholders should be prepared for potential dilution as Diamondback pursues additional bolt-on acreage acquisitions.

3) Diamondback faces exploratory risk across some of its Midland Basin acreage. Diamondback has recently begun testing the stacked pay potential of acreage in Glasscock and Howard counties. Disappointing results from untested zones would weigh on the company's inventory in these areas.

4) Diamondback also has exploratory risk on its Delaware Basin acreage in Reeves and Ward counties, which it acquired in July 2016. Three zones in the area have been derisked by the industry, but Diamondback has yet to drill the area itself.

Dominion Midstream Partners, LP (DM)
Our $30 price target is based on the average of our $29 discounted cash flow model (9.25% discount rate) and $31 EV/Adjusted EBITDA (14x multiple in 2017) valuation methodologies. Potential risks include counterparty risk with parent, higher cost of capital, lower natural gas demand, lower Rockies gas production.

Enbridge Energy Partners, L.P. (EEP)

Our $29 price target is based on the average of our $30 discounted cash flow model (9.25% discount rate) and $27 EV/Adjusted EBITDA (13.2x multiple in 2017) valuation methodologies. Potential risks include organic project delays, lower Canadian and US oil production, higher cost of capital and lower energy demand.

Energen Corporation (EGN)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Energen, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in EGN shares reflects unbooked resource potential that is not reflected in current earnings or cash flow. This resource potential equates to ~3,500 or more horizontal locations across the company's 136,000 net acre footprint in the Permian Basin, which excludes the potential acquisition of 10,000 net acres in Howard County.

Our $72 PT reflects a target 13x 2017E EV/EBITDA multiple, four turns above the group average, reflecting: 1) the company's core Permian Basin footprint across both sides of the Permian Basin, and 2) the strong balance sheet following $552 million of non-core asset divestitures in 3Q16.

Key Risks include but are not limited to:

1) Energen faces legal risk on the potential acquisition of a contiguous 10,000 net acre position in the northern core of the Midland Basin in southwest Howard County. The company is navigating through the courts to attempt to close the deal.

2) Energen has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make its drilling program economically unfeasible. Energen has typically been a robust hedger of its oil and gas production, but the firm was left largely exposed to spot pricing in 2016/2017. While the company has hedged nearly half of its oil production for both years, hedges are in the $45-$50/b range.

3) Energen faces execution risk. The company has struggled to deliver results in-line with guidance in recent quarters, which has led to some relative underperformance versus Permian Basin peers. Energen's ability to deliver dependable earnings/production to the investment community will be a key factor determining the multiple investors are willing to put on the equity.

4) Energen also faces exploration risk across some of its acreage, which has not been fully derisked. The inability to de-risk zones outside of those that have already been tested, or the inability to tighten spacing assumptions, may limit upside to current inventory counts.

Energy Transfer Equity, L.P. (ETE)

Our $20 price target is based on the average of our $21 discounted cash flow model (10.5% discount rate) and $19 EV/Adjusted EBITDA valuation (13.25x multiple in 2018, discounted 1 year to 2017) methodologies. Potential risks include organic project delays, recontracting risk and lower energy demand negatively impacting underlying MLPs' distribution stability and growth.

Energy Transfer Partners (ETP)

Our $45 price target is based on the average of our $46 discounted cash flow model (10.5% discount rate) and $44 EV/Adjusted EBITDA (11.5x multiple in 2018, discounted 1 year to 2017) valuation methodologies. Potential risks include organic project delays, higher cost of capital, recontracting risk and lower energy demand.

Enterprise Products Partners, L.P. (EPD)

Our $32 price target is based on the average of our $35 discounted cash flow model (8.75% discount rate) and $29 EV/Adjusted EBITDA (14.75x multiple in 2017) valuation methodologies. Potential risks include reduced future export opportunities, fewer organic projects, higher cost of capital, lower oil, natural gas, natural gas liquids production and lower energy demand.

Gulfport Energy Corporation (GPOR)
PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Gulfport Energy, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in GPOR shares reflects: 1) unbooked resource potential across its Utica Shale acreage position that is not reflected in current earnings or cash flow, 2) its interest in the Strike Force midstream gas gathering JV, and 3) the company's interests outside of the Utica Shale, including the Grizzly Oil Sands project and its legacy Gulf Coast production.

Our $36 PT reflects a target 10x 2017E EV/EBITDA multiple, in line with the midpoint of our coverage group. We believe a group-average multiple is warranted, given the company's strong organic growth potential in its core asset, its strong balance sheet, and our bullish outlook for natural gas prices into 2017.

Key Risks include but are not limited to:

1) Gulfport faces natural gas takeaway risk. Near-term production growth has been limited by a lack of compression on gas gathering lines and interstate pipelines. Uncertainty on the duration of this issue creates some uncertainty on production growth. Gulfport is also reliant on the build-out of several interstate pipelines to take its Appalachia gas to markets providing stronger pricing. A significant delay in one or more projects could impact near-term growth, although the depth of the company's firm takeaway portfolio should be able to absorb some delays.

2) Gulfport also faces execution risk. 2Q16 production fell short of expectations and led to underperformance following earnings, and possibly reminded investors of the difficulty the company had executing to guidance in 2012/2013, when it began developing the Utica Shale. While full-year production guidance has been maintained, investors may now rely on Gulfport to be a "show me" story, as it relates to achieving key guidance metrics.

3) Gulfport has commodity price risk on its unhedged production. A sustained decrease in natural gas prices could make much of its inventory in the Utica Shale economically unfeasible to drill. The company has hedges on 61% of 2017E gas at $3.12/mcf and 21% of 2017E oil at $51/b.

Magellan Midstream Partners, L.P. (MMP)
Our $73 price target is based on the average of our $75 discounted cash flow model (8.25% discount rate) and $71 EV/Adjusted EBITDA (16x multiple in 2017) valuation methodologies. Potential risks include lower growth rate, fewer organic growth opportunities and lower energy demand.

Matador Resources Company (MTDR)
PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Matador, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in MTDR shares reflects unbooked resource potential that is not reflected in current earnings or cash flow.

Our current $26 PT reflects a target 13x 2017E EV/EBITDA multiple, four turns above the group average, reflecting: 1) the company's core Permian Basin footprint, and 2) imminent asset sales that should address leverage concerns.

Key Risks include but are not limited to:

1) Matador faces liquidity and capital markets risk. We forecast Matador will outspend discretionary cash flow in 2016, which includes equity issuance proceeds. The company has a $400 million secured credit facility on which there is currently nothing drawn. A reduction in the borrowing base could constrain liquidity.

2) Matador has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make its drilling program economically unfeasible. The company hedged over 50% of 2016E oil at an average floor price of $43.31/b, and 29% of 2017E oil between $38.62/b and $47.62/b. The hedges provide some protection against a drop in oil prices, but Matador's current hedge exposure leaves 71% of 2017E oil exposed to spot pricing.

3) Matador faces midstream risk. Infrastructure in the Delaware Basin to handle oil and gas gathering and water transportation to/from well pads continues to lag the demand for these services. Matador made the decision to build out infrastructure in its core Wolf/Loving area, and is doing the same at Rustler Breaks now.

4) Matador faces exploration risk. At its exploratory northern Delaware Basin fields (Arrowhead, Ranger and Twin Lakes), Matador may not encounter commercially recoverable amounts of oil and natural gas, which could lead to asset impairment charges if the acreage is deemed uneconomic. In addition, undelineated zones within current development areas such as Rustler Breaks and Wolf/Loving may prove uneconomic for drilling.

MPLX, L.P. (MPLX)

Our $42 price target is based on the average of our $41 discounted cash flow model (9.5% discount rate) and $42 EV/Adjusted EBITDA (14x multiple in 2018) valuation methodologies. Potential risks include counterparty risk with parent, execution risk on dropdown and simplification transactions, lower-than-expected Appalachia production and lower energy demand.

Noble Energy, Inc. (NBL)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Noble Energy, we rely on multiples-based analysis. Our current $44 PT reflects a target 9.1x 2017E EV/EBITDA multiple, one turn below our coverage group. A discounted target multiple seems appropriate, given uncertainty on a potential Delaware Basin acquisition and uncertainty on Leviathan. We remain bullish on the development prospects for the Leviathan gas discovery offshore Israel, but acknowledge uncertainty on the ultimate development timeline for the project remains.

Key Risks

1) Noble faces heightened geopolitical risk, due to recent natural gas discoveries in both Cyprus and Israel.

2) NBL shareholders face potential dilution risk if a large Permian Basin acquisition ultimately gets announced and is financed with an equity issuance.

3) Noble has commodity price risk on its unhedged production. A sustained decrease in crude oil and/or natural gas prices could make its drilling program economically unfeasible and result in low/no production growth. The company currently has 10% of 2017E gas hedged, and 22% of 2017E oil hedged.

4) The company also has project execution risk related to potential future development of Leviathan. Noble and its partners need to secure project financing and contracts from purchasers of gas to proceed. Delays in any one of these three areas could defer first production.

Noble Midstream Partners LP (NBLX)

Our $37 price target is based on the average of our $36 discounted cash flow model (10.75% discount rate) and $39 EV/Adjusted EBITDA valuation (12x multiple in 2017 EBITDA) methodologies. Potential risks include lower crude oil prices, customer concentration, higher cost of capital and lower crude oil demand.

NuStar Energy, L.P. (NS)

Our $50 price target is based on the average of our $53 discounted cash flow model (10.25% discount rate) and $46 EV/Adjusted EBITDA (12.5x multiple in 2017) valuation methodologies. Potential risks include lower Eagle Ford crude oil production, higher cost of capital and lower energy demand.

NuStar GP Holdings, LLC (NSH)

Our $26 price target is based on the average of our $25 discounted cash flow model (10.25% discount rate) and $27 EV/Adjusted EBITDA (12.75x multiple in 2017) valuation methodologies. Potential risks include lower Eagle Ford crude oil production, higher cost of capital and lower energy demand.

Oasis Petroleum Inc. (OAS)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Oasis, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in OAS shares reflects: 1) unbooked resource potential that is not reflected in current earnings or cash flow, 2) the value of its Oasis Midstream Services segment, and 3) the value of its Oasis Well Services segment.

Our $17 PT reflects a target 8.2x 2017E EV/EBITDA multiple, one turn below the group average, reflecting: 1) elevated leverage on the balance sheet that we expect to persist into 2018, and 2) our acknowledgement of the lower value in the marketplace for Williston Basin, relative to other high profile domestic shale oil plays, and 2) a more conservative target multiple due to elevated leverage on the balance sheet that we expect to persist into 2018.

Key Risks include but are not limited to:

1) Oasis faces balance sheet risk. We forecast Oasis' current 3.5x leverage position will decrease to 2.7x by y/e 2017, assuming no capital raises and $55/b WTI in 2017. The company maintains almost $1.0 billion in liquidity and is not close to tripping any borrowing base covenants, but the elevated leverage remains a concern.

2) Oasis has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make its drilling program economically unfeasible outside of its "core of the core" inventory. Oasis has hedges on 50% of 2017E oil at $51/b (based on our $55/b WTI forecast). The hedges provide some protection against a drop in oil prices, but also limit upside in earnings should oil prices move significantly higher.

3) Oasis faces midstream risk. The company's near-term production growth will come from the Wild Basin acreage it acquired in 2013. The current build-out of water, oil and gas gathering lines are on track, and drilling is underway, but any delay in hooking the new wells to sales will weigh on production/earnings.

Occidental Petroleum Corporation (OXY)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Occidental, we rely on multiples-based analysis. Our $87 PT reflects a target 11x 2017E EV/EBITDA multiple, one turn above the 10x group average. We have a favorable view of the risk/reward for OXY shares, given its recently increased $3.04/share annual dividend. With shares offering a 4.1% yield at the current price, and the company's best-in-breed balance sheet reinforcing the safety of the dividend, we see little downside to OXY shares at this level.

Key Risks include but are not limited to:

1) Occidental faces geopolitical risk, due to its significant exposure to the Middle East. While operations in Libya, Iraq, Yemen and Bahrain have wound down, the company still maintains exposure to a region filled with sectarian strife and heightened threats of terrorism.

2) Occidental has commodity price risk on its unhedged production. A sustained decrease in crude oil and/or natural gas prices could make its drilling program economically unfeasible and result in low/no production growth. The company has no oil hedges in place to offset sustained low oil prices.

3) The company also faces dividend growth risk. The multi-year downturn in oil prices has weighed on the annual growth rate of the dividend. While the company is committed to annual dividend growth, the slope has flattened, and will likely persist until oil retrenches above $60/b. After growing at a double-digit compound annual growth rate since 2004, the dividend grew only 6% in '15 and 1% in '16.

Par Pacific Holdings, Inc. (PARR)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Par Pacific Holdings, we rely on sum-of-the-parts (SOTP) work, given the company's separate business lines. Our SOTP work acknowledges the embedded value of: 1) the company's equity ownership of Laramie Energy, 2) its large current net operating loss (NOL) carry-forward position, and 3) its retail/logistics/refinery assets in Hawaii and Wyoming. It also adjusts for debt and working capital.

Key Risks include but are not limited to:

1) Par faces downstream risk with both its Hawaii and Wyoming refineries. Scheduled turnarounds and unplanned maintenance have significant financial impact on profitability. Failure to produce an optimal mix of refined products can lead to margin compression.

2) Par has commodity price risk in several of its segments. Its upstream segment, Laramie Energy, faces commodity price risk primarily from natural gas prices on unhedged production. Its downstream segment is exposed to prices of refined products such as gasoline, distillate and jet fuel. Continued weak distillate prices due to a global oversupply have weighed on crack spreads.

3) The company also has NOL implementation risk. The company's $1.4 billion of NOLs expire between 2027 and 2033 if they remain unused. The availability of NOLs would be substantially reduced or eliminated if Par were to undergo a change in ownership, defined as a more than 50% increase in stock ownership during any three-year testing period by 5% shareholders. Par's certificate of incorporation includes stock transfer restrictions which reduce, but do not eliminate, this risk. Zell Credit Opportunities Master Fund, L.P. and Whitebox Advisors, LLC, together with their respective affiliates, each own approximately 31% and 19%, respectively, of Par Pacific's common stock. The level of their combined ownership could have the effect of discouraging or impeding an unsolicited acquisition proposal. Additionally, the IRS has not audited the NOLs so the Company cannot guarantee that they would prevail if challenged by the IRS.

4) The company also faces liquidity risk. Daily trading volume currently averages less than $3 million. This is partially due to the fact that two large shareholders together own over 50% of the equity.

PDC Energy, Inc. (PDCE)

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For PDC Energy, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in PDCE shares reflects unbooked resource potential that is not reflected in current earnings or cash flow. This resource potential equates to over 2,000 horizontal locations across the company's 96,000 net acre footprint in the Wattenberg field within the DJ Basin, as well as acreage across the company's largely exploratory Utica Shale footprint.

Our $81 PT reflects a target 8.5x 2017E EV/EBITDA multiple, a turn below the group average, reflecting the emerging resource potential in the Delaware Basin, which PDC Energy needs to validate through the drill-bit.

Key Risks include but are not limited to:

1) PDC Energy faces execution risk in Texas. The company has laid out robust growth plans for the Delaware Basin in '17, and an inability to deliver that growth from a 2-3 rig program will weigh on PDCE shares.

2) PDC Energy has commodity price risk on its unhedged production. A sustained decrease in crude oil prices below $35/b could make its core Wattenberg drilling program economically unfeasible. The company has hedges on ~48% of 2017E oil at an average floor of $51/b. 52% of 2017E natural gas production is hedged at $3.56/mcf.

Phillips 66 Partners L.P. (PSXP)

Our $55 price target is based on the average of our $58 discounted cash flow model assuming 9.75% discount rate and $52 EV/Adjusted EBITDA (15x multiple on 2017) valuation methodologies. Potential risks include counterparty risk with parent, higher cost of capital, more stringent regulatory environment and lower energy demand.

Pioneer Natural Resources Co. (PXD)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Pioneer Natural Resources, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges much of the value in PXD shares reflects unbooked resource potential that is not reflected in current earnings or cash flow. This resource potential, which equates to ~20,000 or more horizontal locations across the company's 800,000+ gross acre footprint in the Permian Basin, underpins the company's typical premium valuation to other independent E&Ps. Premium valuations are also supported by a best-in-class balance sheet that has been frequently fortified by multiple secondary equity issuances.

Our $200 PT reflects a target 14x 2017E EV/EBITDA multiple.

Key Risks include but are not limited to:

1) Pioneer faces execution risk on the build-out of oil/gas gathering systems, NGL processing facilities and water transportation systems necessary to support its planned growth to a 30-rig program in the next 2-3 years. The inability to source, transport and dispose of water for hydraulic fracturing purposes may impact longer term production growth.

2) Pioneer has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make its drilling program economically unfeasible. While Pioneer has been one of the more extensive and successful commodity hedgers in our universe for many years, the company's hedges through 2017 have been struck at lower prices than recent years.

3) The company also has capital market risk. Assuming stable crude oil prices, the company may need to access its credit facility or the capital markets to fund its spending plan.

4) The company also faces exploratory risk across some of its 800,000+ gross acre position in the Permian Basin, as it pertains to stacked pay potential. While multiple zones have been derisked across much of its acreage, there remains undelineated zones that may contain less oil in place.

QEP Resources, Inc. (QEP)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

Our $25 PT is multiples-based and reflects a target 8.4x 2017E EV/EBITDA multiple, below the group average. We believe a group-average or below multiple is likely to persist in the near-/medium-term, given investor concerns on the rich price paid by QEP to bolt on a second acreage in the Midland Basin, as well as on the company's diversified production platform. While QEP maintains diversified in terms of asset and hydrocarbon exposure, diversified mid cap E&Ps have been out of favor in recent years with investors who have been more willing to bid up multiples of "pure play" E&Ps focused on only one or two assets.

Key Risks include but are not limited to:

1) QEP Resources has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make its drilling program economically unfeasible. QEP has approximately half of its oil production hedged through y/e 2017, and current hedges are in the low $50's/b range.

2) The company also has capital market risk. Assuming stable crude oil prices, the company may need to access its credit facility or the capital markets to fund its spending plan.

3) The company also faces exploratory risk across several of its acreage positions. In the Pinedale gas play in Wyoming, the company is assessing the efficacy of horizontal drilling on the fringe of the play. In the Uinta Basin in Utah, the company is delineating the stacked pay potential of the gassy Lower Mesaverde play. QEP also faces exploratory risk in undrilled zones across much of its recently acquired Midland Basin acreage in Martin County. While the most recent acquisition has proven productive in four separate zones, additional upside to locations remain undetermined at this time.

4) QEP also faces weather risk, given several of its assets are located in the Rockies. Severe winter conditions could impact volumes from North Dakota's Williston Basin or Wyoming's Pinedale play.

Rice Energy Inc. (RICE)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Rice Energy, we pay attention to multiples-based analysis, but focus more on sum-of-the-parts (SOTP) work, given the valuable midstream assets Rice controls. Our SOTP work acknowledges much of the value in RICE shares reflects: 1) unbooked resource potential across its Utica Shale acreage position that is not reflected in current earnings or cash flow, and 2) its comprehensive midstream portfolio (LP units of RMP, midstream assets still held at Rice, ownership of 91.75% of the GP of RMP).

Our $43 PT reflects a target 11x 2017E EV/EBITDA multiple, one turn below the midpoint of our coverage group. We believe a premium multiple is warranted, given the company's strong organic growth potential in its core asset, the implicit/explicit value of its midstream portfolio amid a healing midstream market and a low yield environment for risk assets, and the depth/quality of the company's dry gas acreage.

Key Risks include but are not limited to:

1) Rice faces risk related to its outsized exposure to multiples for publicly-traded MLPs. Much of the embedded value we see in RICE shares relates to the value of its midstream holdings: its LP and GP ownership of RMP, and its midstream assets that have not yet been dropped down into RMP. If market sentiment sours again on MLP vehicles, we expect RMP to move in lockstep with the industry and weigh on RICE shares. A weak market for RMP units could impact its ability to issue units to finance drop-downs from Rice.

2) Rice faces natural gas takeaway risk. Rice's production growth is reliant on the build-out of interstate pipelines to take its Appalachia gas to markets providing stronger pricing. A significant delay in one or more projects could impact near-term growth, although the depth of the company's firm takeaway portfolio should be able to absorb some delays.

3) Rice also faces execution risk. The company has a steep, visible organic growth rate, due to prolific producing wells that have little first-year decline and a strong balance sheet. Efficiencies achieved at the drill-bit have also helped, allowing more wells to be drilled from a single rig. Should Rice's execution suffer, investors may be unwilling to apply the premium multiple suggested by our work, which could lead to short term underperformance to peers.

4) Rice has commodity price risk on its unhedged production. A sustained decrease in natural gas prices could make much of its inventory in the Utica Shale economically unfeasible to drill.

Shell Midstream Partners LP (SHLX)
Our $36 price target is based on the average of our $40 discounted cash flow model (8.75% discount rate) and $32 EV/Adjusted EBITDA (17.5x multiple on 2017) valuation methodologies. Potential risks include counterparty risk with parent, lower Gulf of Mexico oil production, higher cost of capital and lower energy demand.

Southwestern Energy Co. (SWN)
PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Southwestern, we rely on a combination of multiples-based analysis and sum-of-the-parts (SOTP) work. Our SOTP work acknowledges that much of the value in SWN shares reflects unbooked resource potential and midstream assets that do not appear to be explicitly reflected in current earnings or cash flow. This includes: 1) core inventory in Appalachia that has not yet been accounted for in proved reserves, and 2) Southwestern's midstream and oil services assets that support drilling and gas gathering in the Fayetteville Shale and Appalachia. Our $20 PT reflects a target 8.5x 2017E EV/EBITDA multiple

Key Risks include but are not limited to:

1) Southwestern faces balance sheet risk. Despite entering into two significant capital-raising transactions in 3Q16 ($1.25 billion equity issuance, $450 million non-core asset sale), the company remains over 3x levered (pro forma). And the company's new credit facility arrangement is more punitive than the previous unsecured facility, and will limit borrowings. We do note that the company has pro forma liquidity of $1.9 billion, despite the outsized leverage.

2) Southwestern has commodity price risk on its largely unhedged production, especially as it pertains to natural gas, which represents ~90% of total production. Another sustained decrease in natural gas prices to/below $2/mcf could again make its drilling program economically unfeasible and result in low/no production growth. The company currently has hedges on only 14% of 2016E natural gas production and 30% of 2017E natural gas production. This exposure means that the company's leverage and earnings growth outlook will be almost entirely driven by the near-term movements of natural gas prices.

3) The company also faces midstream risk. Southwestern's main production growth vehicle is its Southwestern Appalachia acreage, mostly in West Virginia. The company has contracts in place on the Rover and Columbia Gas Mountaineer Xpress pipelines, but

those pipelines will need to be in service by late 2017 and late 2018, respectively, for the company to fully utilize this acreage as its main growth driver.

Sunoco Logistics Partners L.P. (SXL)

Our $30 price target is based on the average of our $31 discounted cash flow model (9.75% discount rate) and $28 EV/EBITDA (14x multiple on 2017) valuation methodologies. Potential risks organic project delays, lower-than-expected Appalachia and Permian production, include higher cost of capital and lower energy demand.

Sunoco LP (SUN)

Our $28 price target is based on the average of our $31 discounted cash flow model (11.25% discount rate) and $25 EV/Adjusted EBITDA (11x multiple on 2017) valuation methodologies. Potential risks include lower gasoline demand, high cost of capital limiting growth opportunities and negative impacts from elevated leverage.

Tesoro Logistics LP (TLLP)

Our $56 price target is based on the average of our $58 discounted cash flow model (9.75% discount rate) and $54 EV/Adjusted EBITDA (12.8x multiple on 2017) valuation methodologies. Potential risks include counterparty risk with parent, higher cost of capital, lower Rockies natural gas production, lower Bakken oil production and decline in energy demand.

Valero Energy Partners LP (VLP)

Our $55 price target is based on the average of our $56 discounted cash flow model (9.75% discount rate) and $53 EV/Adjusted EBITDA (16x multiple on 2017 Adjusted EBITDA of $305 mm) valuation methodologies. Potential risks include counterparty risk with parent, higher cost of capital and lower energy demand.

Viper Energy Partners, L.P. (VNOM)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Viper Energy Partners, we rely on multiples-based analysis of their distributable cash flow, which is a proxy for its dividend yield. As a limited partnership (LP) that represents royalty interests in acreage prospective for oil and natural gas, Viper Energy Partners has no capital expenditures and distributes virtually all of its cash flow to LP unitholders. Therefore, analyzing the expectations for distributable cash flow/yield is crucial to understanding the value proposition of the security. Our yield assumption will depend a great deal upon our oil price forecast, given: 1) Viper Energy Partners' production stream is ~75% oil, and 2) the partnership does not hedge any of its oil or gas production.

Our current $18 PT reflects a target 15x 2017E EV/CF multiple, which translates to a 6.8% yield, based on our forecast for $1.22/ unit of distributable cash flow in 2017.

Key Risks include but are not limited to:

1) Viper Energy Partners has commodity price risk on its production, which is entirely unhedged. A sustained decrease in crude oil prices may impact drilling economics for the operators who have leased acreage where the company owns the mineral rights. This would decrease royalty income and, in turn, distributable cash flow for LP unitholders. The company already cited this concern when it lowered 2016 production guidance to the low end of its 6-6.5 mboe/d range.

2) Liquidity risk is another concern for VNOM unitholders. Prior to a seven million unit issuance to fund an acquisition of mineral rights in July, average daily volume was less than 25,000 units/day. And Diamondback Energy retains ownership of 84% of the LP units. July's issuance should increase trading volume on the margin, but a material increase in liquidity will be dependent upon a large-scale monetization by Diamondback to improve the float of the security.

3) Viper Energy Partners also has execution risk on its mineral rights acreage. Royalty income will depend on productivity of the wells drilled on the acreage. While the two largest operators of the acreage (Diamondback Energy and RSPP Energy) are both high quality operators, any operational misstep by them would directly impact distributable cash flow. Further, while the acreage where Viper Energy Partners controls the mineral rights is regarded as "core of the core" within the Midland Basin, changes in capital allocation to other areas by the two operators could impact drilling activity, and by definition, cash flow growth for Viper Energy Partners.

Whiting Petroleum Corp (WLL)

PT Calculation

Our methodology for assessing ratings and a price target (PT) includes qualitative and quantitative factors, and both a "top down" and "bottoms up" process. Continuing assessment of industry conditions and metrics is done. Management philosophy and actions are examined for effectiveness. Historical and estimated balance sheets, cash flows, earnings, returns, valuation multiples, dividend yields, and other metrics are compared to peers. The market capitalizations of various energy companies sometimes makes them candidates for either acquiring other companies or being a target of an acquiring company.

For Whiting, we rely on a combination of multiples-based analysis. Our current $10 PT reflects a target 6.2x 2017E EV/EBITDA multiple, among the lowest in our group. We believe a discounted multiple to the group is warranted, given: 1) concerns on execution, and 2) high debt levels, even after recent asset sales and debt exchanges.

Key risks include, but are not limited to:

1) Whiting has commodity price risk on its unhedged production. A sustained decrease in crude oil prices could make its drilling program economically unfeasible. Whiting has 45% of 2017E oil hedged with collars.

2) The company also has capital market/transactional risk due to higher leverage than peers, which has persisted since its acquisition of Kodiak Oil & Gas closed in late 2014. Assuming stable/declining crude oil prices, Whiting may need to access its credit facility or the capital markets to fund a portion of its spending plan. In addition, the company may need to continue its asset sale program or continue debt exchanges, which may be dilutive to common shareholders.

3) The company also faces exploratory risk across the northern portion of its 129,000 net acre Redtail Niobrara position. Whiting and the industry has largely derisked three benches of the Niobrara and the deeper Codell zones in the south/southwest portion of the play, but there is little well control across Whiting's northern/southeastern acreage.

4) Whiting also faces weather risk, given its two main assets are located in the Rockies. Severe winter conditions could impact volumes from North Dakota's Williston Basin or Colorado's Redtail Niobrara play.

Companies Mentioned (prices as of NaN/)

Buckeye Partners, L.P. (BPL- Neutral $65.88)
Carrizo Oil & Gas, Inc. (CRZO- Buy $36.77)
Denbury Resources Inc. (DNR- Neutral $3.78)
Dominion Midstream Partners, LP (DM- Buy $30.35)
Energen Corporation (EGN- Buy $57.64)
Energy Transfer Partners (ETP- Buy $36.22)
Gulfport Energy Corporation (GPOR- Buy $21.02)
Matador Resources Company (MTDR- Neutral $25.01)
Noble Energy, Inc. (NBL- Buy $37.34)
NuStar Energy, L.P. (NS- Neutral $51.34)
Oasis Petroleum Inc. (OAS- Neutral $15.42)
Par Pacific Holdings, Inc. (PARR- Buy $13.49)
Phillips 66 Partners L.P. (PSXP- Buy $49.77)
QEP Resources, Inc. (QEP- Buy $18.10)
Shell Midstream Partners LP (SHLX- Buy $30.00)
Sunoco Logistics Partners L.P. (SXL- Neutral $24.26)
Tesoro Logistics LP (TLLP- Buy $53.58)
Viper Energy Partners, L.P. (VNOM- Neutral $16.82)
Callon Petroleum Company (CPE- Neutral $15.47)
Chesapeake Energy Corporation (CHK- Neutral $6.92)
Diamondback Energy, Inc. (FANG- Buy $103.91)
Enbridge Energy Partners, L.P. (EEP- Buy $25.88)
Energy Transfer Equity, L.P. (ETE- Buy $18.83)
Enterprise Products Partners, L.P. (EPD- Buy $27.33)
Magellan Midstream Partners, L.P. (MMP- Neutral $73.99)
MPLX, L.P. (MPLX- Buy $35.74)
Noble Midstream Partners LP (NBLX- Buy $37.84)
NuStar GP Holdings, LLC (NSH- Neutral $29.65)
Occidental Petroleum Corporation (OXY- Buy $69.35)
PDC Energy, Inc. (PDCE- Neutral $75.13)
Pioneer Natural Resources Co. (PXD- Neutral $182.89)
Rice Energy Inc. (RICE- Buy $20.63)
Southwestern Energy Co. (SWN- Buy $10.25)
Sunoco LP (SUN- Neutral $27.04)
Valero Energy Partners LP (VLP- Buy $45.56)
Whiting Petroleum Corp (WLL- Neutral $12.77)

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(As of NaN/)	% of coverage	IB service past 12 mo
Buy (Buy)	45.20%	42.52%
Hold (Neutral)	51.60%	36.55%
Sell (Underperform)	3.20%	44.44%

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