Oil & Gas Exploration

What Oil Price is Needed for E&Ps to Add Rigs? And How Many Rigs to Hold US Oil Production Flat?

Equities

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Oil Companies, Major

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At what oil price would U.S. E&Ps start increasing drilling activity?

US E&Ps cut capex by ~40% YoY in 2015 & are budgeted to cut >50% YoY this year. This has caused the US oil rig count to plunge from a peak of 1,609 in 2H14 to 328 (7-year low). But as spot WTI prices have moved from <$30/Bbl earlier this year to ~$46/Bbl currently, one of the key questions energy investors are asking is when will US E&Ps begin to add rigs? Based on 1Q16 conference call commentary, we believe the "magic" oil price needed to increase drilling activity for US E&Ps is ~$50/Bbl. However, US E&Ps (in our coverage) are tracking to have operating cash flow match capex this year under strip prices (100% plowback ratio), and many E&Ps need to first shore up balance sheets & be confident WTI is *sustainably* >$50 before making incremental rig commitments. Thus, we do not expect a meaningful rig count increase to occur before 2017 (exceptions are APA, PXD, & RSPP; see Figure 1 and management commentary beginning on page 5).

How many rigs are needed to hold US oil production flat in 4Q17 from 4Q16?

From the current low of ~328 US oil rigs (310 onshore), we estimate just 225 oil rigs would need to be added to reach a total of ~550 in early 2017 (535 onshore) to hold 4Q17 US oil production flat with the 4Q16E level of 7.98 MMBbld (Figure 2). In order to generate 0.5 MMBbld of YoY growth in 4Q17, we estimate ~350 incremental rigs would need to be added to reach an overall ~675 oil rigs (660 onshore) (Figure 3).

How high of an oil price is needed to support these levels of drilling activity?

Assuming the avg US onshore rig costs ~$110MM per annum and a December 2016E US oil production exit rate of 8.0 MMBbld (2.9 billion Bbls annualized) implies WTI needs to rise by ~$9/Bbl (after adjusting for royalties & production taxes) from the 2016 strip to the low $50s/Bbl in order to generate enough incremental cash flow to support the additional rigs & hold production flat (see Figure 4). While our bottom-up analysis for our E&P coverage shows ~$47/Bbl is needed to hold volumes flat next year (see Figure 6), these are the most efficient operators in the US. Using similar assumptions, we estimate WTI needs to rise by ~$15/Bbl to $60/Bbl to fund the incremental 350 rigs required to generate 0.5 MMBbld of growth from 4Q16 to 4Q17 (see Figure 4).

Where will rigs be added first? Which E&Ps are positioned to benefit first?

We believe rigs will first be allocated to the plays with the most attractive economics: Eagle Ford and the sweet spots of the Permian (northern Midland Basin, southern Delaware Wolfcamp and Delaware Bone Spring). See Figure 5. The Permian in particular should see more activity given the larger footprint and earlier stage of development than the Eagle Ford or Bakken. E&Ps that look both well positioned on the cost curve & offer attractive relative valuation include: APC, PXD, PE, NBL, & FANG.

E&Ps discounting $65/Bbl and $3.30/Mcf, reflecting sharp rise in O&G prices

We estimate E&Ps need ~$47/Bbl & ~$2.60/Mcf next year to hold volumes flat from 4Q16 & operate within cash flow (Figures 6-7) while discounting a recovery in oil & gas prices to $65/Bbl & $3.30/Mcf, rich vs. the long-dated futures curve of $53/Bbl & $3.07/Mcf. Top picks are PXD and PE; we rate CHK, DNR, DVN, & SWN as Sell.

Figure 1: WTI Prices at Which E&Ps Would Likely Increase Drilling Activity

Which E&Ps indicated they would likely increase drilling activity at a WTI ($/Bbl) price of...[1]	>$45	$50-$60	$60 or above
	APA	CHK	APC
	PXD	CXO	**CLR**
	RSPP	**DVN**	COP
		EGN	**HES**
		EPE	OAS
		EOG	
		FANG	
		MRO	
		MUR	
		NBL	
		NFX	
		OXY	
		PE	
		SM	
		WLL	

(1) Tickers in bold means the price was explicitly stated by management; tickers not in bold is UBS interpretation

Figure 2: Estimate ~225 rigs would need to be added in early 2017 to hold 4Q17 US oil production flat at 4Q16 level

	Total "Big 4"				Rest of U.S. Onshore				Federal GoM				U.S. Total			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
Base production change (MoM)					-3.0%	**-3.0%**	**-3.0%**	**-3.0%**	10.3%	**10.0%**	**5.0%**	**-3.0%**				
									(GoM: YoY chg. per month)							
YE rig count change YoY	*-701*	*0*	*184*	*0*	*-300*	*0*	*41*	*0*					*-1001*	*0*	*225*	*0*
YE onshore oil rig count	384	216	400	400	172	94	135	135					556	310	535	535
YE rig count vs. 2014 peak	*-743*	*-911*	*-727*	*-727*	*-311*	*389*	*-348*	*-348*								
Full year average rig count	538	237	377	400	236	106	130	135					774	343	507	535
% change YoY in FY avg rig count	*-50%*	*-56%*	*59%*	*6%*	*-48%*	*-55%*	*25%*	*4%*								
December production (MBbld)	5,082	3,939	4,249	4,684	2,536	2,174	1,935	1,805	1,628	1,791	1,880	1,824	**9,246**	**7,903**	**8,064**	**8,312**
YoY change	*-1.7%*	*-22.5%*	*7.9%*	*10.2%*	*-9.4%*	*-14.3%*	*-11.0%*	*-6.7%*	*12.1%*	*10.0%*	*5.0%*	*-3.0%*	*-1.9%*	*-14.5%*	*2.0%*	*3.1%*
4Q production (MBbld)	5,107	4,018	4,197	4,657	2,619	2,214	1,948	1,814	1,592	1,751	1,839	1,784	**9,318**	**7,984**	**7,984**	**8,254**
YoY change	*1.4%*	*-21.3%*	*4.4%*	*11.0%*	*-6.2%*	*-15.5%*	*-12.0%*	*-6.9%*	*11.9%*	*10.0%*	*5.0%*	*-3.0%*	*0.7%*	*-14.3%*	*0.0%*	*3.4%*

Source: EIA, Baker Hughes, Wood Mackenzie, and UBS estimates

Notes:

We assume 1.5%-2% on monthly efficiency gains in the Big 4 oil plays for the remainder of 2016, and zero efficiency gains in 2017-18;

the 2016 assumptions shown above are for the remainder of the year;

we assume all incremental rigs in 2017 are added during January through April 2017; and

federal GoM production assumptions are shown as YoY changes in each month.

Figure 3: Estimate ~350 rigs would need to be added in early 2017 to increase 4Q17 US oil production by 500 MBbld YoY

	Total "Big 4"				Rest of U.S. Onshore				Federal GoM				U.S. Total			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
Base production change (MoM)					-3.0%	**-3.0%**	**-3.0%**	**-3.0%**	10.3%	**10.0%**	**5.0%**	**-3.0%**				
									(GoM: YoY chg. per month)							
YE rig count change YoY	*-701*	*0*	*285*	*0*	*-300*	*0*	*64*	*0*					*-1001*	*0*	*348*	*0*
YE onshore oil rig count	384	216	501	501	172	94	157	157					556	310	658	658
YE rig count vs. 2014 peak	*-743*	*-911*	*-626*	*-626*	*-311*	*-389*	*-325*	*-325*								
Full year average rig count	538	237	465	501	236	106	149	157					774	343	614	658
% change YoY in FY avg rig count	*-50%*	*-56%*	*96%*	*8%*	*-48%*	*-55%*	*43%*	*5%*								
December production (MBbld)	5,082	3,939	4,746	5,563	2,536	2,174	1,991	1,919	1,628	1,791	1,880	1,824	**9,246**	**7,903**	**8,617**	**9,306**
YoY change	*-1.7%*	*-22.5%*	*20.5%*	*17.2%*	*-9.4%*	*-14.3%*	*-8.4%*	*-3.6%*	*12.1%*	*10.0%*	*5.0%*	*-3.0%*	***-1.9%***	***-14.5%***	***9.0%***	***8.0%***
4Q production (MBbld)	5,107	4,018	4,647	5,513	2,619	2,214	1,998	1,924	1,592	1,751	1,839	1,784	**9,318**	**7,984**	**8,484**	**9,221**
YoY change	*1.4%*	*-21.3%*	*15.6%*	*18.6%*	*-6.2%*	*-15.5%*	*-9.7%*	*-3.7%*	*11.9%*	*10.0%*	*5.0%*	*-3.0%*	*0.7%*	*-14.3%*	*6.3%*	*8.7%*

Source: EIA, Baker Hughes, Wood Mackenzie, and UBS estimates

Notes:

We assume 1.5%-2% on monthly efficiency gains in the Big 4 oil plays for the remainder of 2016, and zero efficiency gains in 2017-18;

the 2016 assumptions shown above are for the remainder of the year;

we assume all incremental rigs in 2017 are added during January through April 2017; and

federal GoM production assumptions are shown as YoY changes in each month.

Figure 4: Implied WTI Price Needed to Support Flat Production and ~0.5 MMBbld of Growth in 4Q17 from 4Q16

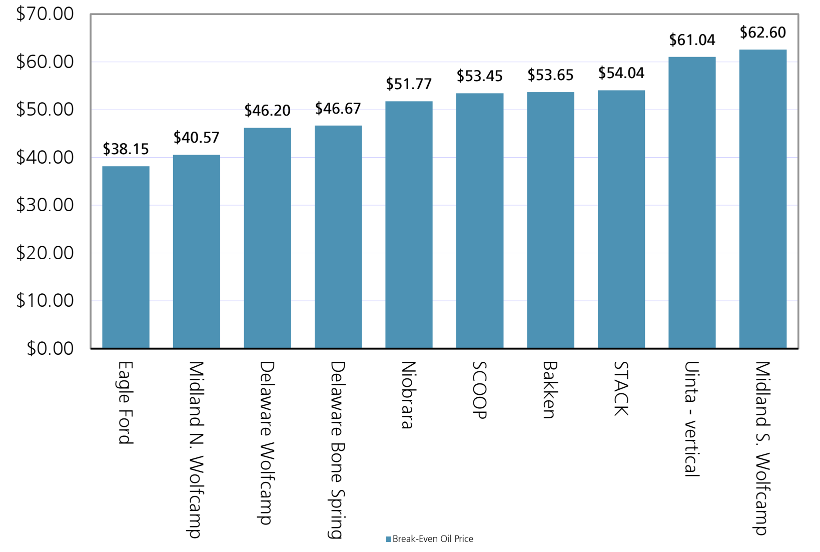
	The Implied Oil Price Needed to…	
	Hold US Oil Volumes Flat in 4Q17 from 4Q16	**Grow US Oil Volumes 0.5 MMBbld in 4Q17 from 4Q16**
Annual Cost of Running One Onshore Rig ($MM) [(1)]	$110	$110
Additional Oil Rigs by April 2017 from 4Q16 exit	225	350
Annual Increase in rigs: 2017 vs 2016	197	304
Total Cost for Additional Oil Rigs ($MM)	**$21,670**	**$33,440**
Total Annualized US Onshore Oil Production at December 2016 (MMBbls)	2,920	2,920
Implied Rise in Oil Prices Needed ($/Bbl)	$7.42	$11.45
Implied Rise in Oil Prices Needed After Royalties/Production Taxes ($/Bbl) (	**$9.28**	**$14.32**
Current 2016 Futures Strip ($/Bbl)	$43.82	$43.82
Implied Oil Price Needed ($/Bbl)	**$53.10**	**$58.14**

Source: UBS estimates

(1) Average cost per rig assumes 20 wells drilled per year per rig at average drill and complete cost of $6 million per well.

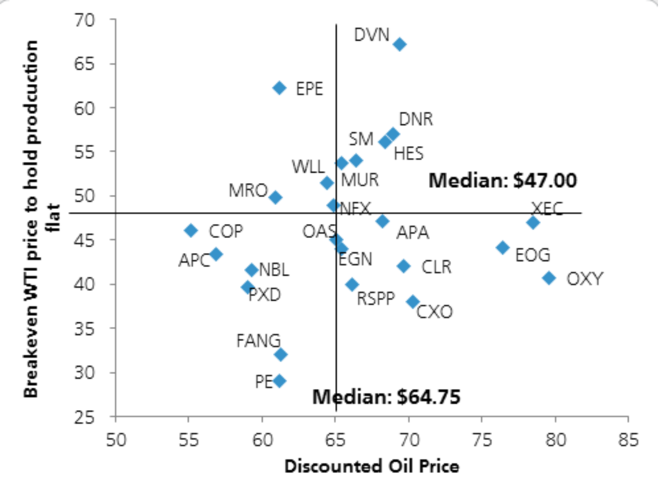
(2) We assume ~5% for production taxes and ~15% for royalties

Figure 5: WTI Oil Price Required to Earn Economic Rate of Returns



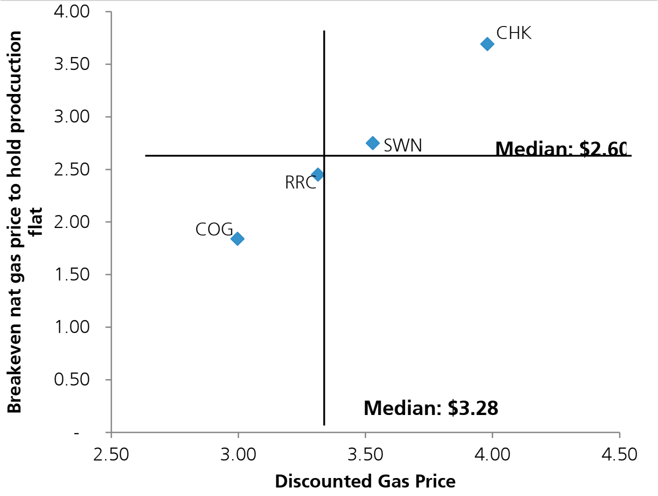
Source: Company documents and UBS estimates

Figure 6: Breakeven WTI Price to Hold Volumes Flat from 4Q16 in 2017 vs. WTI Price Implied in Current Stock Price



Source: UBS estimates

Figure 7: Breakeven HH Price to Hold Volumes Flat from 4Q16 in 2017 vs. HH Price Implied in Current Stock Price



Source: UBS estimates

Management 1Q16 Conference Call Quotes Related to Increasing Drilling Activity…and Our Take

Global E&Ps

Anadarko Petroleum

- CEO Al Walker said: "Do not expect us to increase our capital spending this year, even if oil exceeds $50. We could reallocate some of our savings in our budget to increase capital in certain plays like the Delaware Basin. We'll be very patient as we look beyond 2016 to a sustained higher-price environment to increase capital and return to a growth mode, if warranted."
    - **Our take:** APC estimates it needs ~$45/Bbl WTI and $3.00/Mcf Henry Hub for cash flow to cover capex and dividend this year and every $1/Bbl rise in WTI increases its cash flow by ~$100 million. **Meanwhile, APC first plans to use incremental cash from a rise in oil prices to pay down ~$1-$2 billion in debt, implying a WTI price >$55/Bbl is required before APC would consider increasing drilling activity.** Thus, we believe APC will wait until WTI is closer to $60/Bbl before it increases drilling activity with first incremental capital directed towards the Delaware Basin and/or the DJ Basin.

Apache Corporation

- CEO John Christmann said: "Recent improvements in oil prices are encouraging. We are now looking for a sustainably improved pricing structure that would generate the cash flow visibility for us to confidently increase our capital program. The potential timing and magnitude of this increase is the topic of significant planning and discussion right now at Apache and with our board. In the meantime, the vast majority of Apache's North America and onshore spending is focused on target testing, acreage evaluation and expanding our low-cost inventory locations to be exploited in an environment that offers higher returns. When the time is appropriate, our first priorities for increased investment will be to add development rigs in the Permian."
- "Cash flow is the governor on Apache's capital spending and activity levels in 2016. We still plan to manage to cash flow neutrality and exit the year with unchanged or lower net debt levels"
- "Well, I mean, I think the key is, we budgeted to be cash flow neutral this year at $35 and $2.35 gas price. We're a little bit behind that in Q1 on oil, we're behind it on gas. Clearly, in April we've seen a little bit of a rebound. **So if the strip were to hold up, clearly we're going to be in a position to have some cash to deploy in the back half of the year**, and those are the types of things we would look at. But there's lots of things out there. I mean, we've got debt we could address or the program. But the plan would be to – cash flow is going to be the governor, we plan to stay cash neutral, and we'll have some options to choose from if the current conditions hold."

- **Our take:** We'd note that the 2Q-4Q futures strip at the time of APA's 1Q conference call (and currently) was/is between $45-$50/Bbl. At the current futures strip, we forecast APA generates $350 million in free cash flow in 2H16, providing it the financial flexibility to increase drilling activity.

ConocoPhillips

- EVP-Production, Drilling & Projects Alan Hirshberg said: "I guess, first I should say that as I said earlier, we don't have any plans to add any rigs beyond the three that we're running in the lower 48 in 2016. And of course, we haven't set our 2017 budget yet, so haven't determined how many we would run there. But overall, I would say that there is no set spot price that we're trying to watch as a trigger to start adding back activity. We'll be looking at the entire macro environment, looking at supply and demand fundamentals of whether we think that any price action that we get is actually sustainable or not."

- "And then as prices do come back, our first priority is going to be to strengthen the balance sheet, reduce our debt. And then even after that, we recognize that adding capital for organic growth is going to have to compete with other things on our list, like for example, per share growth. So, we're not in a hurry to say there's some price trigger where we're going to add back capital."

  - **Our take:** Assuming a 2017 capex budget of $7.1 billion, we estimate COP needs a WTI price next year of ~$52/Bbl for cash flow to cover its capex and dividend. And given COP has prioritized debt reduction before increasing drilling activity (e.g. reduce debt and allocate capital with per-share metrics in mind), we believe COP will wait until WTI is >$55/Bbl before it considers increasing its US unconventional rig count.

Hess Corporation

- CEO John Hess said: "Our focus remains on value, not volume, and we do not believe that accelerating production in the current oil price environment makes sense. Rather, we have reduced activity levels across our producing portfolio, both onshore and offshore. **Our Bakken rig count will be reduced from three rigs currently to two rigs during Q3 and is expected to remain at this level until the WTI price is closer to $60 per barrel."**

Marathon Oil

- CEO Lee Tillman said: "Well. **I think when we talk about the $50 number, that's really the constructive signal to start increasing our activity,** considering reinvestment back into the short cycle investments. And that would be on some type of ramp. I think the capital program for 2017 remains to be developed, but you would expect that we would be directing more than that $1B that we had this year toward the short cycle investments in that kind of constructive pricing case."

Murphy Oil

- CEO Roger Jenkins said: "So in and around that, we're trying to get to a minimum capital spend, recalibrate our company, once we have the closing and then we have a revolver to redo a recalibration of our company, a focus out of non-core in North America into unconventionals. All that takes time. And so we went into it with a low CapEx, so we go into Eagle Ford and we have continuous drilling obligations and we move our rig around for that, and then from that we're not a company to build that drilled on uncompleted wells and we have a low level of CapEx to meet all these other goals of recalibration I spoke of, and that led to that schedule. And that schedule's on been around since around mid-February. And I'm not interested in probably breaking it back up and hoping it back up the capital parade on May the 5th, whatever today is."

- "So that's how we're thinking about that. It was derived on purpose from a lowest commitment basis and we're focusing on cost and that and we will come out of this and we're confident of an oil price recovery. Unlike any operator, **we'll get into the 50s, things change a lot and we'll have to then allocate capital among that and offshore opportunities and move forward,** but today we're looking at it more conservative view of that at Murphy Oil Corp."

Noble Energy

- CEO David Stover said: "**As oil prices move and sustain >$50/Bbl, will begin to consider additional capital allocation to the U.S. unconventional business**, with initial focus on our low cost and liquid rich assets in the DJ Basin followed by Delaware Basin."

Occidental Petroleum

- CEO Vicki Hollub said: "Well, what I'd say about that is we really don't have a set price at which we would increase. We want to see some sustainable improvement with prices. And we want to make sure that the fundamentals support prices. I know a lot of people are saying that around $50 they would start to ramp up. We have a very deep inventory in both resources and the EOR business that would generate really good returns at $50. We're pretty committed to staying at the $3 billion capital range for this year."

- President of Domestic Oil & Gas: Jody Elliott said: "We'll maintain flexibility to ramp up our rig activity in the fourth quarter of 2016 and full year 2017, should prices exhibit fundamental stability above the current strip prices."

    - **Our take:** With a free cash flow deficit (after dividend) at strip of ~$1.6 billion assuming a capex budget of ~$2.9 billion this year (and based on the above comments), it's unlikely OXY will increase drilling activity in 2016. However, with the 4Q16 and 2017 futures curves just below $50/Bbl, we interpret the above comments to imply OXY would likely add rigs next year to its Permian Resources business if WTI rose above $50/Bbl. We'd also note that the percentage of OXY's Permian Resources drilling inventory that is "economic "grows from ~14% at <$50/Bbl to ~40% at

<$60/Bbl while it should have ~$500 million in increased capital flexibility next year as spending on various chemicals and midstream projects rolls off.

North American E&Ps

Cimarex Energy

- CEO Tom Jorden said: "And we get asked about at what price file, it's not about the price file. We have the opportunities today at this price file to accelerate and add value. It's about our confidence in that price file and that the markets are in balance and that we think that it's a fairly low volatile proposition."
- CFO Mark Burford said: "But we've seen a couple head-fakes seen the commodity price reverse. A lot of movement to date has probably been driven on expectation of continued oil production than inventories improving, which we're starting to see. But we want to see more continuation of that and making sure that forward strip is really kind of intact and based on the fundamentals."
  - **Our take:** Although we view XEC as well-positioned to accelerate activity, we believe it is unlikely to do so until oil prices are sustainably above ~$55/Bbl. At current strip prices, we forecast organic FCF deficits of ~$175MM over 2Q-4Q16 and ~$225MM in 2017, which XEC can comfortably fund with $675MM of cash on hand at March 31. While this "excess" cash balance leaves it sufficient room to ramp activity levels without having to draw on its $1 billion revolver, XEC still plans to wind down its operated rig count (from nine currently to just three by August), and we expect it to maintain its conservative posture until commodity prices stage a more meaningful and stable recovery.

Devon Energy

- CEO David Hager said: **"you could look for us to start adding incremental activity when oil prices are $50 or higher.** Now, that doesn't mean we go back from the two operated rigs to 20 operated rigs immediately at $50. That means we would start adding operated rigs at that point. **But it would probably take $60 oil or more to really get back to a capital spend level of close to $2 billion versus the $1 billion we're at now, which would, really, with our maintenance capital sitting somewhere between $1.5 billion or $2 billion, allow us to flatten the production."**

EOG Resources

- CEO William Thomas said: "We believe that in the U.S., it will take a sustained $60 to $65 oil price and 12 months of lead time for the industry to deliver a modest level of growth. However, what is true for the industry in general does not hold for EOG. With our premium drilling inventory, we believe our reinvestment advantage is $15 to $20 per barrel lower than the average industry operator. When the market balances and prices recover to moderate

levels, our leading asset quality, best-in-class technology, and low cost structure will become apparent with how quickly we can resume high-return oil growth. And that may be the number one question we received the last two months, or more accurately, at what price will you accelerate and return to growth? Our first priority this year is to completely fund our capital program with cash flow and reduce net debt with property sales. Our second priority will be to complete DUCs."

  - **Our take:** While also unlikely to raise its 2016 capex budget and increase drilling activity this year, EOG will set activity in 2017 such that capex is in line with cash flow and a view that the oil price on which that is based is fundamentally well supported, with an improving supply/demand balance. Under our 2017 price deck of ~$52/Bbl and ~$3.00/Mcf, we estimate EOG will generate cash flow of ~$3.7 billion…above this year's capex budget of ~$2.5 billion. Thus, we expect EOG to increase drilling activity next year if WTI rises >$50/Bbl. And if prices should become supportive prior to YE16, we'd expect EOG to funnel its YTD cost savings into completing some additional drilled, but uncompleted wells (~300 DUCs at YE15).

Oil-Weighted Resource Plays

Bakken/Three Forks

Continental Resources

- CFO John Hart said: "As WTI increases to $45 …we would apply the additional cash flow to reduce debt. With the next $5 move [to $50/Bbl], we would expect to balance adding completion crews to begin working down our Bakken DUC backlog, while also reducing debt. **Once we see WTI prices around $60 with stability in the price, we would consider adding additional drilling rigs."**

Oasis Petroleum

- CEO Tommy Nusz said: "Similar to what you've heard from other operators, you start thinking about that in the $50 to $60 range… that's where that extended core really starts to come into the window. But you're always weighing that off, very attractive economics against outspending your cash flow. So while the economics in the core are really attractive in that range, 40%-50% at $50, there's a number of things that we have to consider as we go further: we can start drawing down the DUC inventory, we've got to take a look at availability and cost of services - and the cost of service starts to move up as activity picks up - cash flow balance and overall capital allocation."

- "It's a little bit early to start laying out commitments of we'll do exactly this at this price point. I think that's going to be a bit misleading, and I think we just have to feel our way through this as we go, and it's not just price, but it's surety of price."

  - **Our take:** We interpret OAS' commentary as indication it will need to see oil prices north of ~$60/Bbl in order to increase drilling activity. Based on

our estimated total 2017 budget of $340MM, we estimate OAS requires a WTI oil price of ~$53/Bbl to fully fund capex with cash flow. If prices move above that level, we'd expect incremental FCF surplus would initially go to debt reduction and then to working down its DUC inventory (83 gross wells at 1Q) before OAS considers adding rigs.

Whiting Petroleum

- CEO Jim Volker said: "First and foremost, of course, we would look to pay down debt. And so, that's always a primary concern to someone like us. And second after that, as I mentioned, **we would watch closely the oil price before determining that we wanted to add any rigs. And we'd like to see it stay at $50 or above."**

Permian Basin

Concho Resources

- CEO Timothy Leech said: "Like we have done in the past, I think the best way to think about us is steady as she goes. And I don't think that we're going to change our capital budget or our rig count based on kind of quarterly swings in oil price. So, we will – we're very hedged. That gives us some certainty around the amount of cash flow we're going to have from oil prices. So, we'll continue the plan that we started at the first of the year."
  - **Our take: CXO aims to keep its capex in line with its operating cash flow.** With ~70% and ~52% of 2016-17E oil production hedged at ~$70.13/Bbl and ~$55.36/Bbl (vs. the futures strip of ~$43.43/Bbl and ~$49.89/Bbl), respectively, CXO needs 2017 oil prices above $55/Bbl to generate enough operating cash flow to fully fund capex above 2016's ~$1.2 billion spending budget. As such, we believe CXO needs oil prices to be >$55/Bbl (above hedging price) next year to increase drilling activity (and very little to no chance of increasing this year). Nonetheless, even assuming the current futures strip for 2017, we estimate CXO's cash flow of ~$1.1 billion is enough to generate double-digit YoY production growth and be roughly balanced with capex.

Diamondback Energy

- CEO Travis Stice said: "Should crude prices continue to strengthen, we could pick up a fourth horizontal rig early in Q3. We're really focused on the macro conditions on our oil market and then the near-term price forecast to make those decisions. But again …when returns to our investors are going up, we accelerate into that environment."
  - **Our take:** We think FANG is likely to ramp to a four horizontal rig program in 3Q as long as 2H16/2017 strip prices remain near the ~$50/Bbl mark. With ~$235MM of cash on hand, its already clean balance sheet (~1.0x debt/EBITDX in 2017E at strip prices) and an outsized resource inventory, we view FANG as particularly well-positioned to further accelerate activity into 2017. For perspective, its current range

of scenarios suggests it will look to add one additional horizontal rig with every $5/Bbl increase in WTI prices.

Energen Corp.

- CEO Jim McManus said: "We would feel comfortable [outspending cash flow in 2017] if commodity prices are in this $45 to $50 range, and we have cash on the balance sheet."
- "It's price dependent …but if prices continue to hold, that gives us some flexibility to increase [drilling activity in 2017]."
- "I think if strip pricing held where it is in place right now, we would expect to work that DUC backlog down [in 2017]….additionally, how much we have hedged and how stable prices stay over the next 12 months is going to dictate probably how we feel about how much capital we want to spend in 2017."
  - **Our take:** While it plans to resume DUC completions by early next year assuming >$45/Bbl WTI, EGN has not given similar perspective on where it would be willing to add rigs. However, given it recently announced plans to accelerate 2H16 drilling activity (with 3Q-4Q strip prices at ~$45-$50/Bbl), we'd expect a price north of ~$50/Bbl would compel EGN to begin adding back rigs in 2017.

Parsley Energy

- CEO Bryan Sheffield said: "If we acquire something, maybe we need to add a rig right away, but we're really looking into 2017 on rig adds."
- "It would be nice to be above $50 if I'm thinking about adding a fifth or a sixth rig. If we're just stuck in this environment, a range between $40-$45 and the same costs, we could potentially still be at four rigs going into 2017, just depending on the environment."
  - **Our take:** Given its already outsized 2016 production momentum (>50% exit-rate growth), we believe PE is likely to maintain its current horizontal rig count (four) through 2H16, largely irrespective of oil prices. However, we see an attractive set-up for accelerated activity into next year: at our preliminary 2017 capex forecast of $610MM (assumes an average of six horizontal rigs) we forecast PE can keep debt/EBITDX below ~2.0x even at current strip prices (~$48/Bbl).

Pioneer Natural Resources

- CEO Scott Sheffield said: "We get asked all the time, we put the comment in here, the **Pioneer expects to add 5 to 10 horizontal rigs when the price of oil recovers to $50 a barrel, and the outlook for oil supply-demand fundamentals is positive**. So what do we mean by this? What's ideal? The strip in 2017 has moved up to above $47, $47.50 for oil. Today's price is close to $44. So if we see the strip in 2017, for instance, get up to $50, and we see inventory starting to decrease, which gives us confidence in the supply-demand fundamentals."

RSP Permian

- CEO Steve Gray said: **"But if prices remain above $45 a barrel, we would probably surely consider accelerating that and bringing one back in probably third quarter**, beginning of third quarter, but really, the inflection point that's interesting is somewhere around $45 a barrel when you look at adding a rig, it actually is a deleveraging event rather than a leveraging event."

Multi-Basin/Other

Denbury Resources

- COO Chris Kendall said: "As we're looking at the oil price behavior in the year, there's still quite a bit of volatility. But as we get more confidence in where that oil price is going to be stable, we're going to be looking at bringing that [currently shut-in] production back on."

EP Energy

- CEO Brent Smolik said: "So far this year, our capital activity has been at the low end of our guidance range and if prices remain at current levels, we'll likely stay there. We do have the ability to ramp up in H2 if prices support that decision and that would put us closer to the midpoint of the range. In any capital scenario, we expect to continue to generate positive FCF in 2016."

- "I think it'd be a combination of return driven and then wind down of our activity, as we talked about on the last quarter. So Eagle Ford had the highest number of rigs, largest number of DUCs in the backlog. So I think what you're seeing in Q1 is an Eagle Ford that's similar size to Q4, but expect that to drop off. We signaled Q2 will be sort of the low-water mark on total activities. And then, if it plays out like we're thinking, then we'd ramp up Wolfcamp in preference to Eagle Ford in H2. So you'd see that flip around in the second part of the year."

    - **Our take:** Despite a number of headwinds (including: 1) cash flow of just ~$285 million next year - vs. ~$780 million this year - under our price deck of $52/Bbl and $3/Mcf as hedges roll-off; 2) a strained balance sheet with net debt/EBITDX ballooning from ~3.0 at YE16 to ~6.4x at YE17 under our price deck assuming a capex budget of ~$600 million - vs. $500-$900 million this year; and 3) liquidity of just ~$800 million given the recent ~40% cut to its credit facility), EPE has noted it would likely increase activity at a price above ~$50/Bbl (and improving)…particularly in the Wolfcamp as mentioned in the above comments.

Newfield Exploration

- CEO Lee Boothby said (at a September 2015 energy conference):: "Lastly, should oil prices revert to the $50 to $60 bandwidth in 2016, we can invest at similar levels in 2015 – similar levels to the 2015 CapEx and deliver solid domestic growth again, and again driven by the Anadarko Basin."

- **Our take:** Based on our recent conversations with the company, NFX needs WTI to be >$50/Bbl before it considers increasing drilling activity. Notably, every ~$75 million increase in annualized cash flow allows the company to add one STACK rig (assuming 50% average working interest per rig), but it remains focused on operating within cash flow. Assuming NFX's 2016 budget of ~$650 million and cash flow next year at ~$52/Bbl (and $3/Mcf) of ~$790 million implies NFX could add 1-2 rigs in the STACK in 2017. Meanwhile, we estimate NFX will be roughly capex/cash flow balanced this year assuming current futures strip prices.

SM Energy

- CFO Wade Pursell said: "It's unlikely we would increase activity until our projected cash flow levels have risen to the projected capex level, [which**] translates to commodity prices in the $50s for oil** and upper $2s for natural gas."

Valuation Method and Risk Statement

E&P companies are subject to risks associated with unexpected movements in volatile natural gas and crude oil prices, as well as the impact that political, economic and meteorological events could impart. Moreover, E&P companies are subject to geologic risk (i.e., exploration risk).

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Sell	FSR is > 6% below the MRA.	14%	19%
Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 March 2016.
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Anadarko Petroleum Corp.[2, 4, 5, 6a, 6c, 7, 16, 18]	APC.N	Buy	N/A	US$48.25	12 May 2016
Apache Corporation[16]	APA.N	Neutral	N/A	US$54.30	12 May 2016
Chesapeake Energy Corp.[7, 13, 16]	CHK.N	Sell	N/A	US$4.17	12 May 2016
Chevron Corp.[6b, 7, 16]	CVX.N	Neutral	N/A	US$102.12	12 May 2016
Cimarex Energy Co[16]	XEC.N	Neutral	N/A	US$115.34	12 May 2016
Concho Resources[16]	CXO.N	Neutral	N/A	US$117.53	12 May 2016
ConocoPhillips[6c, 7, 16]	COP.N	Neutral	N/A	US$43.73	12 May 2016
Continental Resources[16]	CLR.N	Neutral	N/A	US$40.55	12 May 2016
Denbury Resources[4, 7, 16]	DNR.N	Sell	N/A	US$4.10	12 May 2016
Devon Energy Corporation[2, 4, 6a, 7, 16]	DVN.N	Sell	N/A	US$32.71	12 May 2016
Diamondback Energy, Inc.[16]	FANG.O	Neutral	N/A	US$87.14	12 May 2016
Energen Corp[16]	EGN.N	Neutral	N/A	US$43.08	12 May 2016
EOG Resources[2, 4, 6a, 7, 16]	EOG.N	Neutral	N/A	US$80.50	12 May 2016
EP Energy[2, 4, 6a, 7, 16]	EPE.N	Neutral	N/A	US$5.45	12 May 2016
ExxonMobil Corp.[6b, 7, 16, 22]	XOM.N	Neutral	N/A	US$89.67	12 May 2016
Hess Corp.[16]	HES.N	Neutral	N/A	US$58.14	12 May 2016
Marathon Oil Corporation[7, 16]	MRO.N	Buy	N/A	US$12.33	12 May 2016
Murphy Oil Corporation[16]	MUR.N	Neutral	N/A	US$30.35	12 May 2016
Newfield Exploration Co.[16]	NFX.N	Buy	N/A	US$38.63	12 May 2016
Noble Energy, Inc.[16]	NBL.N	Buy	N/A	US$36.37	12 May 2016
Oasis Petroleum Inc[7, 16]	OAS.N	Neutral	N/A	US$9.54	12 May 2016
Occidental Petroleum Corp.[7, 16]	OXY.N	Neutral	N/A	US$76.48	12 May 2016
Parsley Energy Inc[16]	PE.N	Buy	N/A	US$25.48	12 May 2016
Pioneer Natural Resources Co.[2, 4, 6a, 6b, 7, 16]	PXD.N	Buy	N/A	US$167.03	12 May 2016
Range Resources Corp.[16]	RRC.N	Neutral	N/A	US$42.26	12 May 2016
RSP Permian[2, 4, 6a, 16]	RSPP.N	Neutral	N/A	US$32.76	12 May 2016
SM Energy[4, 6a, 16]	SM.N	Neutral	N/A	US$29.05	12 May 2016
Southwestern Energy Company[13, 16]	SWN.N	Sell	N/A	US$11.86	12 May 2016
Whiting Petroleum Corp[16]	WLL.N	Neutral	N/A	US$10.93	12 May 2016

Source: UBS. All prices as of local market close.
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