

# 2016 Oil Market Outlook

DNB

## – Higher average oil prices seen in 2016

- The average ICE Brent price is on track to come in at about 55 \$/b for 2015
- We believe the average Brent price will be 5 \$/b higher in 2016
- For 2017 we still forecast Brent at 70 \$/b
  - Huge Capex cuts in the global oil industry
  - Will lead to increased decline rates already during 2016
  - Shale break even on LLS basis (fairly equal to Brent) at 50-70 \$/b
  - 5 mbd shale growth needed by 2020, how to achieve this at 50 \$/b oil?
  - 60-80 \$/b longer term price required to develop non-core shale
  - Large upward revisions on the 2016 supply-demand oil balance since July
  - US 2016 oil production growth revised lower by 0.5 million b/d since July
  - Global crude oil balance not as oversupplied as the total liquids balance
  - Total liquids balance will improve meaningfully in 2016 if non-OPEC starts to struggle
  - With the current US rig count, US shale production will drop
  - Oil price hedges are running out for the US oil producers
  - A repetition of US refinery throughput in 2016 will be bullish – crude stock draws
  - US shale producers needs to keep activity low in 2H-2015 in order to fulfill guiding
  - Internal struggle in the Saudi Royal Family
  - Increased geopolitical risk (Venezuela, Brazil strike, etc)

**WHO MAKES OIL PRICES GO SLUMP IN THE NIGHT?**



**ALI AL-NAIMI, THE SAUDI PUMP KING**

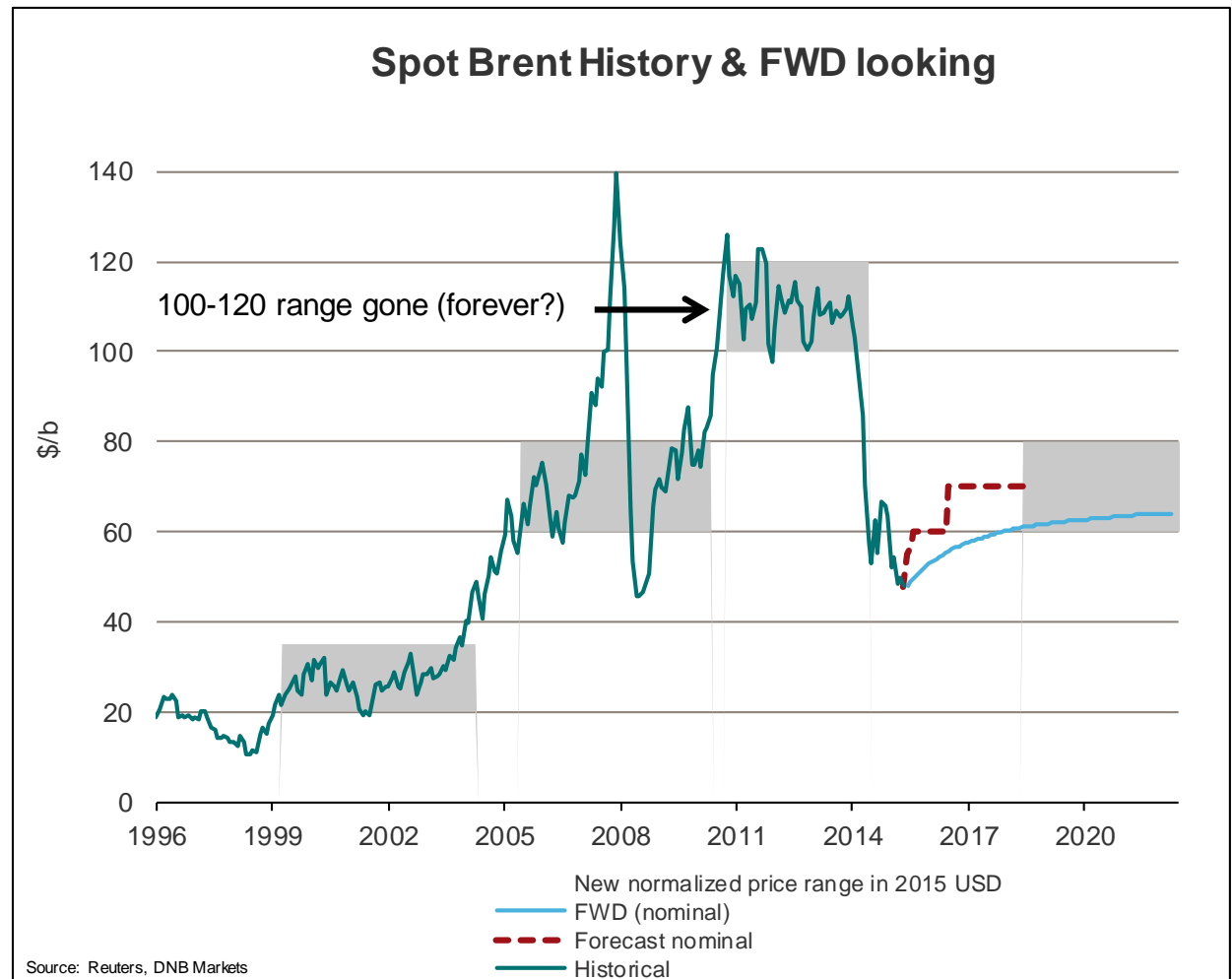
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# Long Term Oil Price Forecast – Current

(The forecast is for the average of the rolling 1<sup>st</sup> month ICE Brent future contract)

	Historical Nominal \$/b	Historical Real (2015) \$/b
2001	24.4	32.7
2002	25.0	32.9
2003	28.8	37.1
2004	38.3	48.0
2005	54.5	66.1
2006	65.1	76.5
2007	72.4	82.7
2008	97.3	106.9
2009	61.7	68.1
2010	79.5	86.3
2011	111.3	117.1
2012	111.7	115.1
2013	108.7	110.4
2014	99.5	101.5
2015	55.0	55.0
	Forecast Nominal \$/b	Forecast Real (2015) \$/b
Q1-16	55	
Q2-16	60	
Q3-16	65	
Q4-16	60	
2016	60	
2017	70	
2018	70	
2019-2023		60-80



# The 2016 Oil Price Score Card

2016 Oil Price Scorecard	Comments	Oil Price	Weight
<b>Overall Outlook</b>	The market still looks over supplied in 2016 but the call on OPEC is increasing by 1.5 million b/d according to IEA. The upside is capped by falling production costs, large US spare capacity in the form of available oil rigs and OPECs market share strategy. But OPEC spare capacity is very low and non-OPEC supply growth will fade soon while geopolitical risk is high.	<b>Average price 60 \$/b</b>	
<b>Fundamentals</b>			
Global Fundamental Balance	The global supply-demand balance is still looking over supplied for 2016, but much less over supplied than in 2015 as the call on OPEC is increasing by 1.5 million b/d in the latest IEA forecast from October. The problem is however that OPEC looks to produce more than the call.	<b>BEARISH</b>	<b>HIGH</b>
Crude vs Product Balance (Margins)	Refinery margins will probably be weaker in 2016 than in 2015 as particularly the Middle East is bringing on new capacity and as oil demand growth will be weaker in 2016 than in 2015. For the first and last quarter of 2016 the weak diesel market may lead to refinery run cuts.	<b>BEARISH</b>	MEDIUM
OECD Stock levels	Stock levels are record high, but we do not believe the market will run out of storage capacity	<b>BEARISH</b>	MEDIUM
OPEC Spare Capacity	Core OPEC spare capacity is low at only 2.3% of global oil demand according to IEA data. In reality the spare capacity is probably even lower since Saudi is probably producing close to capacity.	<b>BULLISH</b>	<b>HIGH</b>
US Oil Statistics - Fundamentals	US oil production growth which was 1.6 million b/d in 2014 and about 0.8 million b/d in 2015 is forecast to drop to negative in 2016 and US crude stocks will draw down in 2016.	<b>BULLISH</b>	<b>HIGH</b>
Global Demand Growth	Global oil demand growth is positively affected by the lower prices in 2015 but this effect is seen to fade in 2016. We have factored in weaker global demand growth for 2016, but the higher starting point of OECD oil demand next year means year on year growth will still be decent for OECD also in 2016.	NEUTRAL	MEDIUM
OPEC Supply	OPEC (Saudi) is seen to continue its policy of targeting market share instead of price. And we estimate that Iran will increase its output from the current 2.9 million b/d to about 3.6 million b/d by September 2016, starting the ramp up in Q2-2016.	<b>BEARISH</b>	<b>HIGH</b>
Non-OPEC Supply	Total non-OPEC supply growth is seen negative in 2016, down from a record growth of 2.3 million b/d in 2014 and 1.1 million b/d in 2015.	<b>BULLISH</b>	MEDIUM
<b>Political Risk</b>			
Iraq, Iran, Nigeria, Venezuela, US, Russia, Israel, MENA, Brazil, etc	Political risk is on the rise. Key risk is from countries like Venezuela, Iraq, Libya, Brazil. The Iran deal will probably bring meaningfully more OPEC barrels to the market (YoY 370 kbd), but generally the sunni-shiite conflict and IS has increased the total risk in the Middle East and weak economic conditions in countries like Venezuela and Brazil is threatening the social stability.	<b>BULLISH</b>	<b>HIGH</b>
<b>Other Factors</b>			
Financial Money Flow	Total financial net oil length is down 40% for the Brent market and 30% for the WTI market since the peak. There is hence room for a rebuild of positions if the sentiment should change. Some times we have seen oil prices weakening just due to a stronger USD, despite the reason for the stronger USD should be positive for physical oil demand. Last Friday the strong US payrolls strengthened the USD and oil prices fell in USD but also in EUR. Such absurd market movements can happen from time to time. A stronger USD has provided headwinds for the oil price since 2014, but this effect is probably fading for 2016 as we do not believe in a further strengthening of the USD for the coming year.	<b>BULLISH</b>	LOW

MARKETS

# Nobody Were More Bearish Than DNB A Year Ago

- But we were not bearish enough

	INDIVIDUAL FORECASTS - REUTERS MONTHLY POLL ON OIL PRICES									
Organisation	Q414	Q115	2014	2015	2016	Q414	Q115	2014	2015	2016
ABN Amro	90.0	95.0	105.0	90.0	85.0	90.0	90.0	95.0	85.0	80.0
ANZ	94.0	98.0	94.0	105.0	98.0	90.0	94.0	90.0	97.0	93.0
Barclays	89.0	88.0	103.0	93.0	-	81.0	78.0	95.0	85.0	-
Banco BPI	89.0	94.0	105.0	90.0	99.0	87.0	92.0	98.0	86.0	95.0
Bernstein	-	-	106.0	104.0	109.0	-	-	100.0	98.0	104.0
BNP Paribas	96.0	100.0	104.0	97.0	-	89.0	91.0	97.0	88.0	-
BofA Merrill	93.0	95.0	104.0	98.0	-	85.0	86.0	95.0	90.0	-
Capital Economics	93.0	90.0	103.0	85.0	80.0	88.0	87.0	97.0	85.0	80.0
Citigroup	92.0	92.0	103.4	95.5	95.0	83.0	84.0	95.6	87.5	85.0
Commerzbank	85.0	85.0	-	85.0	-	-	-	-	-	-
CRISIL	87.0	90.0	101.7	92.5	92.5	84.5	87.5	96.0	90.5	90.5
Credit Suisse	92.0	87.0	103.3	91.5	90.0	85.0	77.0	96.0	84.5	82.0
Deutsche Bank	87.0	88.0	102.0	88.8	90.0	82.0	81.0	95.2	80.5	80.0
DNB Markets	85.0	-	102.0	80.0	85.0	-	-	-	-	-
Economist Intelli	98.0	101.0	104.4	97.6	96.0	88.2	91.9	97.0	88.4	84.5
Goldman Sachs	-	-	-	83.8	90.0	-	-	-	73.8	80.0
JBC Energy	91.6	99.0	102.8	100.0	105.9	87.6	91.8	96.7	93.1	100.4
Jefferies	89.0	87.0	95.6	90.0	98.0	-	-	-	-	-
LBBW	90.0	90.0	102.0	88.0	93.0	84.0	86.0	87.0	84.0	90.0
Morgan Stanley	106.0	-	107.0	98.0	102.0	97.0	-	99.0	87.0	-
NAB	90.0	100.0	103.0	103.0	105.0	85.0	94.0	96.0	97.0	102.0
Natixis	93.0	98.0	103.5	99.3	103.8	87.0	92.0	96.6	93.5	97.8
Nomisma Energia	85.9	83.3	101.4	80.5	75.3	80.9	78.3	97.4	77.5	72.3
Intesa Sanpaolo	87.0	90.0	102.0	96.2	102.0	85.0	87.0	94.3	91.4	94.6
Raymond James	90.0	90.0	102.5	90.0	90.0	84.0	80.0	96.0	75.0	82.0
Raiffeisen Bank	87.0	90.0	102.0	98.0	110.0	84.0	86.0	96.0	94.0	106.0
Santander	90.0	93.0	102.5	92.0	90.0	85.0	83.9	96.1	82.0	82.0
Societe Generale	88.0	92.0	102.3	91.0	95.0	82.0	85.0	95.2	83.0	86.5
Standard Chartere	88.0	94.0	103.0	105.0	115.0	90.0	96.0	97.0	99.0	104.0
UBS	100.0	100.0	100.0	100.0	100.0	95.0	95.0	95.0	95.0	95.0
Unicredit	90.0	95.0	103.0	98.0	98.0	86.0	91.0	97.0	94.0	91.0

# Positive To Oil Prices In 2016, But Limited Upside

- We believe in a stronger oil market for 2016, but it will be hard to break above 65 \$/b without a major incident

As far as we know there are no other Nordic banks beside DNB doing oil price hedging business with large US oil producers. We believe this has provided us with an edge vs our Nordic competitors also when it comes to our reading of the oil market. We meet US oil producers in Texas several times per year and that also helped us in 2012 to identify the US shale industry as a revolution and a game changer for the global oil market. The fact that we do oil business with the US oil producers also means we have a feel for what kind of price levels they would be targeting when they look to increase their hedging ratios for 2016 and 2017.

Our latest trip where we met Texas oil producers took place in October and our take is that if we see 60 \$/b oil prices, these guys will be hitting quite heavy on the sales buttons. Now you might argue that prices can still move up in the high 60's if the investor side comes in as the aggressive part on the buy side and initiate the trade action. Our impression is however that because prices after June has been so low, the hedging ratio for 2016 and 2017 is far behind where the producers would like to see it. Hence the producers are set to be the aggressor in the price setting for a while if oil prices hit the levels where they are able to make margins.

There are loads of both bullish and bearish arguments for the 2016 oil price formation and we will go through a bunch of them. We have never had as an ambition to hit correctly at the price levels, but we want to be correct on the direction. A year ago we were the most bearish analyst in the Reuters survey (page 6) with an average Brent price forecast of 80 \$/b for 2016. This was not bearish enough but at least the direction was correct and nobody else did it any better when it came to the levels anyway. The above story just tells you how quickly things can change in the oil market and the uncertainty is always very large. In 2015 the average Brent price is set to come in at about 55 \$/b. We believe the 2016 market will look about 10% better on average, so we set the 2016 average price forecast at 60 \$/b (down from 65 \$/b which we published in our August report). The trading range around those 60 \$/b will likely be quite large and volatility is set to continue at the fairly high level we have seen since 2014. We would expect to see Brent trade above 65 \$/b several trading days in 2016, probably more in the second half of 2016 rather than in the first half however. For 2017 we maintain our 70 \$/b forecast that we published in our August report and we launch a 2018 Brent price forecast, also at 70 \$/b. After 2018 we forecast a normalized oil price range of 60-80 \$/b. We think that such a price level will be adequate to initiate growing activity in the oil sector since the cost to extract oil will be significantly lower than the years 2011-2014 when oil traded above 100 \$/b. An oil company is set to get a lot more "bang for the buck" when higher activity is required than what the same company could achieve in recent years. There will of course be some inflationary effects kicking in from the service side when oil prices rise towards 70 \$/b, but we believe one should think about this the following way: If the costs first drop 50% and then increase 50%, you have at the end of the day achieved a 25% cost reduction. Hence oil prices above 100 \$/b will not be required to balance the market anymore.

Despite our view of limited upside for the oil price we are bullish to oil prices compared to where the current market is trading and we would definitely be a buyer of for example Brent December 2017 which now trades at about 59 \$/b. With about two years to expiry it would be enough time to see accelerating decline rates and potential geopolitical risk unfold. We think the risk-reward is skewed to the upside on such a position.

# Bullish Arguments – Large CAPEX Cuts In The Oil Industry

- The key bullish arguments for 2016 is accelerating decline rates, falling US output, low spare capacity and increased political risk

One of the most bullish arguments for oil prices moving into 2016 and 2017 is the fact that global oil investments are set to be cut 20-25% in 2015 alone. This represents the largest global CAPEX cuts in the history of oil. According to WoodMac data more than 20 billion barrels of oil resources have been shelved so far this year. The recent third quarter reports by oil majors even suggest that this number has been growing since WoodMac published their report.

The most expensive barrels in oil market is biofuels, deepwater, Canadian oil sands and US shale oil. Biofuels is mandate oil and will not disappear. But CAPEX is massively cut in shale (collapse in the rig count), deepwater oil and Canadian oil sand. This is exactly the type of projects we would expect to be suffering the most. It is hence reaffirming to see that more than half of the large oil projects that have been put away so far this year have been deepwater projects and more than 25% have been Canadian oil sands projects. OPEC (read Saudi) is hence getting exactly what they want as they are about to shake out the worlds high cost oil producers. Their payback is much greater if they can shake out long-leadtime-projects like deepwater and oil sands projects than just shale oil, because it will take much longer time to get back on track for the long-leadtime-projects than for US shale oil. The Saudis have this way set the stage to get rid of the “sticky oil” for a while after 2020. With “sticky” we mean oil that has a lot of sunk cost which means you will not throttle back production unless the oil price drops below lifting costs (which can be quite low). We are hence in no doubt that the Saudis are getting exactly what they where looking for and the policy they initiated one year ago to target market share instead of price was the only way they could go. For analysts who skipped the comparisons with 2008-09, 2001-02 and 1998-99 and went directly to 1986 instead, this was quite obvious.

It has been extremely interesting to note in the recent third quarter reporting by the oil majors that Shell is now scrapping a large oil sands projects in Canada (Carmon Creek) that they had already invested in for several years and 6-7 weeks ago they also scrapped their arctic program and took a 7 billion write down on that effort. It seems Shell has been one of the last of the oil majors to realize the new oil world but now they are “biting he bullet”. The share price for Shell is down 20% this year while peers like BP, Exxon and Chevron is down, 6%, 10% and 16% respectively, and the Total share price is even up. Even more telling of the current situation is perhaps the fact that Conoco reported that by 2017 they will totally exit deepwater exploration. This is of course very, very bad stories for the offshore service industry, but at the same time it is bullish for medium-term and longer-term oil prices.

The CAPEX cuts can be bullish for the oil market already in 2016 because the companies look to be pulling the “emergency brakes”. What we mean by that is that they are also cutting activities meant to maintain current output. According to data collected by Rystad Energy, infill drilling in 2015 is down by nearly 60% in three major offshore basins (US GOM, Southeast Asia and Brazil). This is much more than in prior downturns (1986, 1999, 2002, 2009) where infill drilling fell 31-36%. This basically means that production from existing oil fields should start to suffer already in 2016.



# Bullish Arguments – Accelerating Decline Rates

- The key bullish arguments for 2016 is accelerating decline rates, falling US output, low spare capacity and increased political risk

Even though costs in the US shale industry is coming down, the latest estimates by PIRA Energy suggest that we would need LLS-prices in the range of 50-70 \$/b in order to give a 10% return on Eagle Ford crude, Bakken and Permian. LLS prices will be quite similar to Brent-prices since this is tidewater crudes. The break even costs include drilling and completion costs, royalties and production taxes. The costs do however not include land acquisitions and G&A costs, which means that in reality the companies would need a slightly higher price than the mentioned range in order to go cash flow positive over time. Beware that wellhead break even costs are about 10 \$/b lower (40-60 \$/b). We just mention this to help people not mix apples with bananas and oranges...

The point with mentioning these break even rates is that despite Eagle Ford crude standalone horizontal wells being on average economical at 40 \$/b wellhead cost, that does not mean that the US oil producers will be able to come back to add 1 million b/d of crude output per year at 50 \$/b Brent prices. When we look at how the market can be supplied by 2020 it looks to us like the global oil market will need about 5 million b/d additional shale oil from 2014 to 2020 in order to cover 99 million b/d of oil demand. The YoY growth in US oil production in 2015 looks to be about 0.7 million b/d and in 2016 it is on track to turn negative. This implies that we need about 4.5 million b/d of net shale growth in 2017-2020, which again means that we have to return to a yearly growth rate of more than 1 million b/d of US oil production by 2017. We find it hard to see how this can happen with 50 \$/b Brent-prices. The assumptions behind the above calculation is that global net decline rates will increase from our identified 1.5%-trend since 2006 to 2% going forward, that the large known and already sanctioned oil projects will contribute 4 million b/d, OPEC will grow their capacity as a group 4 million b/d and oil demand will grow 1 million b/d per year. The 1 million b/d per year oil demand increase is quite conservative since demand is on track to grow 1.7 million b/d in 2015 alone, which leaves only 3.3 million b/d spread out on the 5 years 2016-2020. This would require oil demand growth more in line with what we saw in 2014 when the oil price was 100 \$/b.

At the start of July this year the Dec 2016 Brent contract priced at 68 \$/b, now that contract is pricing at about 55 \$/b. What has happened to the view on 2016-supply/demand-balances since July? Well every year the IEA starts looking at the next year country by country in their detailed balances. The supply/demand balance by country will now only stretch through 2016 until July 2016, when the IEA will open up their detailed 2017-balances. Since July the IEA has revised up global oil demand for 2016 by 0.5 million b/d to 95.7 million b/d. During the same period the agency has revised downward its forecast of total non-OPEC supply by 0.2 million b/d. US oil production growth has been revised down by 0.5 million b/d from a growth of 0.3 million b/d to an expected drop of 0.2 million b/d.

With the above as the backdrop it is not necessarily intuitive that the Brent Dec 2016 contract has fallen about 13 \$/b since July at the same time as the call on OPEC has been revised higher by 0.7 million b/d by the IEA. It seems to us the market has been willing to price in the return of Iranian barrels (we estimate the YoY increase will be 370 kbd) and also weakening economic sentiment in the BRIC-countries since July. The market has however not so far been willing to price in increased geopolitical risk and accelerating decline rates. The oil market is not able to focus on too many factors at the same time, but the focus could quickly shift and then maybe both accelerating decline rates and increased geopolitical risk in combination with low spare capacity will be priced into the longer end of the curve, dragging also spot prices higher.

MARKETS

# Bullish Arguments – Falling US Oil Production

- The key bullish arguments for 2016 is accelerating decline rates, falling US output, low spare capacity and increased political risk

When we look at only the crude oil balance (global refinery throughput plus direct crude burn vs global crude oil production) using IEA as the source of the data, we do not see a very over supplied market. For global refinery throughput we use the IEA database for OECD crude throughput in the refineries and we hand-punch the IEA estimates for non-OECD refinery throughput from the monthly oil market reports. The same picture emerges if we only use data from the JODI-database. Our point is that if the data is approximately correct it suggest that most of the over supply is taking place in the oil products balance and NGL's and not in the crude oil balance. It could be illustrative to mention that if we only look at OECD commercial crude stocks there has been no stock builds reported since March.

The total liquids supply/demand balance from the IEA is however reporting an over supply of 1.8 million b/d for Jan-Sep this year. If global decline rates accelerate we estimate that the over supply will drop to 0.5 million b/d by the third quarter next year. The IEA is now reporting that since July the growth in global non-OPEC supply is not able to cover the global oil demand growth. In September the YoY growth in global oil demand was 1 million b/d larger than the non-OPEC growth.

The key swing factor in the oil market will be US oil production which grew 1.6 million b/d in 2014 and will turn negative in 2016. Based on the current rig count and using the EIA Drilling Productivity Report as the starting point we estimate that US oil production will continue to drop going forward, even assuming that drilling efficiency per rig continues at the 12-month average and that legacy decline no longer increase. We estimate about a 1.2 million b/d production drop from the 7 US shale plays from April this year and to the end of next year at the current rig count with these above assumptions. This picture could however change if the 4000 drilled, uncompleted wells (the DUC-inventory) is being drawn down. Then production may be holding up without much need for additional rigs for a while.

The largest shale oil companies have however guided a 40% CAPEX cut in 2015 and have only delivered 16% in the first half of 2015. This means activity will have to remain much lower in the second half of this year and the production data for last 5 months of 2015 still remains to be reported. Many US oil producers have also been protected by their price hedges during the first half of 2016 and this has enabled them to maintain a higher activity level than they otherwise would have achieved. According to the latest IEA monthly oil market report, the US producers have been able to secure a 16-21 \$/b higher oil price during 1H-2015 than the prevailing spot price in the period due to hedging. Since their hedges are about to run out they will not see the same realized oil prices going forward. The last number for US oil production we have is now from August. Since March, the Texas onshore production has dropped 221 kbd (an average of 44 kbd per month). This has however in the same period been offset by an increase of 232 kbd in the US GOM (large projects starting up). US total crude oil production has nonetheless dropped net 274 kbd since April (69 kbd per month on average) and when the startups run out in the US GOM the production will probably drop even quicker.

# Bullish Arguments – US Crude Stocks To Draw Down

- The key bullish arguments for 2016 is accelerating decline rates, falling US output, low spare capacity and increased political risk

Our take is that the oil market has so far not started to look closely on scenarios for US crude stock developments through 2016. If you have correct numbers for refinery throughput, crude imports, crude exports and domestic crude production you should be able to approximately calculate the development in crude stocks. There will always be some missing barrels of course but let us assume they stay constant.

Our starting point will be that the record high US refinery throughput is repeated next year. We just put in exactly the same levels week by week for 2016 as we have seen in 2015. We don't see very good arguments for why they should be reduced knowing that US refineries are more competitive than for example European refineries and since exports of refined products is allowed.

We then factor in a YoY drop in US crude production of 380 kbd. This implies a drop from the current 9.1 million b/d to 8.8 million b/d by May for then to rise back up to 9 million b/d by year end.

For imports we assume an increase of 0.2 million b/d as the US domestic production falls and some arbs are opening up for light sweet crudes on a regular basis. We keep exports flat at 0.5 million b/d which is the average for 2015 so far.

With the above assumptions we will see a crude stock drawdown starting in March at 490 million barrels and drawing to 390 million barrels by late September. This drawdown of 100 million barrels (0.6 million b/d in that period) is not at all expected and priced in by the market in our opinion.

Now you might argue that this drawdown in crude stocks will not happen because if it happens then US crude imports will rise to much higher levels, because then WTI may end up with a premium to Brent, and then the stock draw will not be that large. Yes that is probably correct, but if the reason for the stock drawdown not to happen is an increase in imports it would nonetheless be bullish for Brent. This is because it would mean that light sweet barrels are soaked away from the Atlantic basin and into the US GOM again and that should be bullish for both West African grades and hence also for Brent.

# Trouble In The Saudi Royal Family

- Non-negligible risk for a Saudi palace coup

We have in prior oil market reports referred to Stig Stenslie, who is Assistant Director General and Head of Asia Division of the Norwegian Defence Staff. The most interesting thing with Stig for someone doing oil market analysis is that he holds a doctorate on royal family politics in Saudi Arabia. Stig has closely followed the Saudi royal family for the past 15 years to monitor regime stability and is now telling us that he is for the first time worried about stability in the regime. This has mainly to do with the fact that the current King Salman has behaved a bit like King Saud who was thrown out of office in a palace coup in 1964. He has gathered too much power under his own sphere, particularly there is growing discontent with the King's son Muhammad bin Salman, who was named deputy crown prince in April this year. Bin Salman is only 29 years old but has nonetheless been appointed to both Defence Minister (the youngest in the world) and to Head of the Economic Council, who sets economic policy (also the oil policy).

Many princes in the Saudi royal family is feeling bypassed and there seems to be a growing dissatisfaction with how the new defence minister is handling the war in Yemen and the weakening Saudi economy. Sources close to the Royal Household in Riyadh confirms that there is a very strained relationship and a lot of mistrust between the new crown prince (bin Nayef, Head of the Interior Ministry) and the young deputy crown prince. Traditionally the internal standing in Saudi Arabia should be connected to age and achievements and hence King Salman has broken important unwritten rules by promoting his 29-year old son to the most important positions in the country on the expense of the more experienced princes. There is considerable attention from the Saudi population related to the difficult relationship between the new crown prince and the new deputy crown prince. There is even rumours on Twitter that the crown prince has increased the security measures recently in order to protect himself and his family and he is said to currently spend most of his time on a highly guarded palace on an island in the Red Sea.

According to Stig Stenslie it is highly unlikely that the crown prince will become king and the deputy crown prince will become the crown prince if King Salman dies. The deputy crown prince is aware of this and is trying to outmanoeuvre the crown prince through blaming him for the accident in Mina where 769 pilgrims lost their lives. Probably in an effort to get his father to appoint him crown prince before he dies. If King Salman dies while his son (bin Salman) is still deputy crown prince, he will most likely be pushed to the side as bin Nayef (the current crown prince) is then set to appoint another crown prince as he himself becomes the new king. If bin-Salman succeeds in persuading his father to appoint him as the new crown prince, the scene is set for big trouble in the Saudi royal family. The unity in the Saudi royal family would in such a case be severely tested as the King would meet very strong resistance from many princes inside the family, also inside his own Sudairy clan. It is not unthinkable that military force can be used between fractions of the family in order to secure positions. In the palace coup in 1964 where King Saud was replaced with King Faisal, the use of military force was barely avoided.

Since the current King Salman is in bad health and is about 80 years old, we could be in for some serious instability in Saudi Arabia during the next couple of years. This could easily have a big impact on the oil market and send prices higher. Hence these factors are important to be aware of for anyone exposed to the oil market.

# Bearish Arguments – Still Over Supplied Liquids Balance In 2016

- The key bearish arguments for 2016 is a still over supplied balance, Iran returning to the market, record high stock levels

It is not like bearish argument does not exist and we are not trying to hide them. At any point in time there exist both bullish and bearish arguments and the trick is to evaluate them correctly and weigh the arguments correctly. We have tried to do that in our score card on page 5. The most difficult part is not necessarily to be correct on supply vs demand in the oil market. It is more difficult to interpret what is the next one or two factors that will get the attention in the oil market and hence decide the market sentiment. The bearish factors have trumped the bullish factors since July, as we have already described. The market focus has been on Iran returning and weaker economic growth in China and other key oil demand countries, without having in fact seen too much of the weaker demand in the oil data. Reports from influential analysts have argued that commercial storage capacity may run totally full and that prices will then fall into the 20's in order to shut in existing non-OPEC output with the highest lifting costs.

We believe the focus will start shifting once the market realize that we will not run full on commercial oil storage in 2016. Even though we still calculate an over supplied global liquids balance for 2016 of 0.9 million b/d (down from 1.9 million b/d in 2015), we believe commercial stocks will not run full. Infrastructure expansions are still going on in the non-OECD (pipelines, terminals, refineries, etc) and SPR filling will also continue in countries like India and China. According to a WoodMac report Asia is expected to add around 280 million barrels of storage capacity between 2015 and 2017 where 185 million barrels are SPR expansions in China and India. According to IEA's monthly oil market report from September China has 151 million barrels of SPR sites under filling or under construction. The above means that the commercial oil market will not have to handle all the over supply in 2016 and by 2017 the oil market is into balance, even assuming demand growth drops to 1.1 million b/d from 1.7 million b/d in 2015. In addition to the above, a large chunk of the over supplied balance for 2016 will probably be outside the crude oil balance in the form of NGLs/refined products and not crude.

It is also worth mentioning that the Chinese Ministry of Commerce has just increased the crude import quota for independent non-state-operated Chinese refiners for 2016 from 37.3 million tonnes (about 0.7 million b/d) to 87.6 million tonnes (about 1.7 million b/d). Many of these refineries have traditionally imported straight run resid fuel as feedstock instead of crude, so this new crude quote will probably increase Chinese crude oil imports for 2016 no matter what happens to domestic Chinese oil demand growth. The negative impact on the market will of course be more resid fuel available for others in the region and also increased exports of refined products from China, which will hurt the weakest Asian refiners and hence lead to lower crude demand from their side.

So the key bearish argument for 2016 is that the total liquids market will still be over supplied and we are starting 2016 with record high global oil inventories. The key counter argument from the bullish side is that global oil inventories should increase every year as long as non-OECD keeps expanding infrastructure (both commercial and SPR) and that if the market is not running out of commercial storage space, the oil price can still increase if the market focus is shifting. We saw that playing out in 1H-2009 when oil prices increased a lot from January and until July, despite the market being over supplied and despite OECD stocks building 68 million barrels during 1H-2009.

# Bearish Arguments – No Change From Saudi As Iran Returns

- The key bearish arguments for 2016 is a still over supplied balance, Iran returning to the market, record high stock levels

In addition to a still over supplied global liquids balance it is of course bearish that OPEC does not look set to change their output policy in the December 4 meeting. The change in Saudi policy was one of the key reasons why we held the most bearish view to oil prices in the surveys one year ago. We were early to identify 1986 as the relevant comparison since this downturn is a supply led downturn and not a demand led downturn. Hence it made no sense to us that Saudi would defend oil prices this time, since the kingdom always has seen the 1980-86 cut period as a mistake. We do not foresee a change in the Saudi tactics in the December 4 OPEC meeting since there are very visible signs that the policy is working, first and foremost through the large global CAPEX cuts hitting shale, deepwater and Canadian oil sands.

It is also important to emphasize that we are still in a situation where there will be no contributions to a potential OPEC production cut from other than Saudi/UAE/Kuwait. Iran, Iraq and Libya is of course totally out of the picture to contribute, and how can Venezuela, Nigeria and the other OPEC countries cut back output voluntarily when their domestic economies needs the exports revenues? Since there is no sanctions on any OPEC country that does not follow the potential new quota, how can Venezuela trust that Nigeria is cutting any output?? The risk would be that Venezuela cuts and it is too small to affect the price and then revenues are falling as the exports volume is reduced. OPEC behaviour is still a lot of game theory... To us this means that the only way we could see an OPEC cut in the December meeting would be that Russia contributes to cutting production. We do not see this as very likely, noting the statements from for example the Russian Deputy Energy Minister in October where he said that Russian oil wells are mostly located in harsh climate in Siberia which means the wells will not be easy to restart after having been shut down and there is no storage capacity for the crude Russia would otherwise have exported.

On October 21 OPEC and some non-OPEC countries held a meeting with technical experts to discuss the oil market but the meeting gathered no interest from non-OPEC countries to contribute to any production cuts. Venezuela has proposed to reapply a new price band for OPEC where production should be reduced when the price is below a 70 \$/b threshold but has seen little traction so far on this idea. The response from the Saudi "pump-king" Al-naimi was that "only the market can decide on prices, no one else", so it does not look promising for Venezuela which will just have to tighten their belts.

For OPEC it just makes it even more difficult that Iran is set to return to the market in 2016. IAEA must verify that Iran has implemented the nuclear agreement before sanctions can be removed. Iran must reduce the number of centrifuges from 9.500 to 5.060, move installed non-operating centrifuges into storage, dilute stock pile of low-enriched uranium from 10.000 kg to 300 kg, remove the core Arak heavy water reactor and establish verification systems across the supply chain. Iran's supreme leader has stated that the process at Arak will not begin until the IAEA completes its investigation on past nuclear weapons work and that report is not due until December 15. We have hence factored in that the sanctions are not removed until the second quarter of 2016 in our global supply/demand balance.

# Bearish Arguments – Demand Growth Weaker At Higher Prices

- The key bearish arguments for 2016 is a still over supplied balance, Iran returning to the market, record high stock levels

Global oil demand growth has been very strong in 2015. The key swing factor has not surprisingly come from the OECD countries. The IEA was very slow to see this coming. We already carried 0.4 million b/d stronger global oil demand growth for 2016 in our global supply/demand balance in January than what the IEA then factored in. The key reason was that we forecasted OECD demand responding to the lower oil prices. We forecasted that OECD demand which fell 0.5 million b/d in 2014 (that was the IEA-numbers reported then) would swing to a growth of 0.3 million b/d. That is a 0.8 million b/d net improvement. The IEA had at the same time factored into their forecast only a 0.5 million b/d improvement in OECD demand growth for 2016 as the agency forecasted that OECD demand would be flat in 2015. We always thought this was a strange forecast from the IEA since the agency had already seen Brent prices falling below 50 \$/b in January. Why would not such a low oil price stimulate demand in regions where the consumers actually see the lower price at the pumps. Particularly the US should see a stronger market we argued.

In the latest IEA monthly oil market report the agency report OECD oil demand growth to have been 678 kbd year to date. 495 kbd of this growth has happened in the US, representing an improvement of 348 kbd from 2014. For OECD Europe the swing is even larger as the year to date oil demand growth is now reported at 286 kbd, while in 2014 demand fell 216 kbd. The OECD Europe swing is hence a large 0.5 million b/d. For non-OECD we have also seen the effect of lower prices as also consumers in these regions have been allowed to see lower prices at the pumps. IEA currently report that year to date Chinese liquids demand from China is up 618 kbd, while the growth in 2014 was 347 kbd. For India, the growth in 2015 is so far 164 kbd while it was only 73 kbd last year. The situation is however different for the OPEC countries where demand growth is naturally lower this year (Saudi down 42% and Iran demand down) and for FSU and the Mediterranean countries demand growth has almost disappeared this year from a growth of 262 kbd last year.

We believe that global oil demand growth will be weaker next year as oil prices are forecasted higher. The deflationary price stimulus effect will hence disappear and we are only left with the level-effect. For countries like the US, the price change looks to be much more important than the price level. We would hence expect only half the demand growth from the US next year and we have also factored in weaker demand growth from OECD Europe, even though currency effects and tax on the pumps are protecting the Europeans from very large price swings at the pumps. For China we assume that the over supplied diesel market will keep net oil demand growth much weaker in 2016 than what we have seen this year as we expect gasoline demand growth to continue but diesel demand to continue to stall.

Headwind for oil demand growth will also be coming from several non-OECD countries who has left petroleum subsidies since last year. These are countries like India, Indonesia, Thailand, Malaysia and also this summer the UAE. The oil market has so far not been able to test how for example an Indian diesel consumer will respond if the diesel price at the pumps suddenly jump 15-20%, because the last time oil prices increased that much, the Indian state budget took that burden instead of the consumer.

# Bullish Arguments

- Large increase in the Call on OPEC for the next two years
- Large cuts in global oil investments and even larger cuts in US shale oil companies
- Rig count in the US has collapsed and activity will have to be kept low to reach CAPEX guiding
- The weakest US shale oil companies will struggle to get access to capital and price hedges are running out
- YoY US liquids production growth of 1.6 mbd from 2014 will turn negative by Q1-2016
- Decline rates set to accelerate already into 2016
- Demand is performing very strongly in US, China and India on lower prices
- Americans driving more and buying more gasoline thirsty vehicles again
- 60 \$/b vs 110 \$/b is worth almost 1700 billion USD to the global oil importers – Supports better global GDP-growth
- Geopolitical risk in OPEC countries is increasing at low oil prices (and remember we are coming from average 110 \$/b)
  - Key risk is Venezuela, Iraq, Nigeria, Brazil (strike)
- OPEC real spare capacity is only about 2% (maybe in reality even lower) compared to 17% in the middle of the 1980's
- The market is set to price in better fundamentals before better fundamentals actually materialize
- The global crude oil supply-demand balance is not as over supplied as the total liquids balance

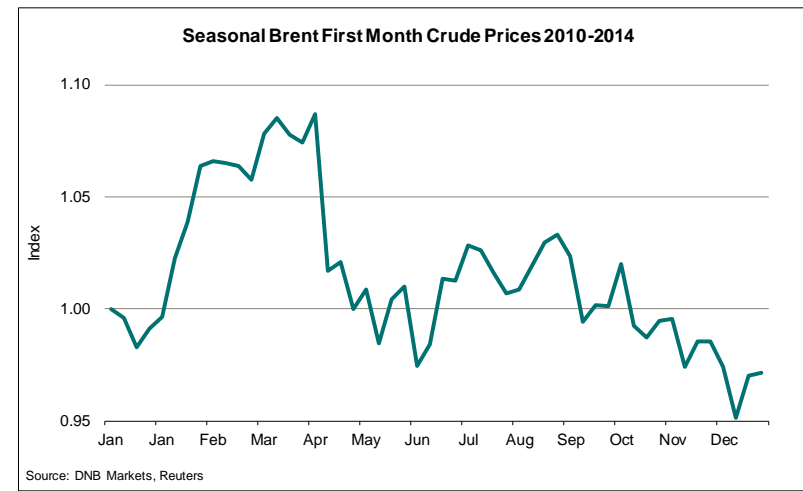
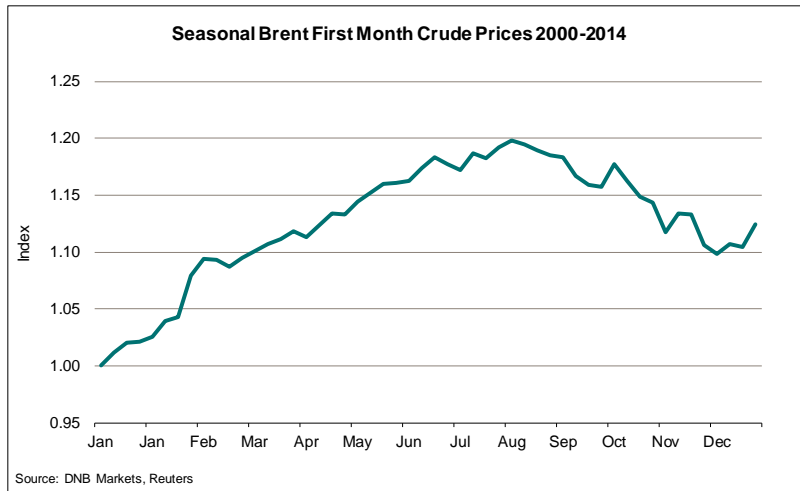
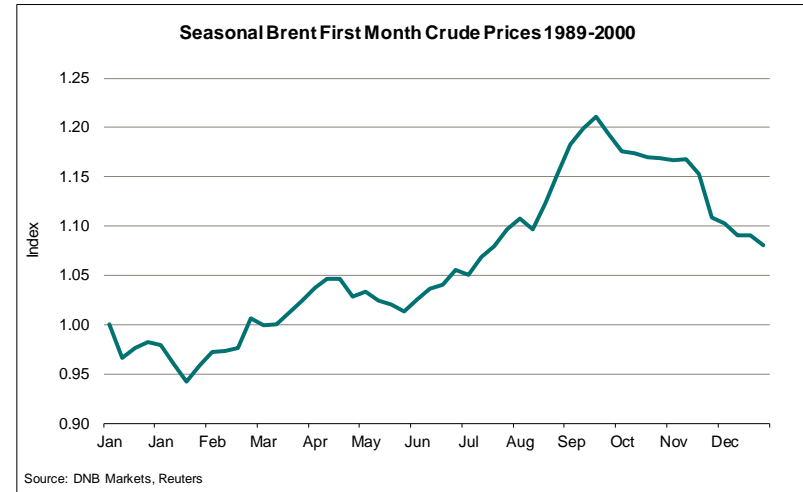
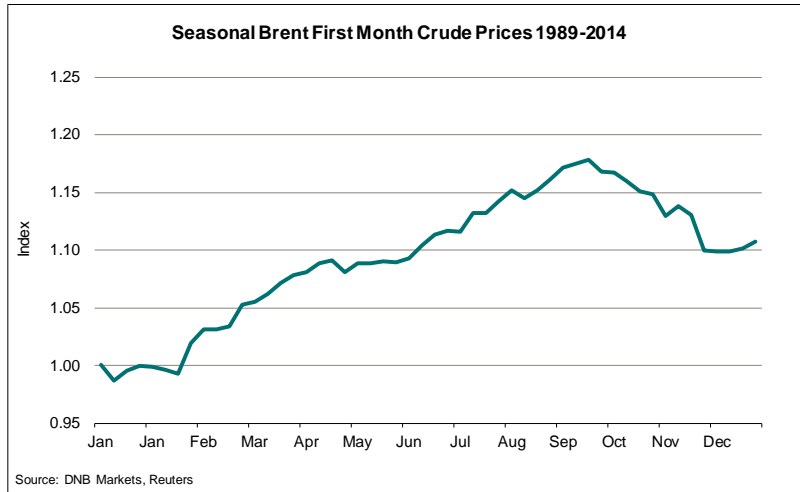
# Bearish Arguments

- Massively over supplied supply/demand-balance in 2015, and also in 2016 (Less over supply however)
- Global oil stocks are already high and continue to build
- Watch refinery margins in 2016 as gasoil stocks are very high while demand is growing for gasoline and not distillates
- Shale oil resource base looking to be much larger than most people though just a few years ago
  - Shale oil production has only surprised to the upside so far (also been more robust than what consensus thought)
- Delayed response from drop in rig count to drop in production – High grading of acreage – Productivity improvements
- Financially distressed US shale oil producers are only behind 3% of the US shale oil output
- Global demand growth last ten years protected by subsidies – What now when subsidies are removed in many EM?  
UEA in August was the first Middle East OPEC member to remove petroleum subsidies
- Saudi Arabia not set to protect a high price – targeting market share instead (no change in policy since 27 Nov 2014)
- Costs in the global oil industry set to drop significantly – Slack in the service industry as CAPEX is cut
  - The marginal 2-3 million b/d most expensive barrels are set to be cheaper = lower oil price required
- Libya is already out of the market and cannot get much worse – You cannot lose what you don't have
- Iran returning to the market
  - 2016 YoY growth of 370 kbd with a gradual ramp up to 3.6 mbd by Q3-2016



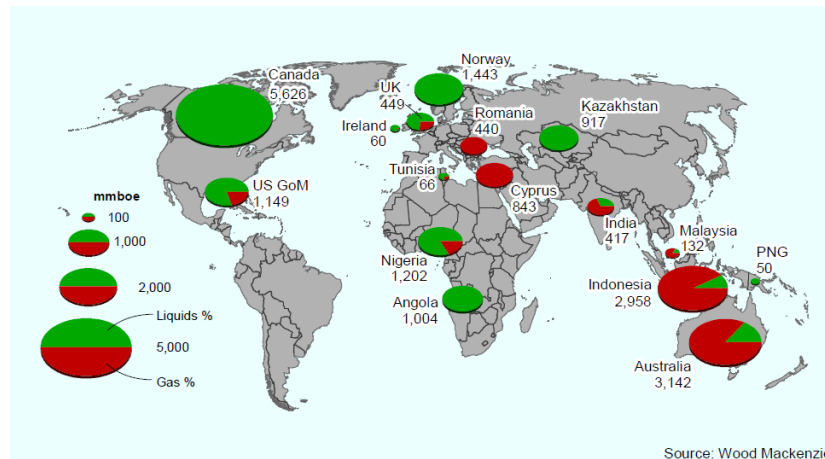
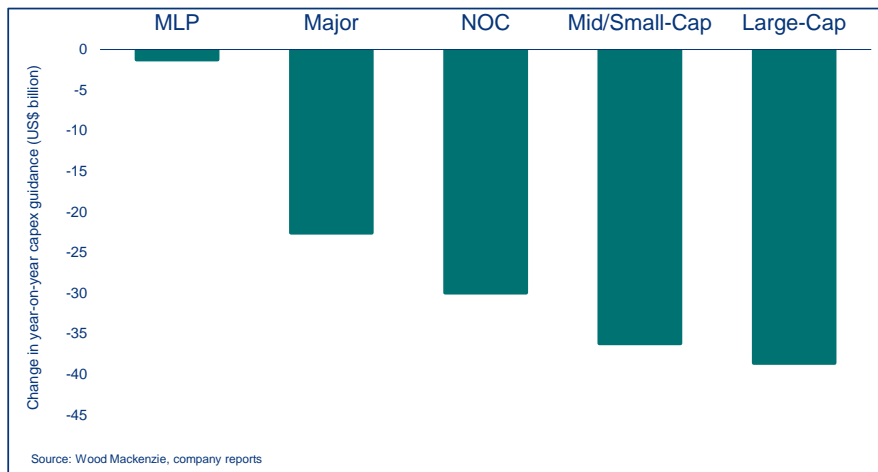
# Historical Seasonal Crude Price Development

- There is no statistically significant seasonality in crude prices but on average the development is strongest in Q2



# Enormous Cuts In Global Oil Investments

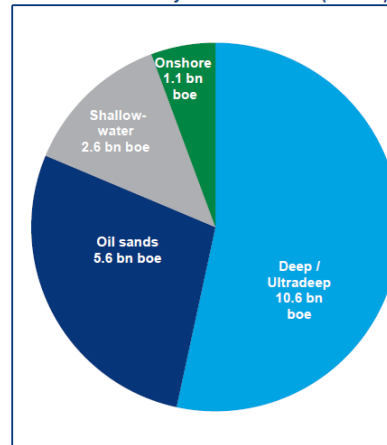
- This sets the stage for lower production/lower production growth in the future



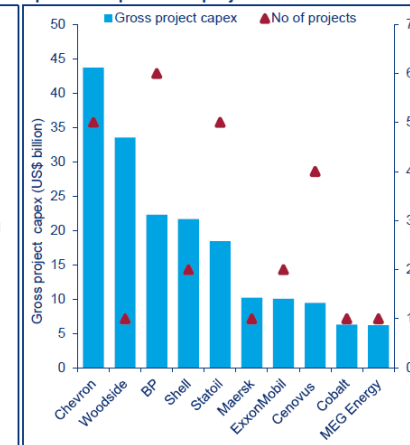
Peer group	2014 upstream E&D capex (US \$m)	2015 upstream E&D capex (US \$m)	y-o-y change in upstream E&D capex (US \$m)	y-o-y change in upstream E&D capex (%)
MLP	2,025	780	- 1,245	-61%
Major	190,256	167,680	- 22,576	-12%
NOC	109,778	79,819	- 29,959	-27%
Mid/Small-Cap	96,235	60,027	- 36,208	-38%
Large-Cap	119,398	80,767	- 38,631	-32%
	<b>517,692</b>	<b>389,073</b>	<b>- 128,619</b>	<b>-25%</b>

Source: Wood Mackenzie, company announcements

Deferred reserves by resource theme (bn boe)



Operator exposure to projects



Shell's decision to axe a Canadian project shows extent of the downturn [ft.com](http://ft.com) > [companies](#) > [energy](#) >

Unusually – and in contrast to the \$200bn-plus of future spending shelved by energy companies since last year's crude price collapse – work on Carmon Creek was well under way. This was no flight of fancy. Shell had already taken the decision to invest: it was clearing the site, procuring major equipment, building accommodation for staff, and starting work on wells.

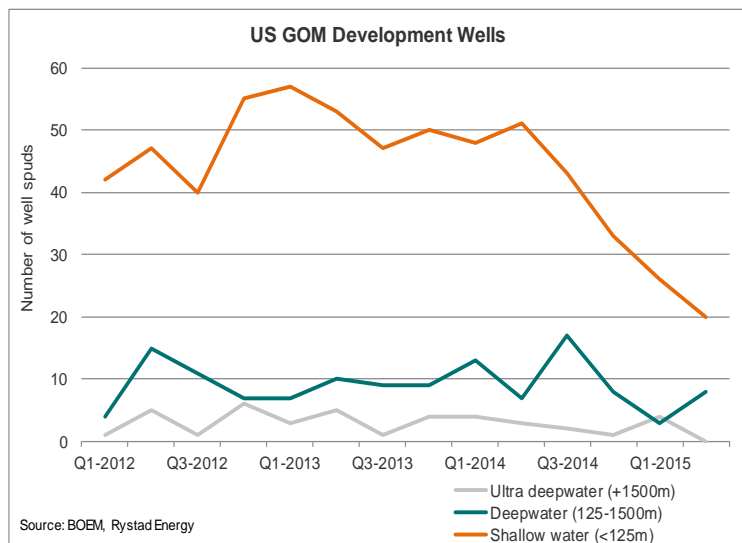
## ConocoPhillips to exit deepwater exploration by 2017

Oct 29 2015, 15:25 ET | About: ConocoPhillips (COP) | By: Carl Surran, SA News Editor

MARKETS

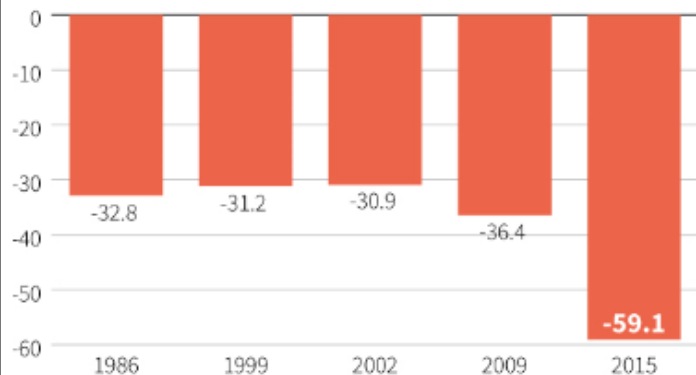
# Some Key Data Suggest Field Decline Will Accelerate

- US GOM shallow water development drilling down 50%

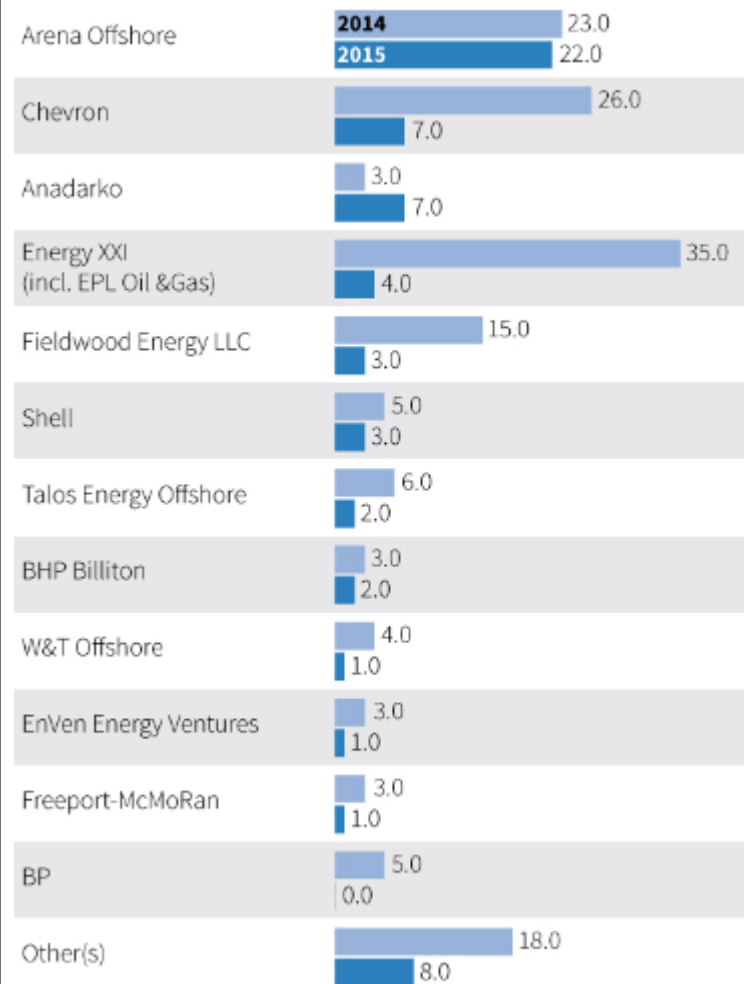


## Infill drilling decline

Year-on-year change in infill drilling  
January to July, percent



Gulf of Mexico infill drilling change by operator  
January to July, percent



Source: Rystad Energy

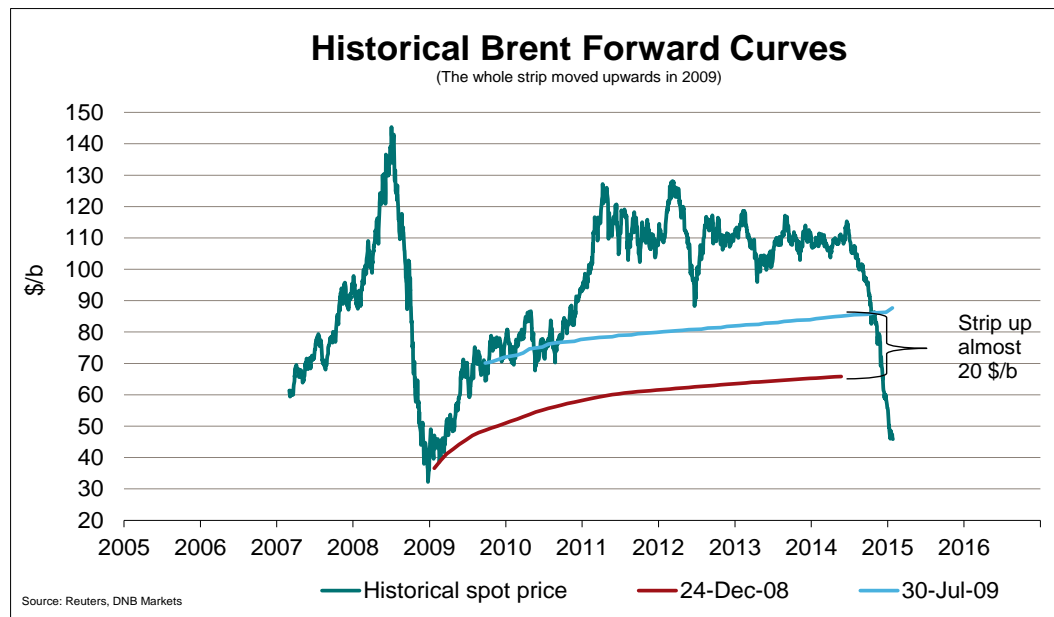
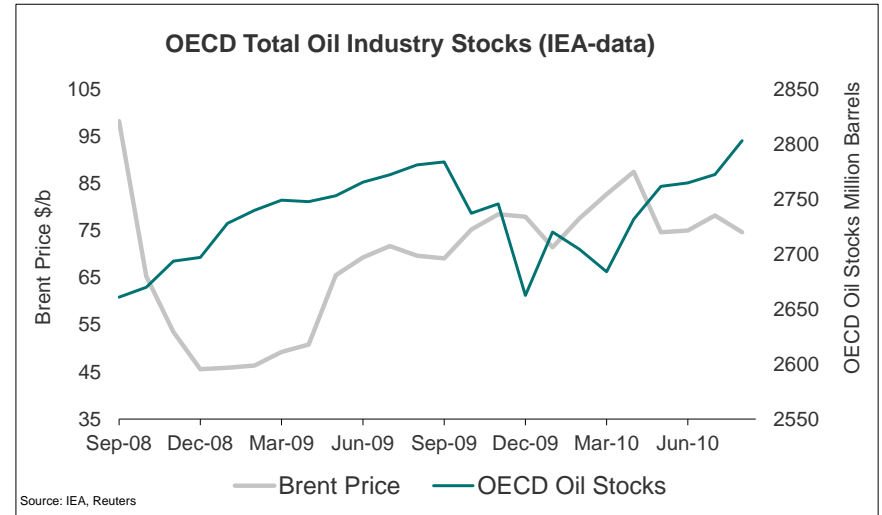
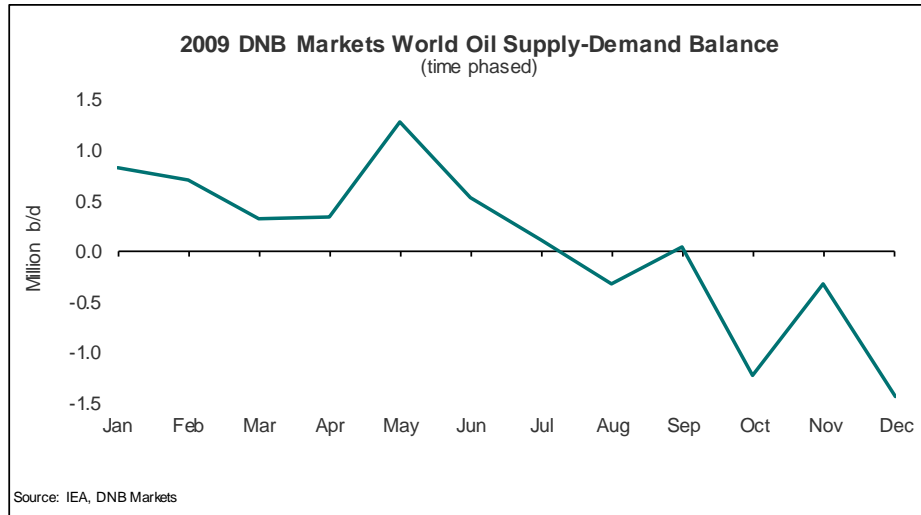
V. Flasseur, 09/10/2015

REUTERS

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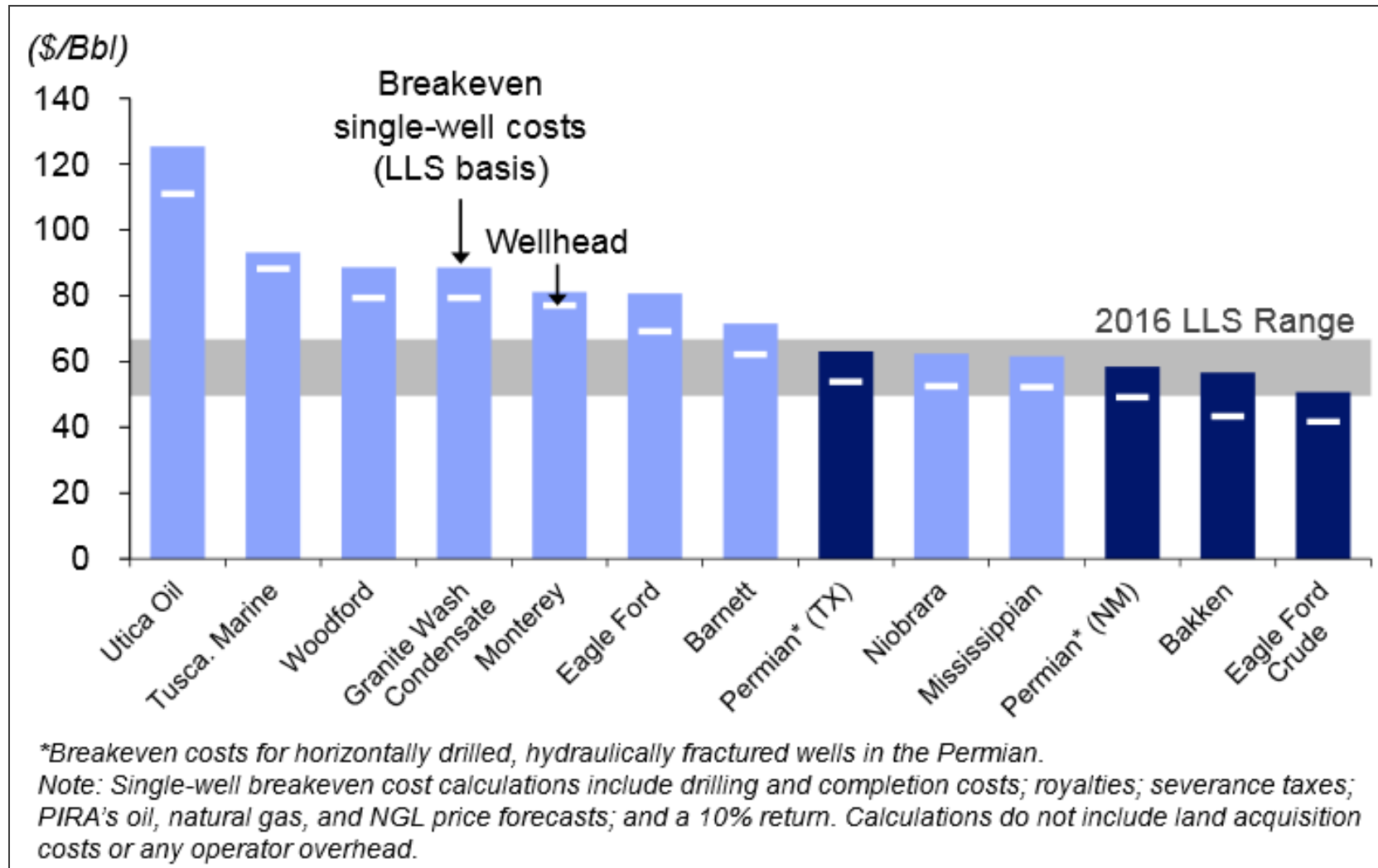
# Prices Can Recover Before The Supply-Demand Balance

- 2009 is a good example – Oversupplied through the first half but prices rising from 45 \$/b to 70 \$/b from January to July



# Break Even Costs US Shale Areas

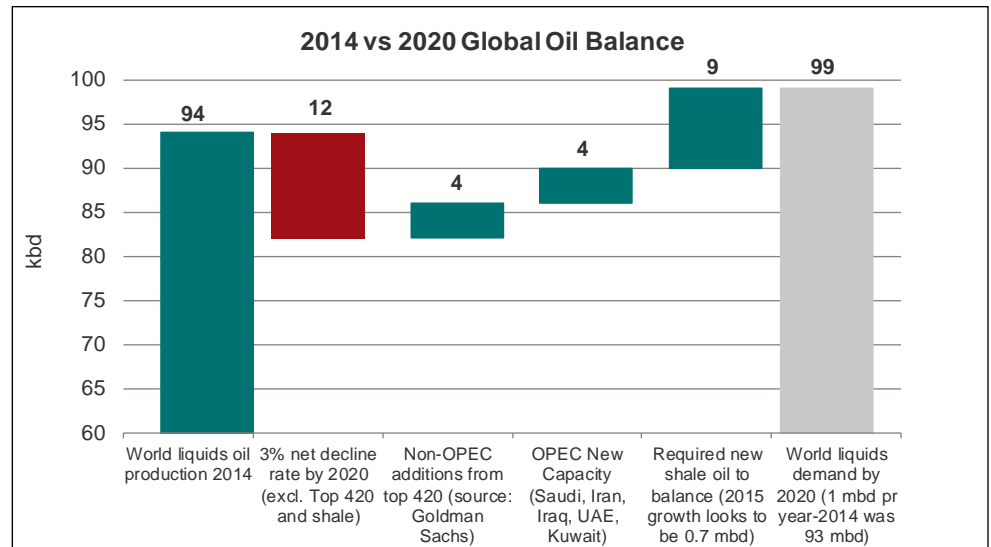
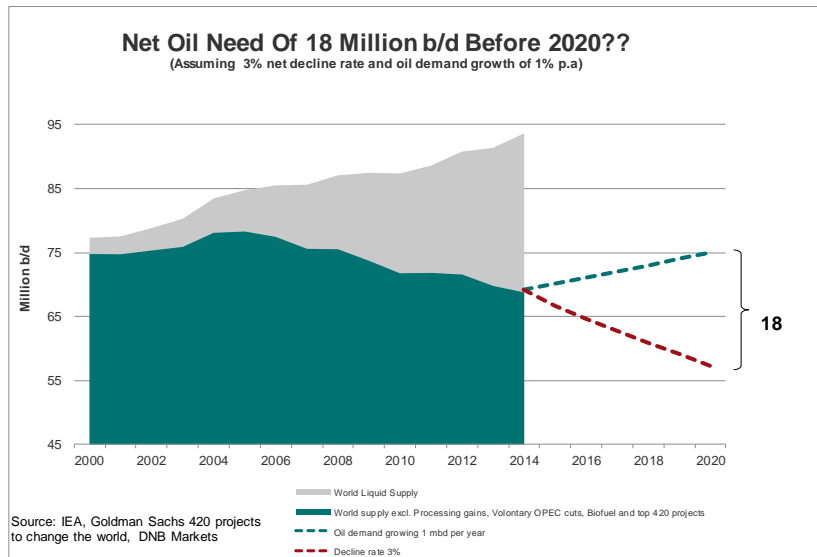
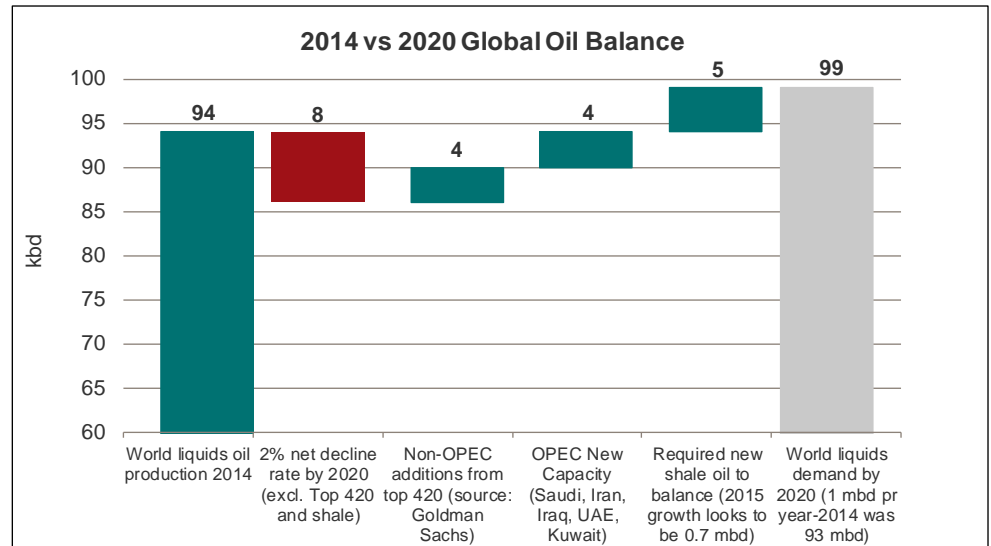
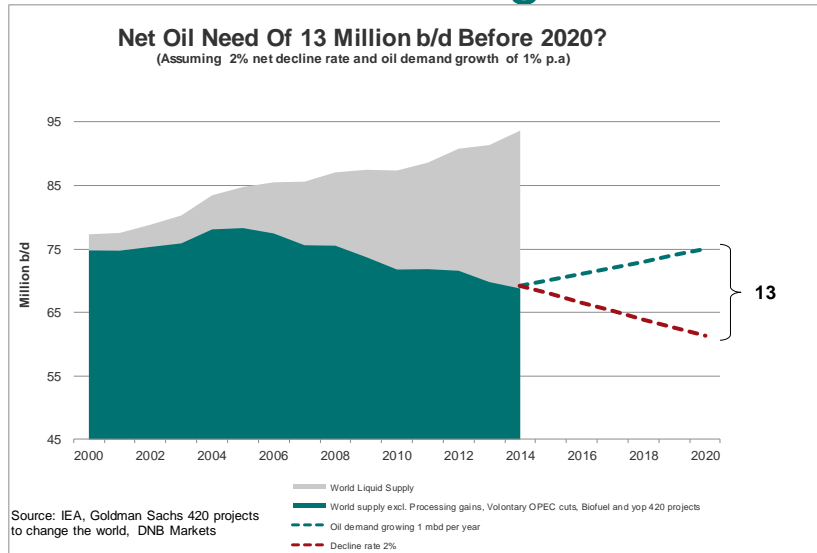
(Estimates from October 2015 by PIRA Energy)



Source: PIRA Energy

MARKETS

# How Will The Huge CAPEX-cuts Affect Decline Rates?



Source: IEA, DNB Markets, Goldman Sachs Oil Gauge October 14 - 2015

MARKETS

# OPEC Project Startups 2014-2020

- 5 million b/d in estimated OPEC startups from 2014-2020, but all will not go according to plan of course

OPEC Projects		Peak production	Startup year
Algeria	Bir Seba	20	2014
Angola	CLOV (Block 17)	160	2014
Iran	Yaran	12	2014
Iraq	Badra	170	2014
Iraq	West Qurna 1	150	2014
Iraq	West Qurna 2	120	2014
Saudi Arabia	Manifa 2	400	2014
UAE	Bab CO2 injection	75	2014
UAE	Umm al Lulu	105	2014
UAE	Upper Zakum expansion	200	2014
Iran	South Pars 12 (condensate)	75	2014
Iran	South Pars 12 (NGLs)	30	2014
Saudi Arabia	Shaybah NGL	240	2014
Saudi Arabia	Hasbah (Wasit) condensate	30	2014
Angola	Mafumeira Sul	110	2015
Angola	Cinguvu/Nzanza	20	2015
Angola	Lianzi	23	2015
Angola	Sangos/N'Goma	40	2015
Angola	Mafumeira Sul Phase 2 NGL	10	2015
Iran	Kharg NGL	20	2015
UAE	Nasr	65	2015
UAE	Shah Sour Gas (NGL)	25	2015
UAE	Shah Sour Gas (condensate)	25	2015
Qatar	Barzan (condensate)	50	2015
Angola	Cabaca Norte-1 (Block 15)	40	2016
Angola	Cabaca SE	40	2016
Iran	Azedegan 2 North	75	2016
Nigeria	Erha North 2	50	2016
Nigeria	Bonga NW	45	2016
Nigeria	Etim/Asasa	60	2016
Saudi Arabia	Shaybah Expansion	250	2016
Venezuela	Carabobo 3	100	2016
Angola	Kaombo	200	2017
Angola	Mostrado, Cola, Salsa, Manjericao	80	2017
Ecuador	Pungarayacu-Phase 1	30	2017
Ecuador	ITT	160	2017
Iran	South Pars	35	2017
Nigeria	Zabazaba/Etan	120	2017
Nigeria	Gbaran/Ubie (NGL)	20	2017
Saudi Arabia	Khurais expansion	300	2017
Venezuela	Petro Victoria (Rosneft)	200	2017
Angola	Chissonga	100	2018
Kuwait	Ratqa	60	2018
Nigeria	Bonga SW&Aparo	225	2018
Iran	South Pars 15-16 (condensate)	80	2018
Iran	South Pars 15-15 (NGLs)	28	2018
Angola	Malange	50	2019
Ecuador	Pungarayacu phase 2	30	2019
Iran	Bahregansar	65	2019
Nigeria	Uge	80	2019
UAE	Satah al Razboot (SARB)	100	2019
Nigeria	Egina	200	2020
<b>Total OPEC liquids 2014-2020:</b>		<b>4998</b>	

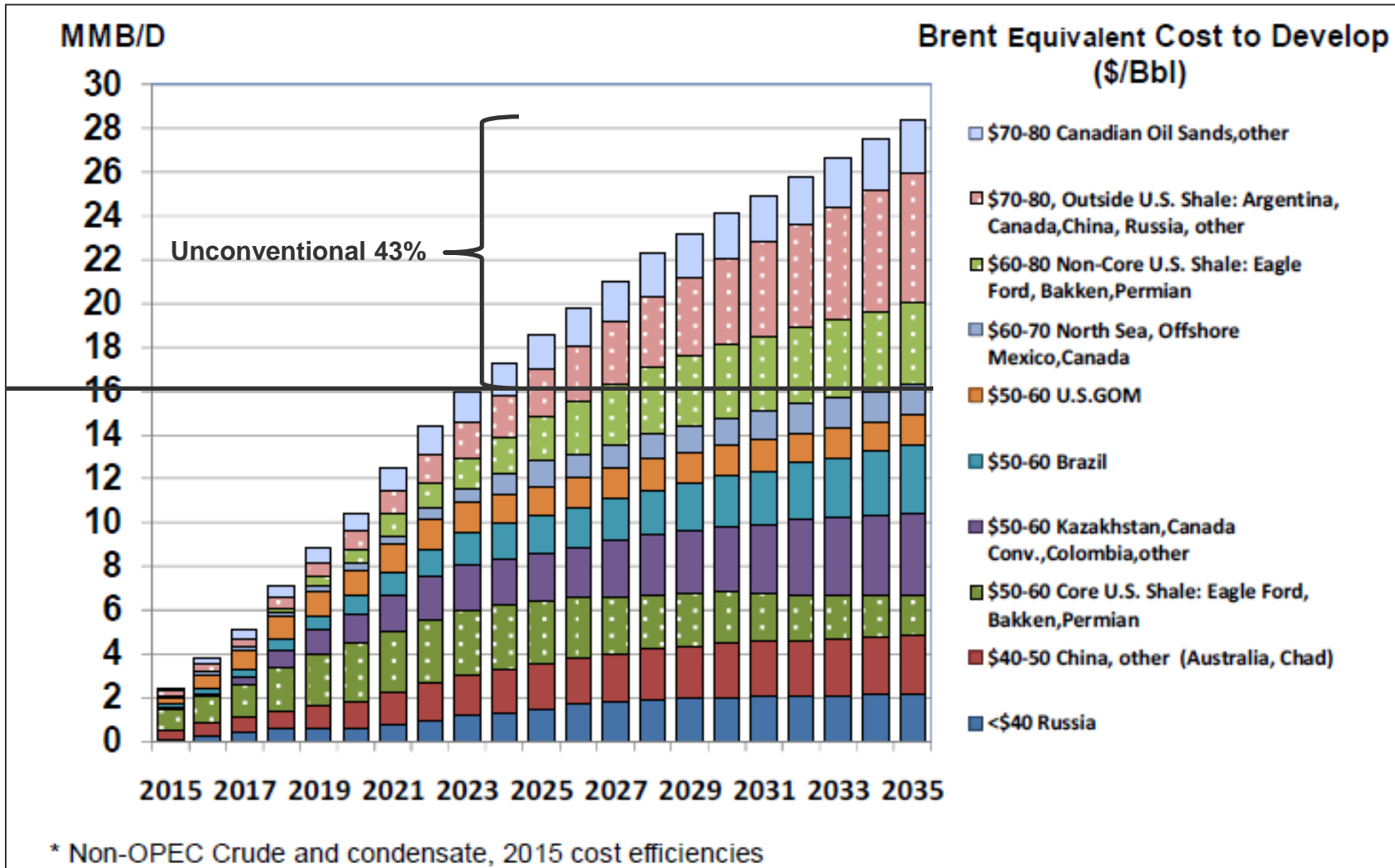
	Total	Crude	NGL/Condensate
<b>Saudi Arabia</b>		1220	950
<b>Iran</b>		420	187
<b>Iraq</b>		440	440
<b>UAE</b>		595	545
<b>Kuwait</b>		60	60
			270
			233
			0
			50
			0

Source: IEA Medium Term Oil Market Reports

MARKETS

# 60-80 \$/b Required To Develop Unconventional Oil Resources

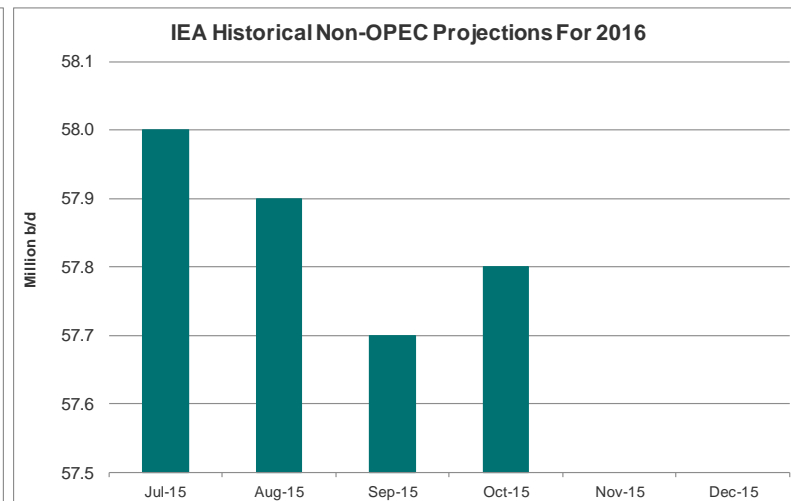
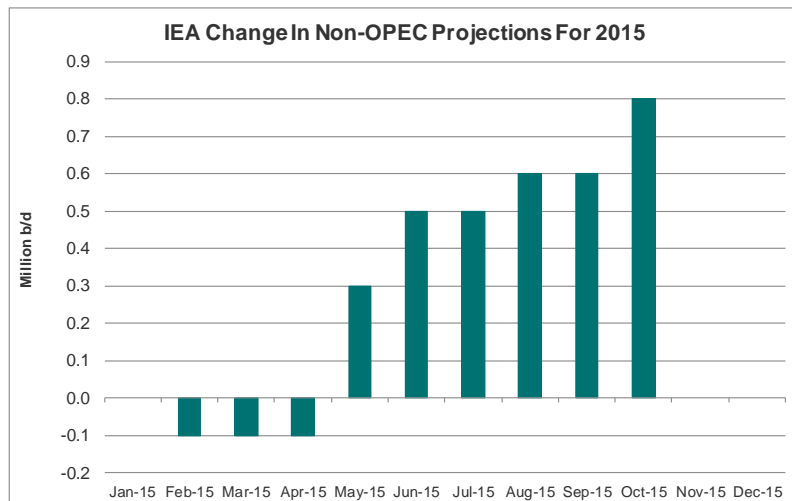
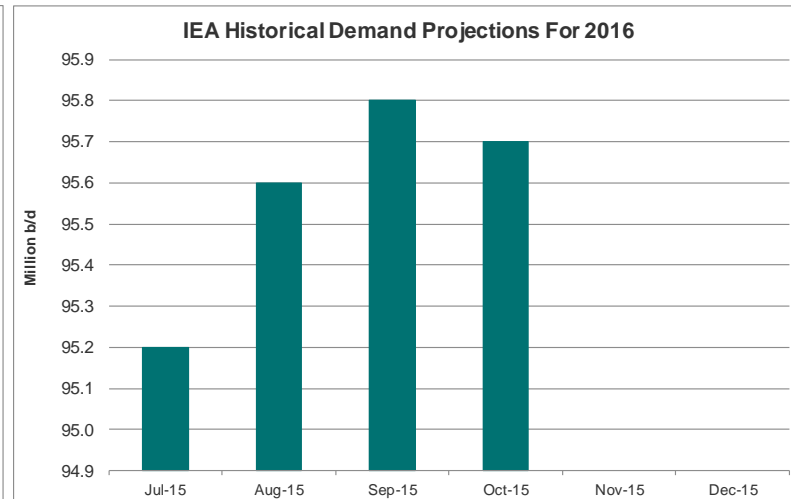
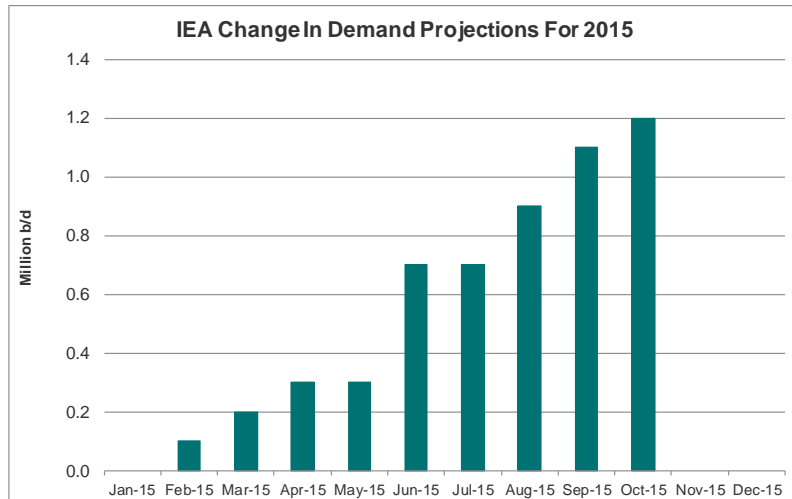
- Source: PIRA Energy





# Very Bullish Revisions To The Data Since This Summer

- 2016 balances: Demand revised up by 0.5 mbd while non-OPEC supply revised down 0.2 mbd since July
- In July the Brent price for Dec 2016 was 66 \$/b, now it is 59 \$/b?? (Fundamentals looking better but prices down...???)

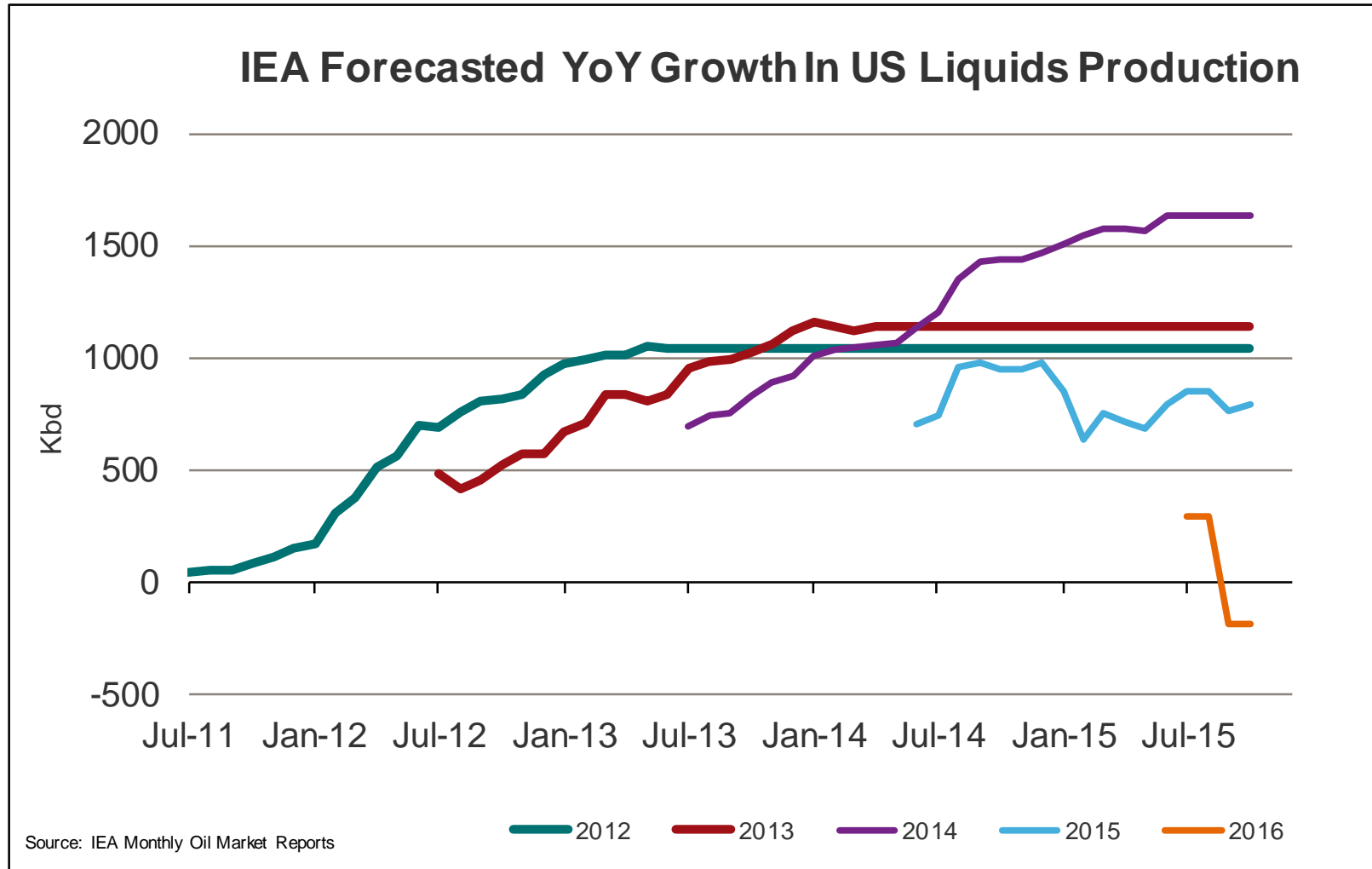


Source: IEA

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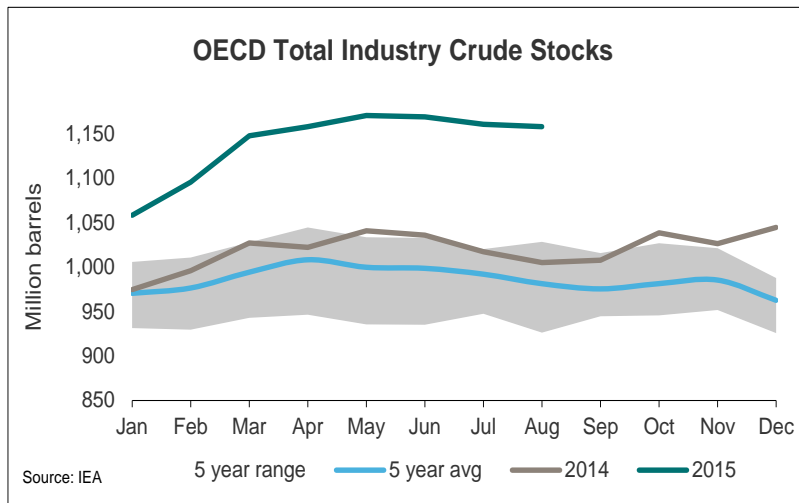
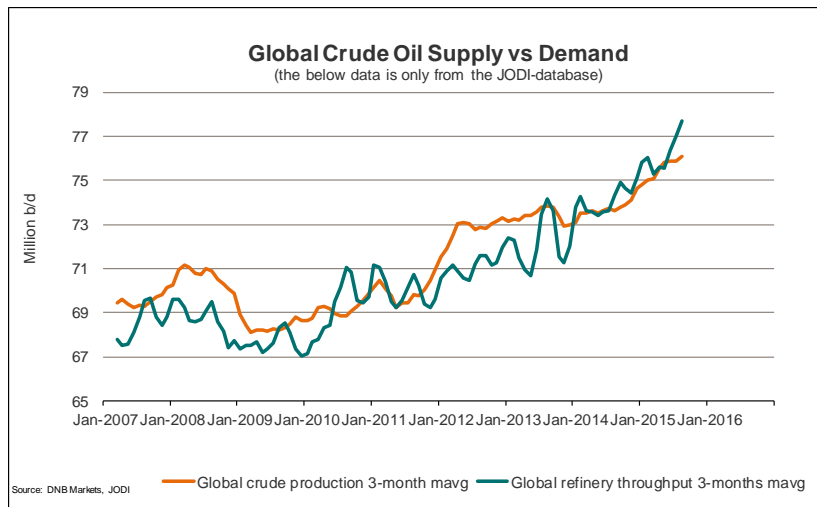
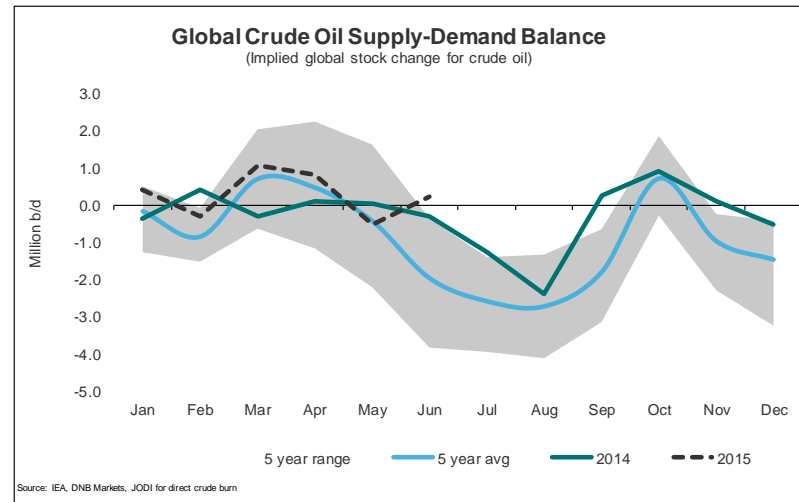
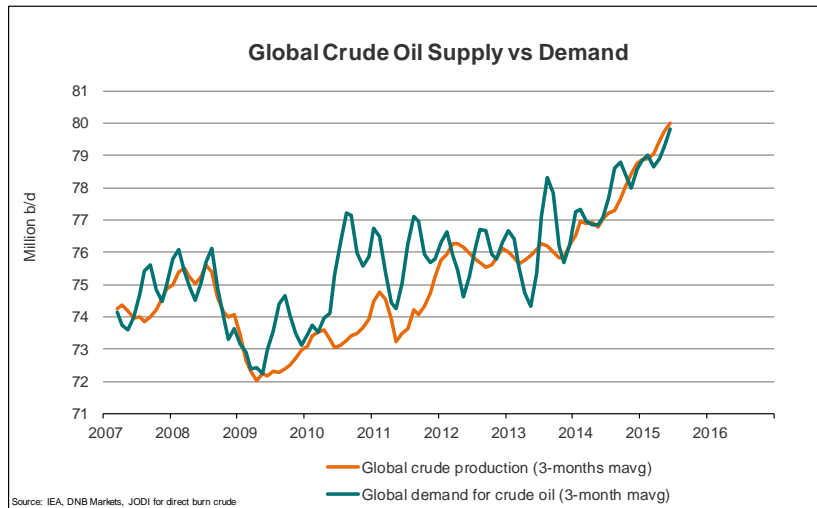
# IEA's Forecasts For US Production Growth Far Too Low

- IEA's first take on 2012 US production growth was at 45 kbd - now 2012 growth is estimated to have been 1.04 million b/d
- For 2013 the forecasted growth was 479 kbd, now the number is revised up to 1.14 million b/d
- For 2014 the initial estimate was 690 kbd, now the estimate is revised up to 1.63 million b/d



# No Over Supply In The Global Crude Oil Balance

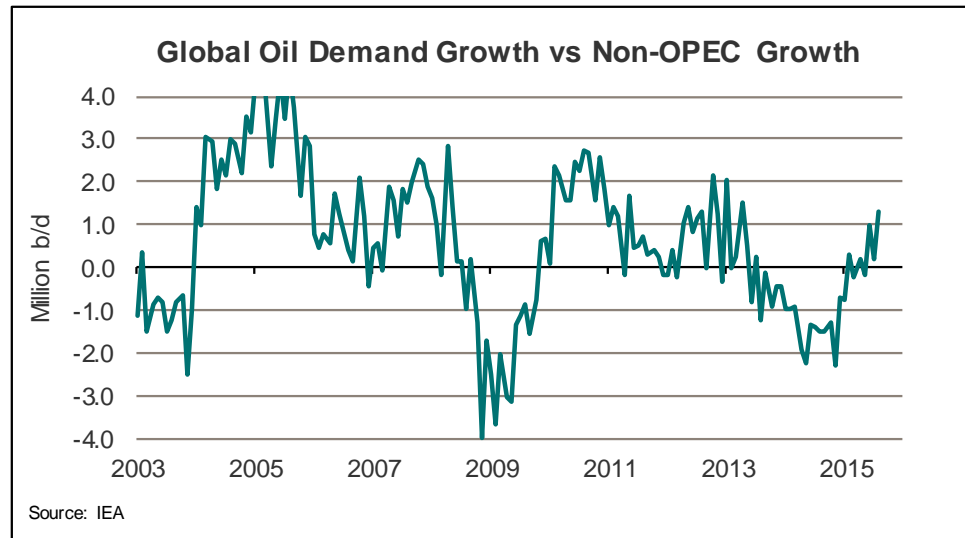
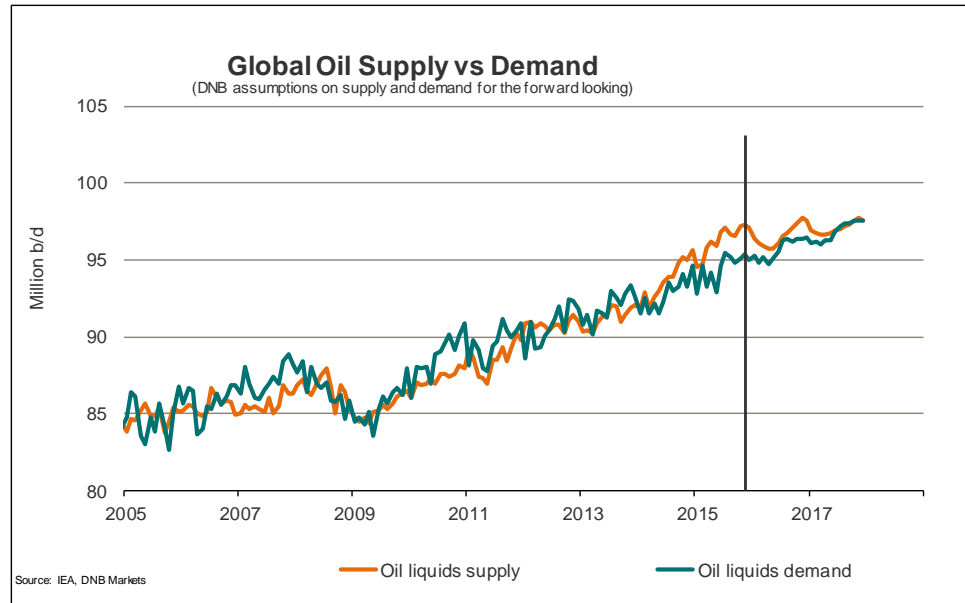
- If we include direct burn from the JODI-database (mainly Saudi/Japan/Iraq) the crude market is fairly balanced



# The Market Needs Weaker Growth In Non-OPEC

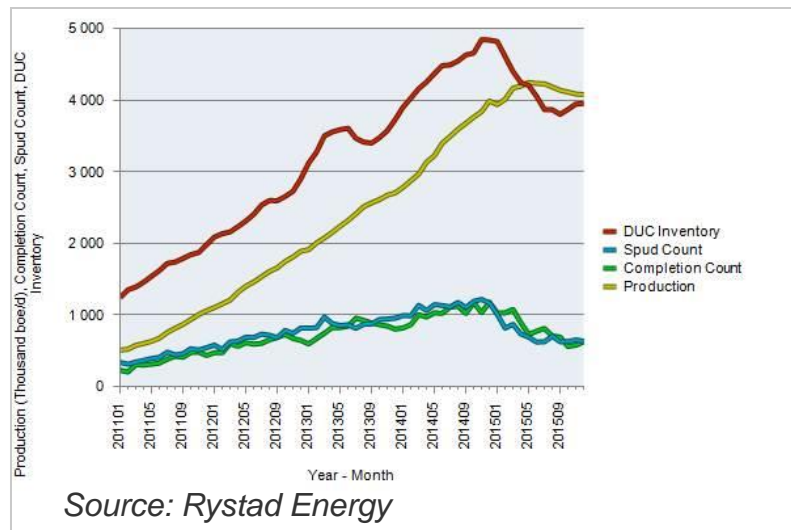
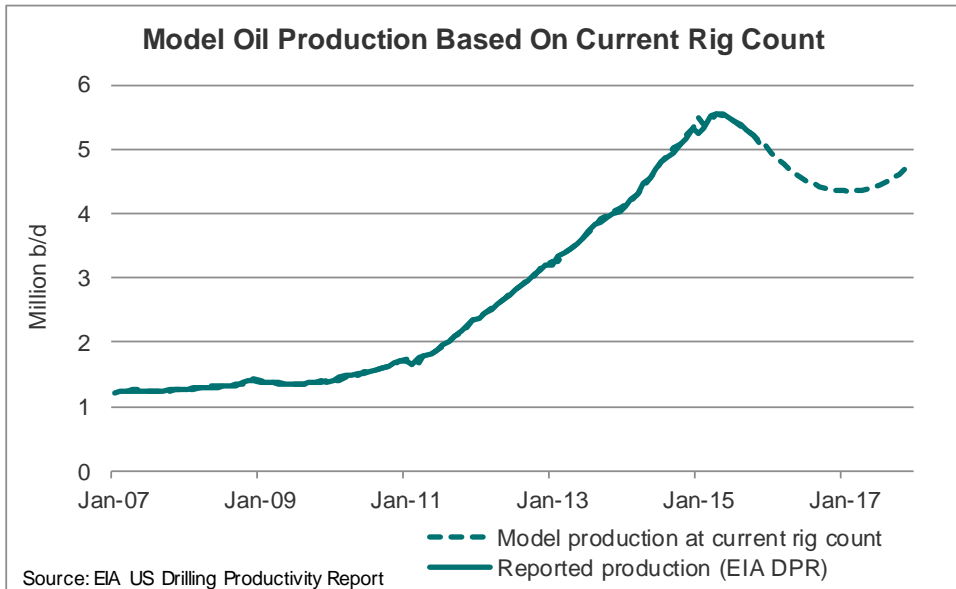
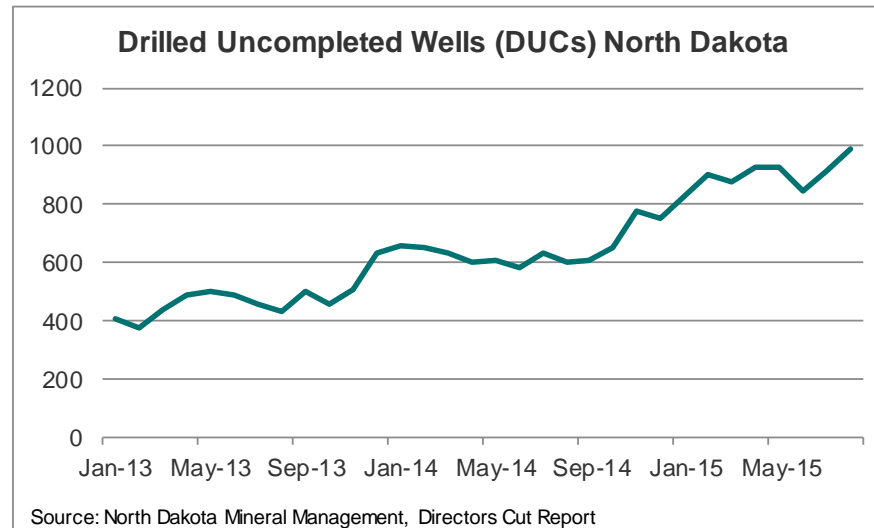
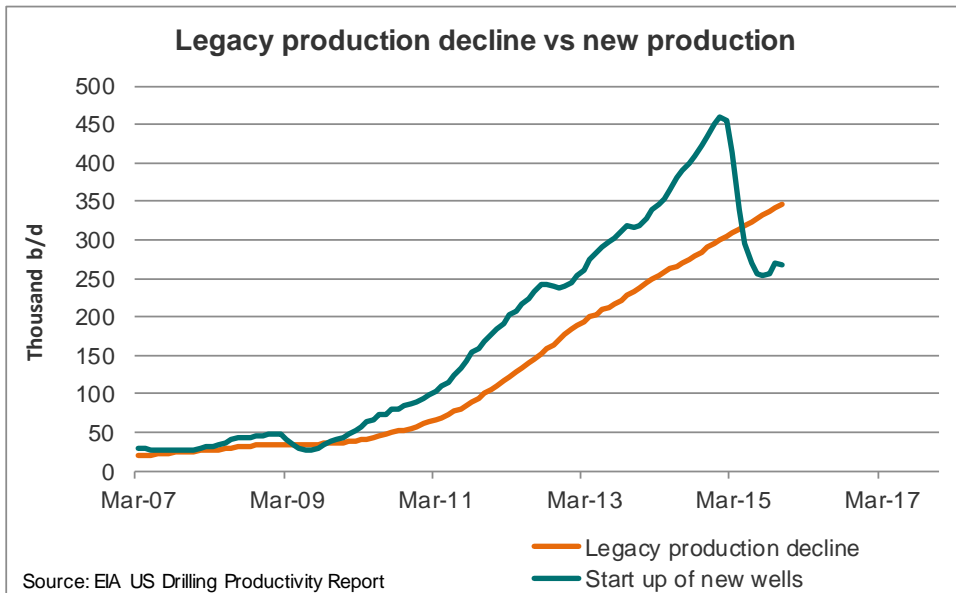
- But this is also what we are about to get

**If non-OPEC growth (excl. US) drops by 2-3%**



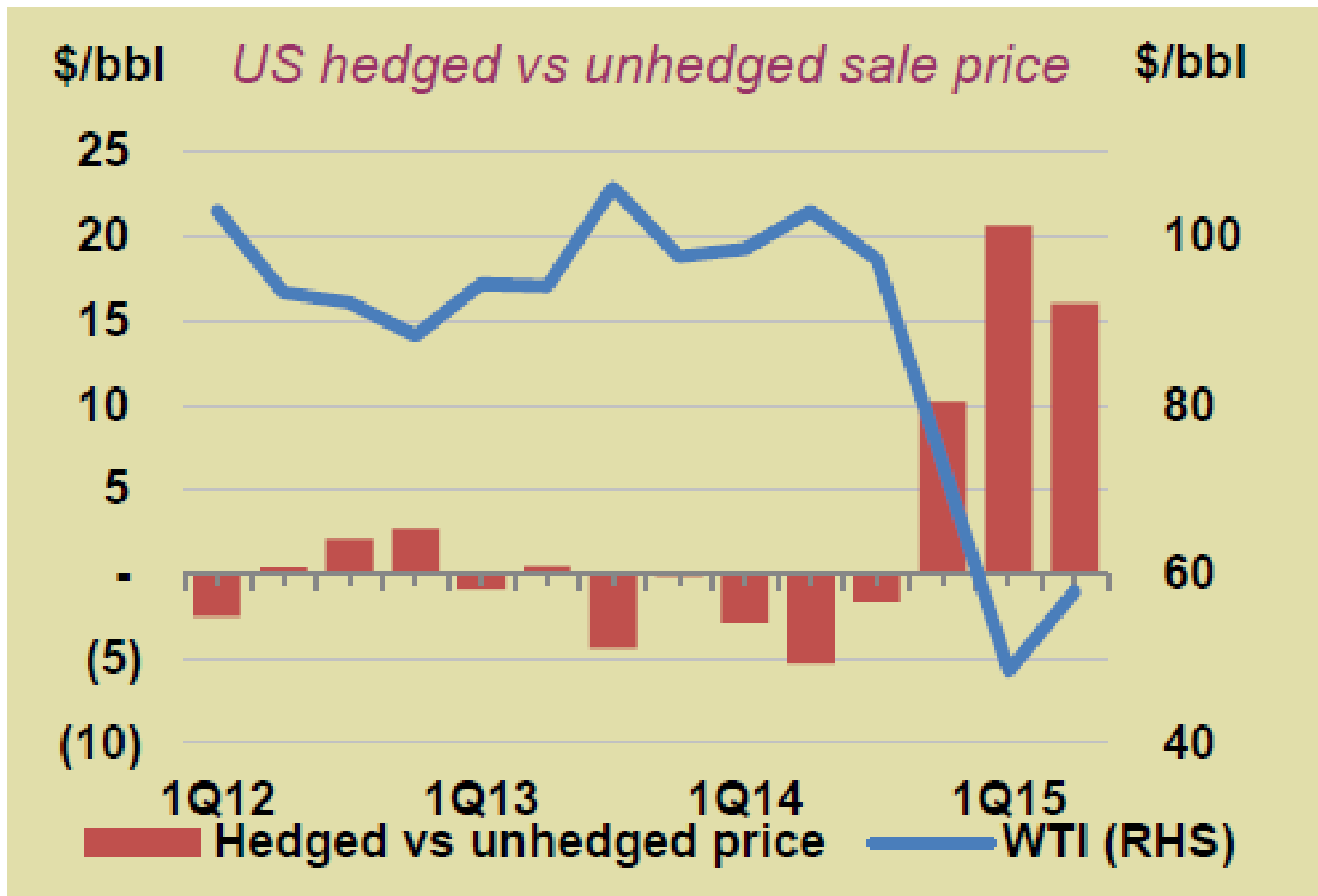
# Shale Production Has Started To Drop

- And with the current rig count production is set to drop by 2 million b/d by the end of 2017??



# US Producers About To Run Out Of Hedges

- The P/L of the US shale producers will be more severely hit as the price hedges run out

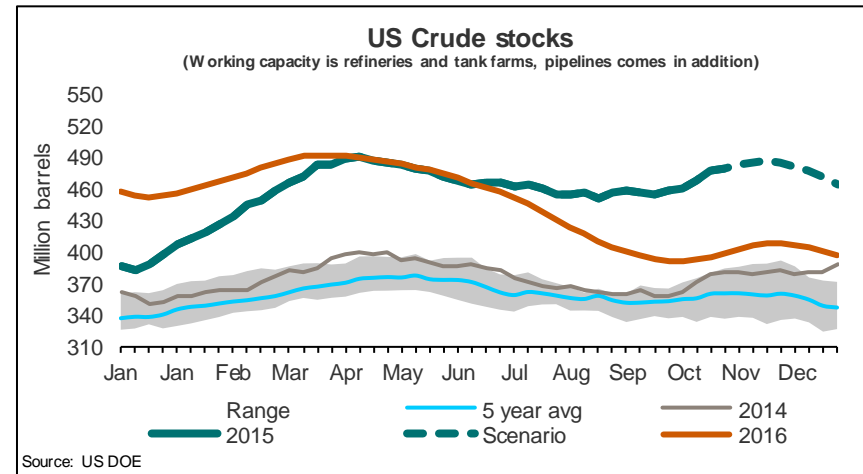
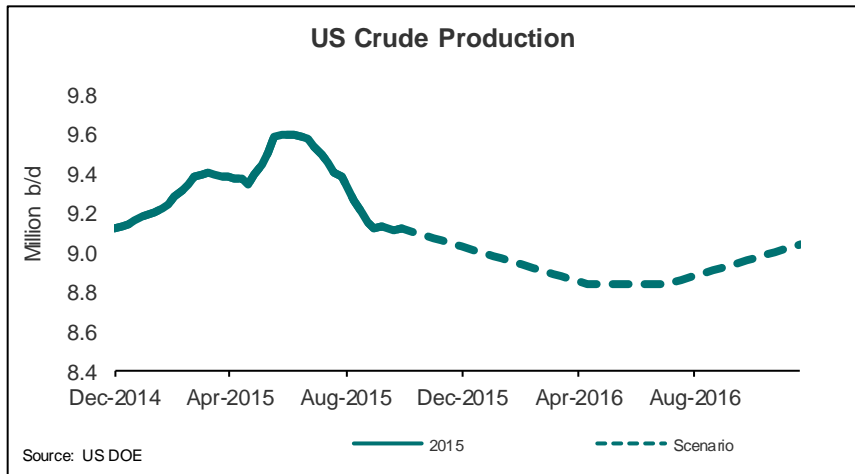
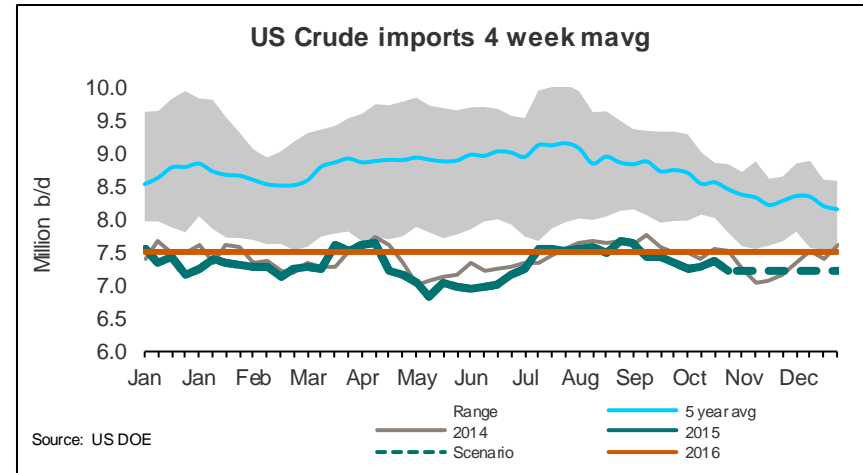
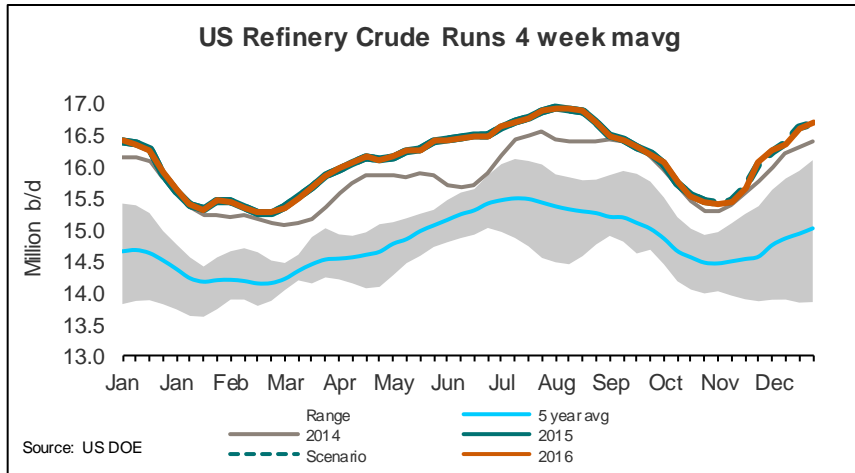


Source: IEA

MARKETS

# Runs Unchanged, Production Down 0.4 and Imports Up 0.2

- What happens to US crude stocks in 2016 in such a scenario (exports is assumed to be the avg for the past 4 months; 0.5 mbd)



# Guided Reduction In CAPEX Is 40% But Little Done In 1H-2015

- Many companies have raised capital in 1H-2015 but needs to cut CAPEX in 2H-2015 if CAPEX guidance for 2015 is to be fulfilled

Lifting costs in \$/b (incl. G&A costs & County/State tax)	<b>18</b>
Interest rate:	<b>5%</b>
WTI price (\$/b)	<b>50</b>
NGL's price as percentage of crude price:	<b>35%</b>

Company name:	EOG	Chesapeake	Pioneer	Whiting	Continental	Concho	Noble	Cimarex	Crescent	Oasis	Average
Crude production 2015 kbd (Assumed equal to Q4-2014)	308	121	100	106	136	72	98	47	127	45	116
Crude diff average to WTI in Q2/Q3/Q4 (\$/b)	-0.4	-8.0	-7.3	-10.6	-11.4	-10.9	-1.8	-9.5	-6.1	-9.7	-7.5
Achieved crude price at assumed WTI price \$/b	49.6	42.0	42.7	39.4	38.6	39.2	48.3	40.5	43.9	40.3	42.5
Revenue from crude sales million USD	5,579	1,855	1,560	1,524	1,917	1,029	1,726	695	2,034	663	1,858
NGL's production kbd	84	100	45	10.5	0	0	35	34	0	0	31
NGL price \$/b	17.4	14.7	15.0	13.8	13.5	13.7	16.9	14.2	15.4	14.1	14.9
Revenue from NGL's sales million USD	533	537	246	53	0	0	216	176	0	0	176
Natural gas production (million cubic meters/day)	37.0	88.0	10.0	2.7	10.0	7.5	32.0	15.0	2.2	0.9	21
Natural gas price \$/cm	0.10	0.06	0.13	0.15	0.15	0.20	0.12	0.14	0.16	0.17	0.14
Revenue from natgas sales million USD	1,351	1,927	475	148	548	548	1,402	767	128	56	735
Revenue pr year million USD	7,462	4,319	2,280	1,725	2,465	1,576	3,343	1,638	2,163	719	2,769
Total production in oil equivalents (Q4)	610	729	201	131	193	120	302	158	141	50	264
Lifting costs USD (based on total oil equivalents output)	4,008	4,790	1,321	861	1,268	788	1,984	1,038	926	329	1,731
Long Term debt by Q1-2015 (million USD)	6,394	10,623	2,668	5,236	6,785	3,377	6,113	1,500	3,600	2,365	4,866
Interest rate costs 2015 (million USD)	320	531	133	262	339	169	306	75	180	118	243
Interest rate costs as % of revenues	4%	12%	6%	15%	14%	11%	9%	5%	8%	16%	10%
Total Debt Ratio (Q1- 2015) LT debt to total capital	26%	41%	24%	44%	58%	36%	35%	27%	26%	50%	37%
Calculated free cash flow 2015:	3,135	-1,002	826	602	858	619	1,053	525	1,056	272	794
CAPEX 2014	8,247	5,307	3,576	2,968	4,716	2,589	4,871	2,108	2,168	1,400	3,795
Guided CAPEX 2015	4,948	2,919	2,200	2,000	2,700	1,900	2,900	1,000	1,450	705	2,272
Annualized CAPEX in 1H- 2015	5,626	4,522	2,426	3,513	3,992	3,038	3,796	1,198	1,818	1,174	3,110
Calculated reduction in CAPEX for 2015 if no new capital	5,112	6,309	2,750	2,366	3,858	1,970	3,818	1,583	1,112	1,128	3,001
Calculated reduction in CAPEX for 2015 if no new capital %	62%	119%	77%	80%	82%	76%	78%	75%	51%	81%	78%
Guided reduction in CAPEX for 2015	3,299	2,388	1,376	968	2,016	689	1,971	1,108	718	695	1,523
Raised capital in Q1 (debt and equity)	990			4750	930	1480	1112	5	415	608	1,286
Guided reduced CAPEX plus new capital	4,289	2,388	1,376	5,718	2,946	2,169	3,083	1,113	1,133	1,303	2,552
Long term debt/Free cash flow	2.0	negative	3.2	8.7	7.9	5.5	5.8	2.9	3.4	8.7	5.3
Guided decrease in CAPEX 2015	40%	45%	38%	33%	43%	27%	40%	53%	33%	50%	40%
Realized decrease in CAPEX 2015 (annualized 1H-2015)	32%	15%	32%	-18%	15%	-17%	22%	43%	16%	16%	16%
Remaining CAPEX to reach guiding for the full year 2015	2,135	658	987	244	704	381	1,002	401	541	118	717
Capex 1H-2015	2,813	2,261	1,213	1,757	1,996	1,519	1,898	599	909	587	1,555
Lower CAPEX in 2H-2015 to reach guiding	24%	71%	19%	86%	65%	75%	47%	33%	40%	80%	54%
Possible new debt (Long term debt/Free cash flow <5)	9,281	negative	1,461	-2,224	-2,497	-281	-846	1,124	1,682	-1,006	744



# The Saudi Royal Family (Source Wikipedia)



## Abdul Aziz (Ibn Saud)

- King: 1902-1953
- Founded Saudi Arabia in 1932
- 22 wives (4 at a time)
- 45 sons of which 6 have been kings



## King Saud

- King: 1953-1964
- Forced out



## King Faisal

- King: 1964-1975
- Killed



## King Khalid

- King: 1975-1982
- Heart Attack



## King Fahad

- King: 1982-2005
- Stroke



## King Abdullah

- King: 2005-2015
- Regent since 1995
- Unifying and popular
- 6 sons



## King Salman

- 80 years old
- Full brother of King Fahad
- 25<sup>th</sup> son of Ibn Saud
- Well regarded
- Trusted mediator
- Had a stroke in 2010
- Pro economic reforms, but slow for social reasons
- Has 11 sons



## Crown Prince Sultan

- Died 23.10.2011



## Crown Prince Nayef

- Ultra conservative
- 23<sup>rd</sup> son of Ibn Saud
- Full brother of King Fahad
- Died 16.06.2012



## Former Crown Prince Muqrin

- Relieved from his position April 2015



## New Deputy Crown Prince Mohammad bin Salman

- 30 years old
- Son of King Salman
- Defence minister from January 2015
- Head of Economic council - January 2015



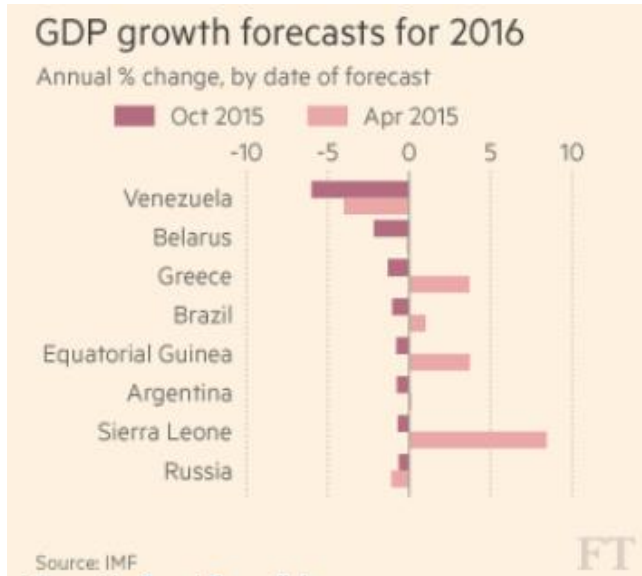
## New Crown Prince bin Nayef

- 55 years old, son of late Crown Prince Nayef
- Educated in the US - Political Science
- The most pro-American Saudi minister
- First successor from the third generation

MARKETS

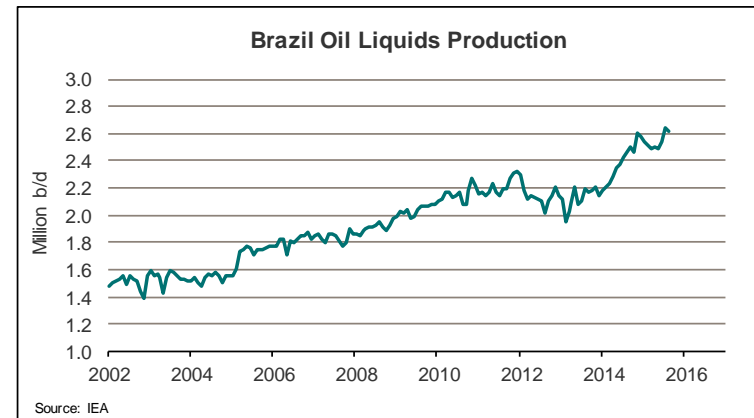
# How Can We Expect Stability In Large Producing Countries??

- Top on the list is Venezuela, but also Nigeria, Iraq and Brazil is high on the list (of known unknowns...)



- **Brazil Strike:** some 300 kb/d of crude output lost currently; one refinery shut down (200 kb/d), production slowed at several other refineries, but supplies to market holding up so far
  - Extensive union demands point to prolonged battle with Petrobras management potentially
- In summary:
- Brazil's largest workers union has been on strike since Sunday, and claims to have shut down 0.5 mb/d of output across 43 platforms in the Campos Basin.
  - Some local media reports suggest all of the 1.7 mb/d production in the Campos is shut in.
  - While the extent of the output loss may be overstated, a quick resolution to the strikes could prove difficult given demands to reverse asset sales, which Petrobras needs to pay off its record debts.

**Current News and Analysis**   
 November 04, 2015 GLOBAL OIL  
**Petrobras Oil Workers' Strike — A Step Toward a More Politicized Movement**



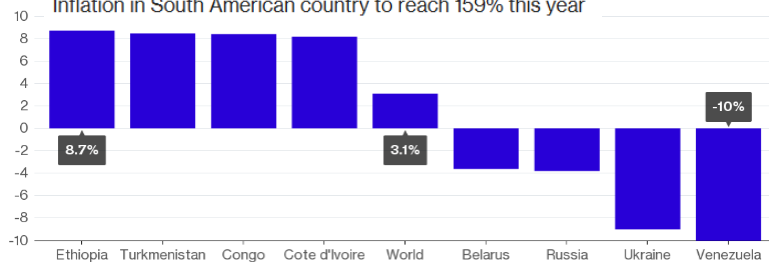
## Venezuela Worst in World as IMF Forecasts 10% Contraction

### IMF's Biggest Winners and Losers of 2015

Ethiopia's GDP Will Expand 8.7% While Venezuela Contracts 10%

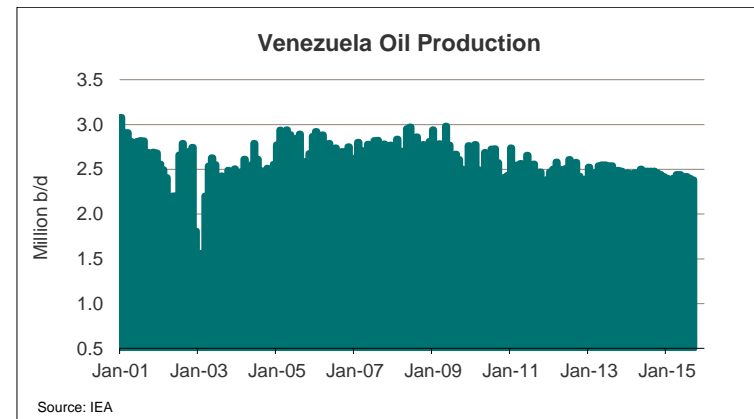
■ Projected Percent Change of Real GDP in 2015

Inflation in South American country to reach 159% this year



Source: IMF World Economic Outlook, October 2015

Bloomberg

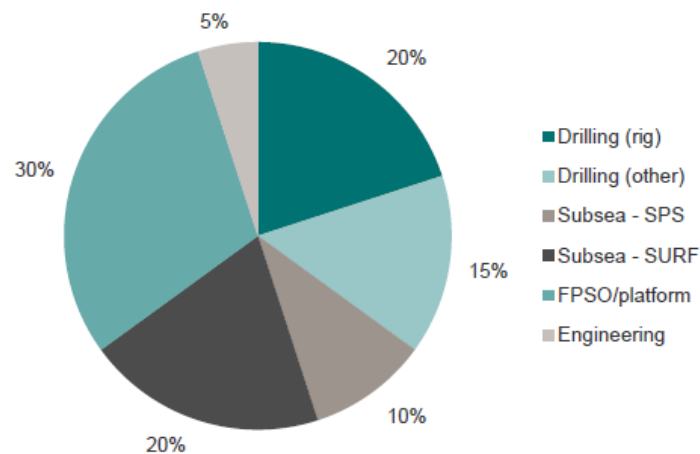


MARKETS

# Costs Are Coming Down Significantly For Future Projects

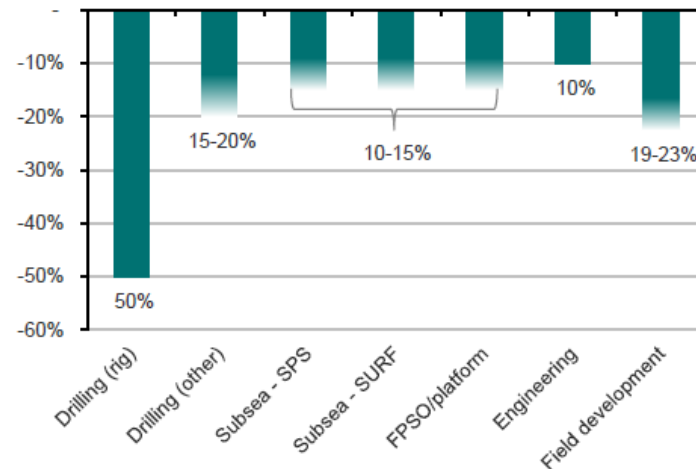
- Some companies already report large cost savings for future projects

**Figure 52: Capex split for a generic deepwater field development**



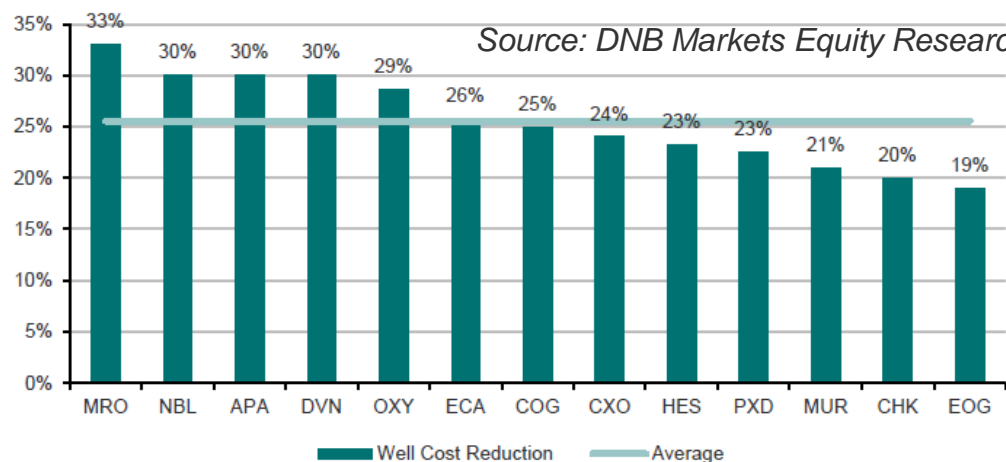
Source: DNB Markets, Companies

**Figure 53: Price deflation in oil services**



Source: DNB Markets, Companies

**Figure 54: US cost deflation during H1 2015**



Source: DNB Markets Equity Research

Source: DNB Markets, Companies

## Norway pushes standard contracts

By BEATE SCHJOLBERG Oslo 23 October 2015 00:00 GMT

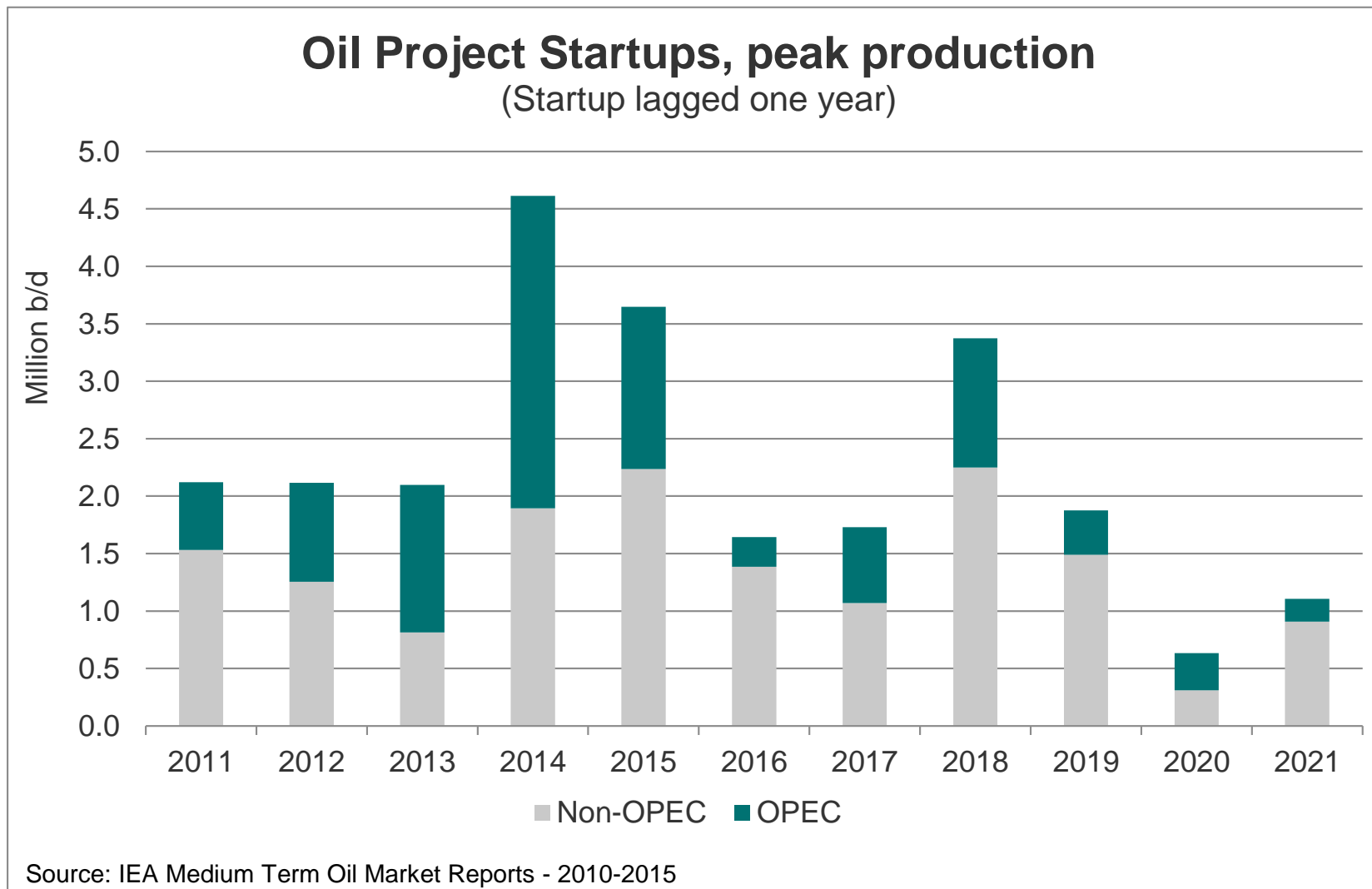
[SHARE STORY](#)

Industry organisations approve two more new versions of country's five main contracts in concerted effort to cut costs and beauracracy

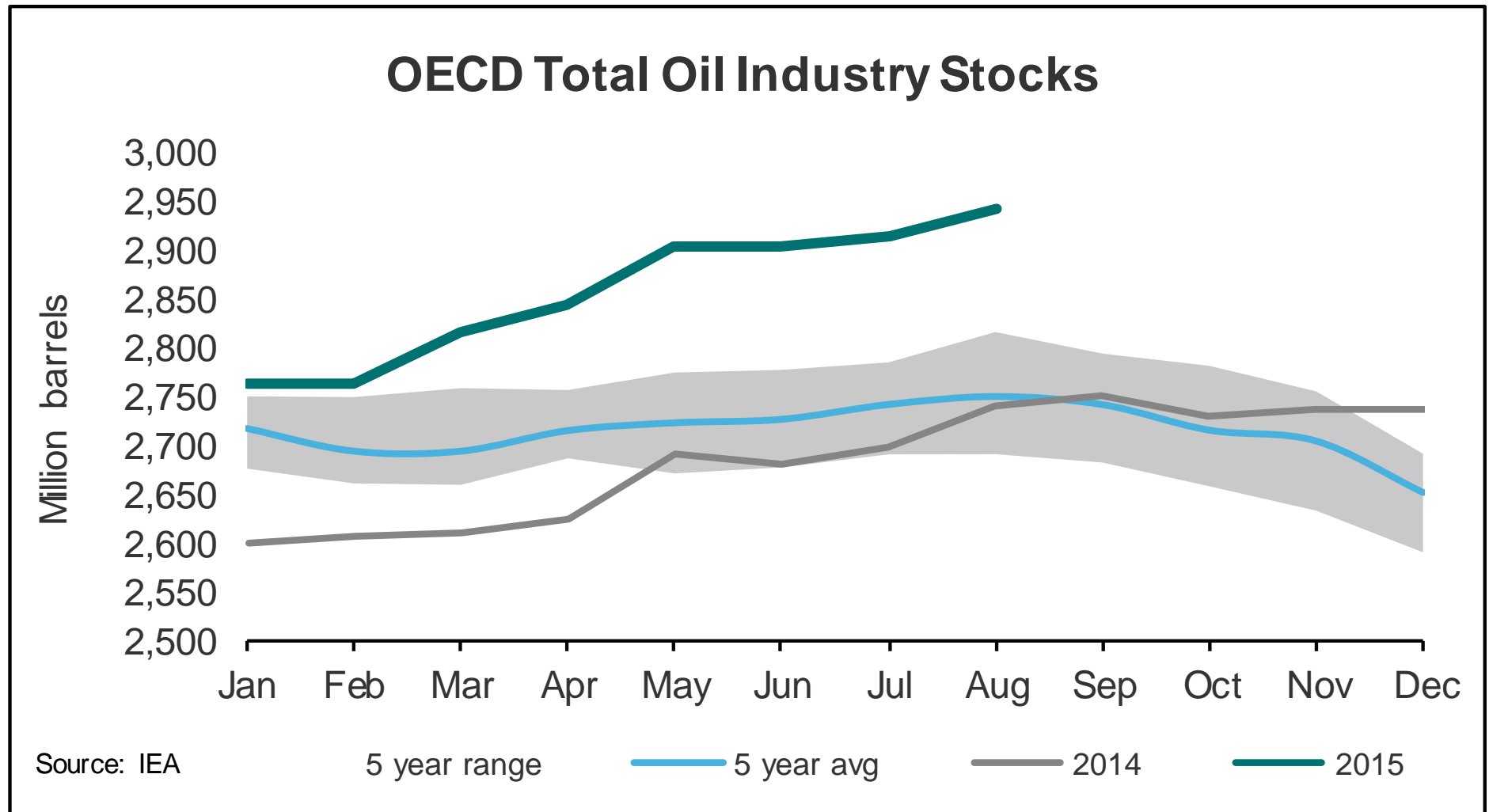
MARKETS

# We Are In A Period With Large Start-Ups

- The project pipelines below is not including US shale oil production

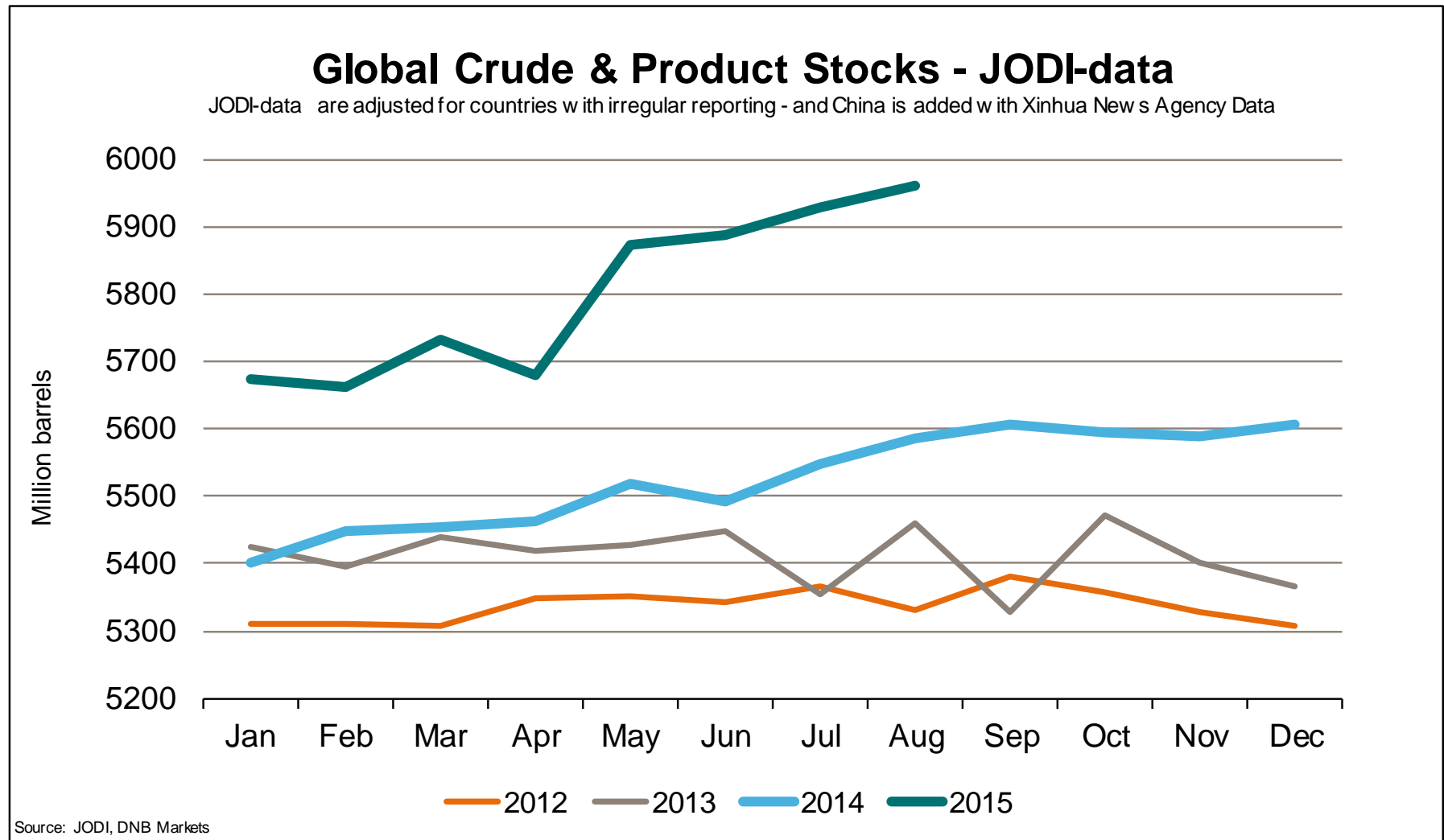


# OECD Stocks Are High And Rising



# Over Supplied Market By 1.5 mbd Jan-Aug

- Global oil stocks (excl. Chinese strategic stocks)

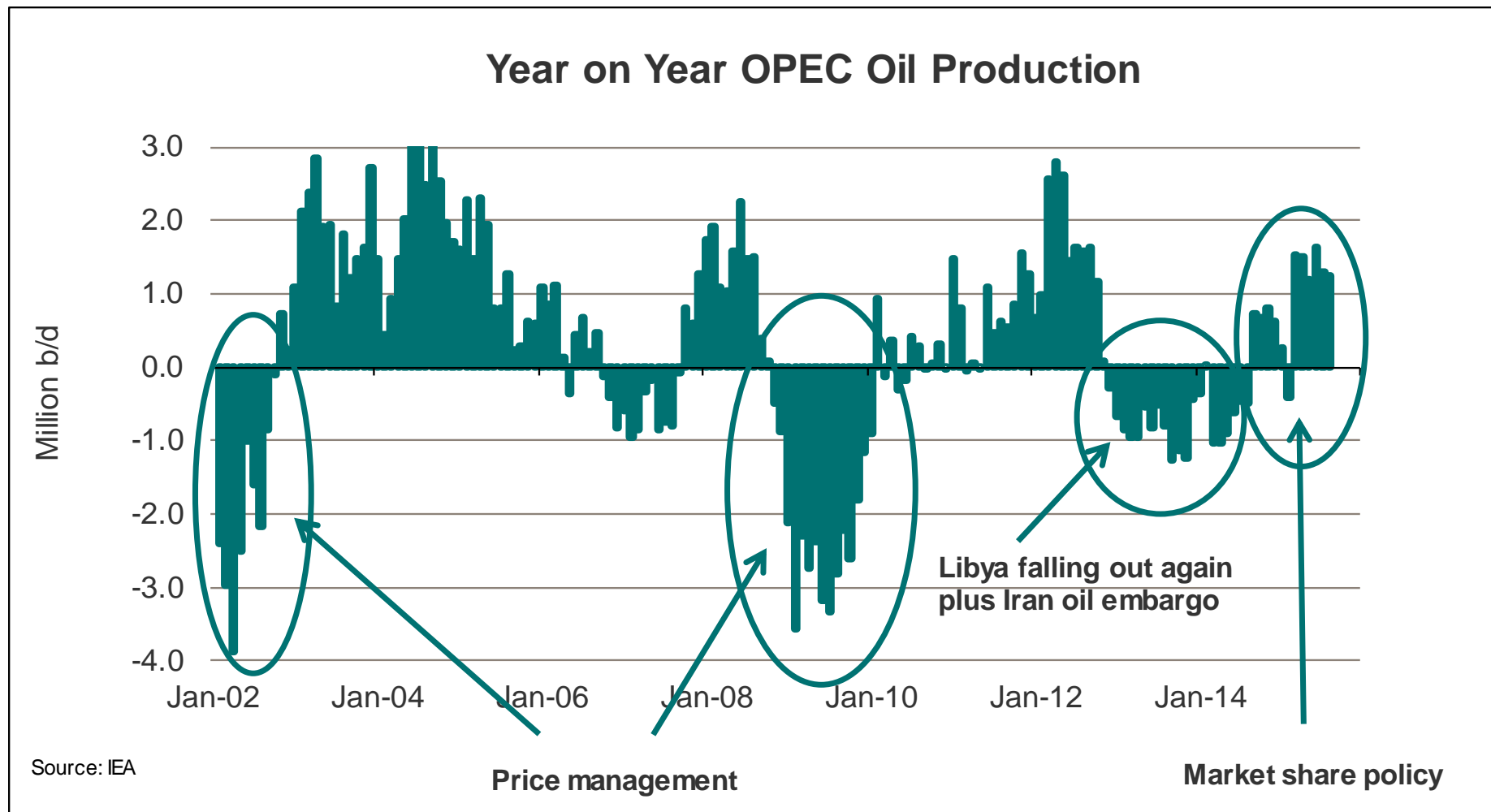


# Fundamental Balances DNB Markets vs IEA, OPEC, EIA

DNB Markets World Oil Supply-Demand Balance:															
	2010	Change	2011	Change	2012	Change	2013	Change	2014	Change	2015	Change	2016	Change	2017
OECD Demand	47.0	-0.6	46.4	-0.5	45.9	0.1	46.0	-0.3	45.7	0.6	46.3	0.4	46.7	0.3	47.0
Non-OECD Demand	41.7	1.4	43.1	1.6	44.8	1.1	45.9	1.2	47.1	1.1	48.2	0.8	49.0	0.9	49.8
<b>Total Demand</b>	<b>88.7</b>	<b>0.9</b>	<b>89.6</b>	<b>1.1</b>	<b>90.7</b>	<b>1.2</b>	<b>91.9</b>	<b>0.8</b>	<b>92.7</b>	<b>1.7</b>	<b>94.5</b>	<b>1.3</b>	<b>95.7</b>	<b>1.1</b>	<b>96.9</b>
Non-OPEC Supply	50.8	0.2	51.0	0.4	51.5	1.1	52.6	2.3	54.8	1.3	56.1	-0.7	55.4	-0.2	55.3
OPEC NGL's and non-conventional oil	5.5	0.4	5.9	0.3	6.2	0.0	6.2	0.2	6.4	0.2	6.5	0.1	6.6	0.1	6.8
Global Biofuels	1.8	0.0	1.8	0.0	1.9	0.2	2.0	0.2	2.2	0.1	2.3	0.1	2.4	0.1	2.4
<b>Total Non-OPEC supply</b>	<b>58.1</b>	<b>0.6</b>	<b>58.7</b>	<b>0.8</b>	<b>59.5</b>	<b>1.3</b>	<b>60.8</b>	<b>2.6</b>	<b>63.4</b>	<b>1.6</b>	<b>65.0</b>	<b>-0.5</b>	<b>64.4</b>	<b>0.0</b>	<b>64.4</b>
<b>Call on OPEC crude (and stocks)</b>	<b>30.6</b>	<b>0.2</b>	<b>30.8</b>	<b>0.4</b>	<b>31.2</b>	<b>-0.1</b>	<b>31.1</b>	<b>-1.8</b>	<b>29.4</b>	<b>0.1</b>	<b>29.5</b>	<b>1.8</b>	<b>31.3</b>	<b>1.2</b>	<b>32.4</b>
OPEC Crude Oil Supply	29.2	0.7	29.9	1.4	31.3	-0.8	30.5	-0.2	30.3	1.1	31.4	0.8	32.2	0.5	32.6
<b>Implied World Oil Stock Change</b>	<b>-1.4</b>		<b>-0.9</b>		<b>0.1</b>		<b>-0.7</b>		<b>0.9</b>		<b>1.9</b>		<b>0.9</b>		<b>0.2</b>
IEA World Oil Supply-Demand Balance (Oct 2015):															
	2010	Change	2011	Change	2012	Change	2013	Change	2014	Change	2015	Change	2016	Change	2017
OECD Demand	47.0	-0.6	46.4	-0.5	45.9	0.1	46.0	-0.3	45.7	0.6	46.3	0.0	46.3		
Non-OECD Demand	41.7	1.4	43.1	1.6	44.8	1.1	45.9	1.2	47.1	1.2	48.2	1.2	49.4		
<b>Total Demand</b>	<b>88.7</b>	<b>0.9</b>	<b>89.6</b>	<b>1.1</b>	<b>90.7</b>	<b>1.2</b>	<b>91.9</b>	<b>0.8</b>	<b>92.7</b>	<b>1.8</b>	<b>94.5</b>	<b>1.2</b>	<b>95.7</b>		
Non-OPEC Supply	50.8	0.2	51.0	0.4	51.5	1.1	52.6	2.3	54.8	1.1	56.0	-0.6	55.4		
OPEC NGL's and non-conventional oil	5.5	0.4	5.9	0.3	6.2	0.0	6.2	0.2	6.4	0.2	6.6	0.3	6.8		
Global Biofuels	1.8	0.0	1.8	0.0	1.9	0.2	2.0	0.2	2.2	0.1	2.3	0.0	2.4		
<b>Total Non-OPEC supply</b>	<b>58.1</b>	<b>0.6</b>	<b>58.7</b>	<b>0.8</b>	<b>59.5</b>	<b>1.3</b>	<b>60.8</b>	<b>2.6</b>	<b>63.4</b>	<b>1.5</b>	<b>64.8</b>	<b>-0.3</b>	<b>64.6</b>		
<b>Call on OPEC crude (and stocks)</b>	<b>30.6</b>	<b>0.2</b>	<b>30.8</b>	<b>0.4</b>	<b>31.2</b>	<b>-0.1</b>	<b>31.1</b>	<b>-1.8</b>	<b>29.4</b>	<b>0.3</b>	<b>29.7</b>	<b>1.5</b>	<b>31.1</b>		
OPEC Crude Oil Supply	29.2	0.7	29.9	1.4	31.3	-0.8	30.5	-0.2	30.3	1.1	31.4	0.8	32.2		
<b>Implied World Oil Stock Change</b>	<b>-1.4</b>		<b>-0.9</b>		<b>0.1</b>		<b>-0.7</b>		<b>0.9</b>		<b>1.7</b>		<b>1.0</b>		
OPEC World Oil Supply-Demand Balance (Oct 2015):															
	2010	Change	2011	Change	2012	Change	2013	Change	2014	Change	2015	Change	2016	Change	2017
OECD Demand	47.0	-0.6	46.4	-0.5	45.9	0.1	46.0	-0.3	45.7	0.5	46.2	0.1	46.3		
Non-OECD Demand	40.3	1.5	41.8	1.3	43.1	1.3	44.4	1.3	45.7	1.0	46.7	1.1	47.8		
<b>Total Demand</b>	<b>87.3</b>	<b>0.9</b>	<b>88.2</b>	<b>0.8</b>	<b>89.0</b>	<b>1.4</b>	<b>90.4</b>	<b>1.0</b>	<b>91.4</b>	<b>1.5</b>	<b>92.9</b>	<b>1.2</b>	<b>94.1</b>		
Non-OPEC Supply (Incl all Biofuel)	52.4	0.0	52.4	0.5	52.9	1.4	54.3	2.2	56.5	0.7	57.2	-0.1	57.1		
OPEC NGL's and non-conventional oil	5.0	0.4	5.4	0.2	5.6	0.0	5.6	0.2	5.8	0.2	6.0	0.2	6.2		
<b>Total Non-OPEC supply</b>	<b>57.4</b>	<b>0.4</b>	<b>57.8</b>	<b>0.7</b>	<b>58.5</b>	<b>1.4</b>	<b>59.9</b>	<b>2.4</b>	<b>62.3</b>	<b>0.9</b>	<b>63.2</b>	<b>0.1</b>	<b>63.3</b>		
<b>Call on OPEC crude (and stocks)</b>	<b>29.9</b>	<b>0.5</b>	<b>30.4</b>	<b>0.1</b>	<b>30.5</b>	<b>0.0</b>	<b>30.5</b>	<b>-1.4</b>	<b>29.1</b>	<b>0.6</b>	<b>29.7</b>	<b>1.1</b>	<b>30.8</b>		
OPEC Crude Oil Supply	29.2	0.7	29.9	1.4	31.3	-0.8	30.5	-0.2	30.3	1.1	31.4	0.8	32.2		
<b>Implied World Oil Stock Change</b>	<b>-0.7</b>		<b>-0.5</b>		<b>0.8</b>		<b>0.0</b>		<b>1.2</b>		<b>1.7</b>		<b>1.4</b>		
EIA World Oil Supply-Demand balance (Oct 2015):															
	2010	Change	2011	Change	2012	Change	2013	Change	2014	Change	2015	Change	2016	Change	2017
OECD Demand	46.1	-0.3	45.8	0.1	45.9	0.2	46.1	-0.3	45.8	0.5	46.2	0.2	46.5		
Non-OECD Demand	41.0	1.5	42.5	0.8	43.3	1.2	44.4	2.3	46.7	0.9	47.6	1.2	48.8		
<b>Total Demand</b>	<b>87.1</b>	<b>1.2</b>	<b>88.3</b>	<b>0.9</b>	<b>89.2</b>	<b>1.3</b>	<b>90.5</b>	<b>2.0</b>	<b>92.4</b>	<b>1.3</b>	<b>93.8</b>	<b>1.4</b>	<b>95.2</b>		
Non-OPEC Supply (Incl all Biofuel)	51.8	0.2	52.0	0.7	52.7	1.5	54.1	2.8	57.0	1.3	58.2	0.1	58.4		
OPEC NGL's and non-conventional oil	5.5	-0.3	5.3	0.5	5.8	0.4	6.1	0.1	6.3	0.2	6.5	0.3	6.8		
<b>Total Non-OPEC supply</b>	<b>57.3</b>	<b>-0.1</b>	<b>57.2</b>	<b>1.2</b>	<b>58.4</b>	<b>1.8</b>	<b>60.2</b>	<b>3.0</b>	<b>63.2</b>	<b>1.5</b>	<b>64.7</b>	<b>0.4</b>	<b>65.1</b>		
<b>Call on OPEC crude (and stocks)</b>	<b>29.8</b>	<b>1.3</b>	<b>31.1</b>	<b>-0.3</b>	<b>30.8</b>	<b>-0.5</b>	<b>30.2</b>	<b>-1.0</b>	<b>29.2</b>	<b>-0.1</b>	<b>29.1</b>	<b>1.0</b>	<b>30.1</b>		
OPEC Crude Oil Supply	29.2	0.7	29.9	1.4	31.3	-0.8	30.5	-0.2	30.3	1.1	31.4	0.8	32.2		
<b>Implied World Oil Stock Change</b>	<b>-0.6</b>		<b>-1.1</b>		<b>0.6</b>		<b>0.2</b>		<b>1.1</b>		<b>2.3</b>		<b>2.1</b>		

# OPEC Did Not Cut This Time

- In a supply driven downturn decisions become different





# Most Of US Shale Output Is From Investment Grade Companies

- And only 3% of production is from substantial risk companies (Moody's rating B3 or lower)

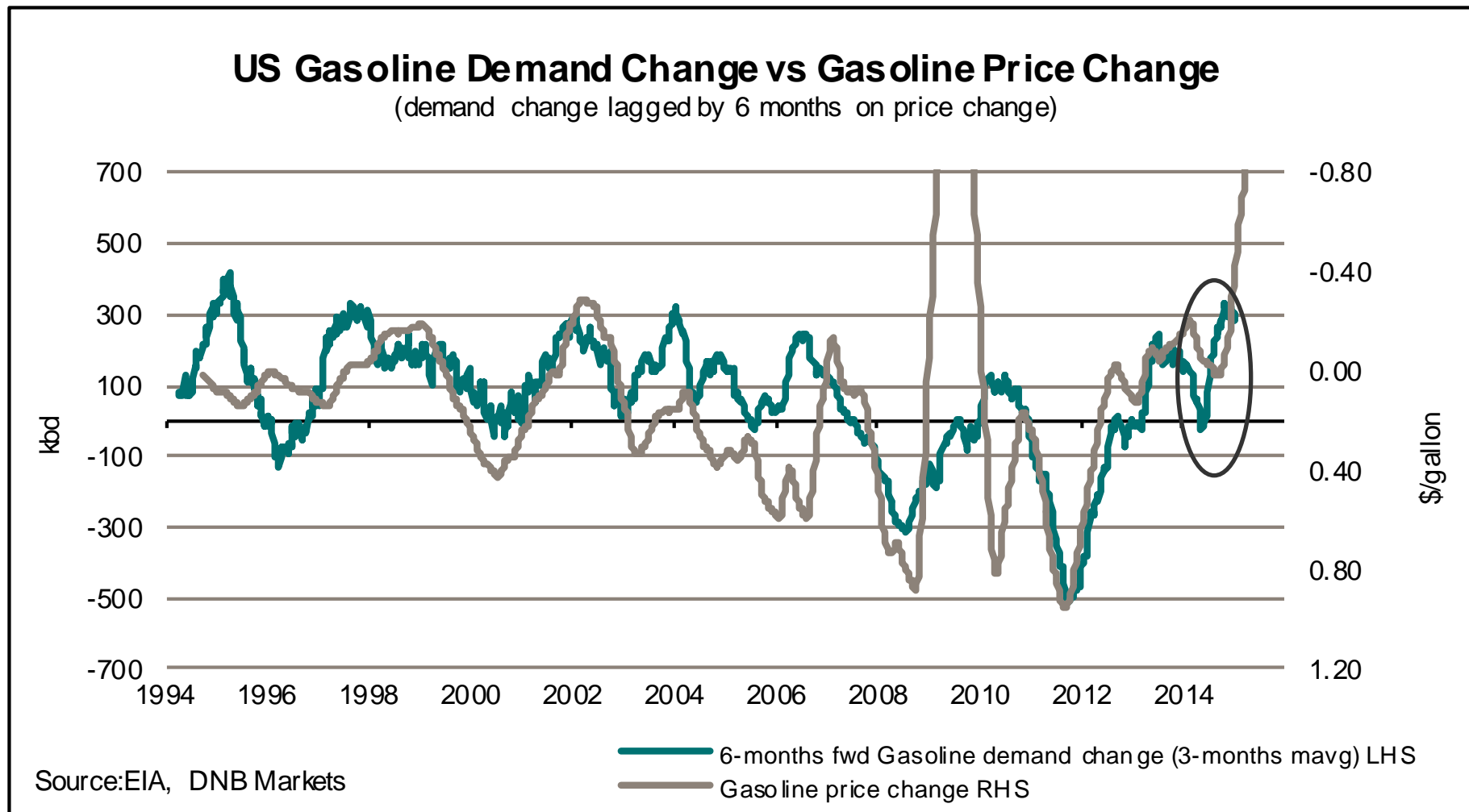
Production from Investment grade companies	2014 - kbd
EOG Resources	359
ConocoPhillips	188
Marathon Oil	158
Devon Energy	149
Anadarko	144
BHP Billiton	134
Continental Resources	134
Chesapeake	129
ExxonMobil	105
Pioneer Natural Resources	101
Apache	89
Hess	85
Encana	76
Chevron	73
Oxy	63
Murphy Oil	61
Statoil	59
Noble Energy	56
CNOOC	55
QEP Resources	51
Reliance	25
WPX Energy	24
KNOC (S.Korea)	23
Sinopec Group (parent)	22
Sinochem	11
MDU Resources	11
Hunt Oil	10
Canadian Natural Resources (CNRL)	10
Mitsui	9
Southwestern Energy	7
Husky Energy	7
BP	5
EQT Corporation	4
Suncor Energy	4
Total	3
Eni	3
Schlumberger	3
GE	2
Marubeni	1
Freeport-McMoRan	1
Korea Gas	1
Mitsubishi Corp	1
Osaka Gas	1
<b>Sum investment grade companies</b>	<b>2,458</b>
<b>Investment grade companies as % of total US shale</b>	<b>55%</b>

Substantial Risk Companies (Moody's B3 or lower)	2014 - kbd
Halcon Resources	43
Sandridge Energy	28
Sabine Oil & Gas	17
Samson Resources	16
Midstates Petroleum Company	16
Resolute Energy Corporation	7
Lonestar Resources	6
Magnum Hunter Resources Corporation	6
Goodrich Petroleum	5
Rex Energy	3
Alta Mesa Holdings	3
Gastar Exploration	2
<b>Sum Substantial risk companies</b>	<b>152</b>
<b>Sum Substantial risk companies as % of total shale</b>	<b>3%</b>

Source: Rystad Energy, Moody's, DNB

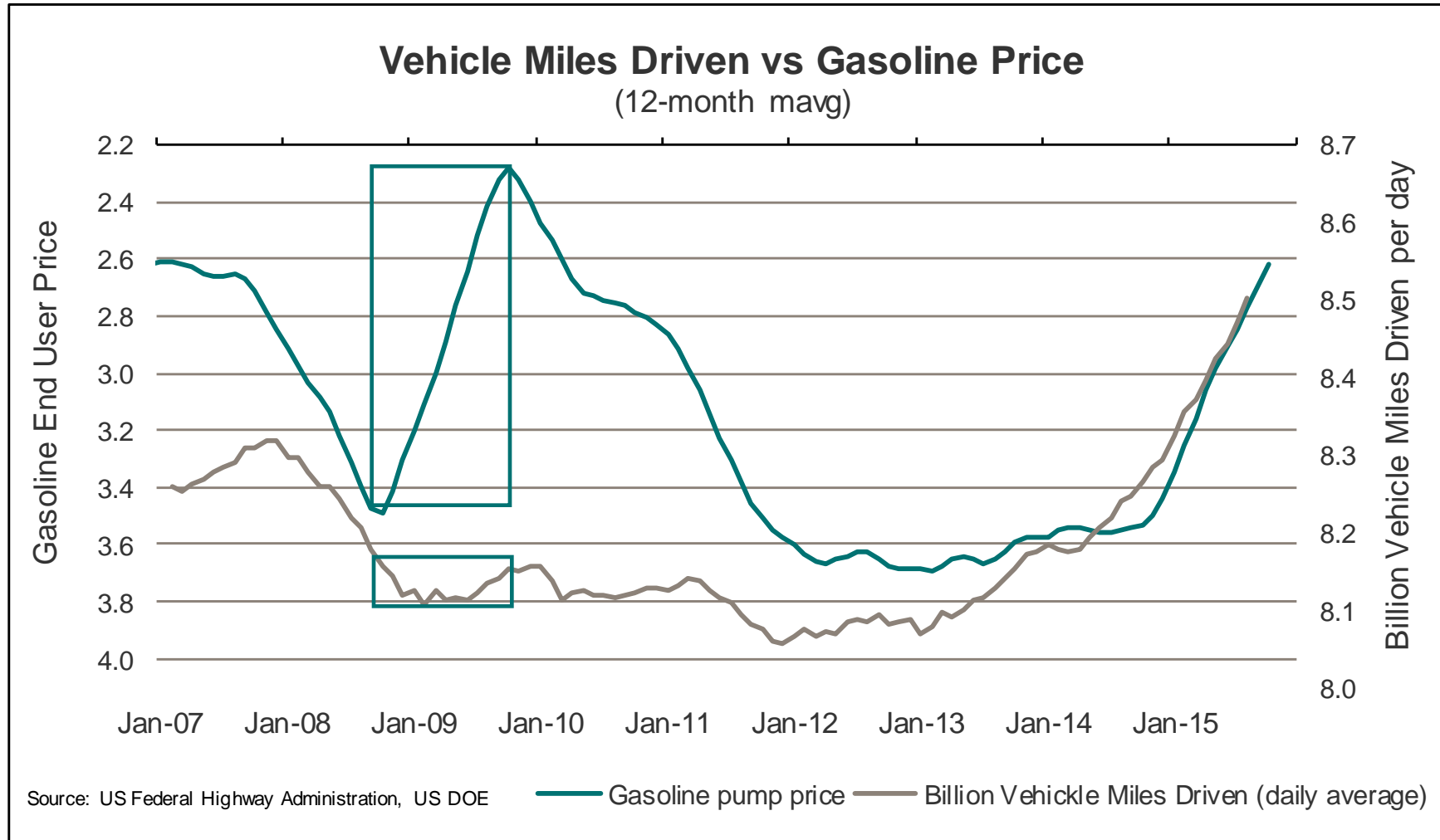
# Lower Gasoline Price To Positively Affect US Gasoline Demand

- But not a large enough impulse to change the world oil balance...



# Lower Gasoline Price Now Leads To More Driving

- Since we are in a supply driven downturn for oil prices the drop in pump prices makes Americans drive more (unlike in 2008-09)



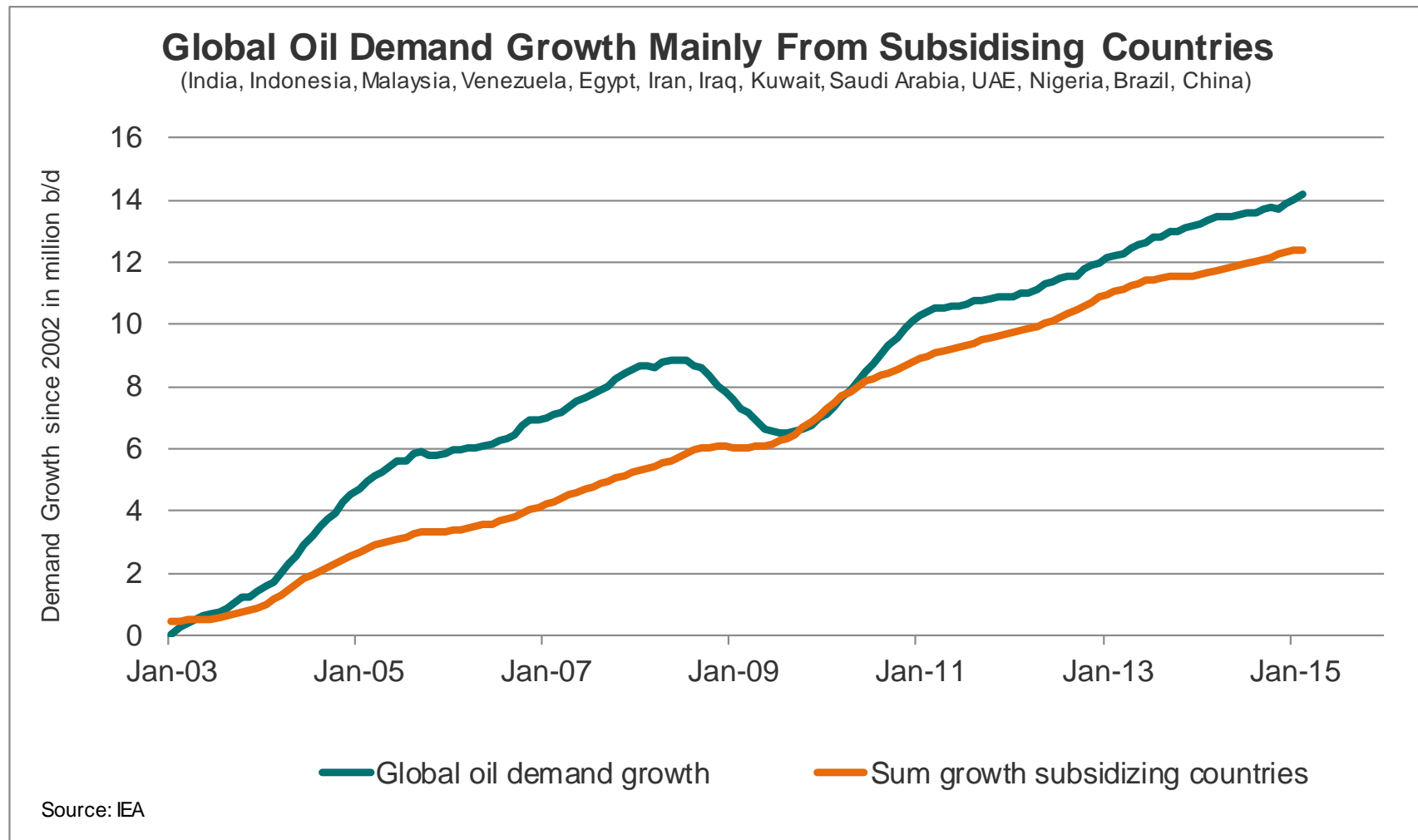
# Weaker Demand Growth Seen In 2016 Due To Higher Price

- Particularly Europe, US and China seen to grow weaker next year

Demand change in Million b/d	Change 2008	Change 2009	Change 2010	Change 2011	Change 2012	Change 2013	Change 2014	YoY Last 3 mts	2015 YTD Chg:	Forecast 2015	Forecast 2016
North America (Canada, Mexico)	-84	-179	107	63	34	-38	-63	-59	-105	-85	7
US	-1,243	-723	409	-227	-457	472	147	537	495	435	199
Europe	-123	-741	10	-474	-417	-243	-216	168	286	242	84
Australia, New Zealand, Japan, Korea	-311	-396	149	52	336	-116	-206	105	1	25	148
<b>Total OECD</b>	<b>-1,762</b>	<b>-2,040</b>	<b>675</b>	<b>-586</b>	<b>-504</b>	<b>76</b>	<b>-339</b>	<b>751</b>	<b>678</b>	<b>617</b>	<b>438</b>
Europe/Africa Med & FSU	234	-97	194	271	115	15	262	-32	29	-8	-72
Middle East AG excl. Iran and Saudi	229	136	89	77	175	73	-8	72	16	30	51
Iran	44	73	-197	10	40	35	-17	1	-50	-41	20
Saudi Arabia	152	196	205	115	192	-17	185	37	107	105	68
Asia Pacific/East Africa excl. China and India	-113	374	494	222	227	382	171	288	280	276	274
China	146	184	1,139	405	407	374	347	590	618	539	250
India	72	43	108	169	175	47	73	219	164	178	274
West Africa	81	-14	76	41	53	52	-9	39	20	22	26
Latin America (excl. Mexico)	328	54	403	134	262	161	165	-54	15	-12	-64
<b>Total Non-OECD</b>	<b>1,171</b>	<b>949</b>	<b>2,512</b>	<b>1,443</b>	<b>1,646</b>	<b>1,121</b>	<b>1,170</b>	<b>1,160</b>	<b>1,199</b>	<b>1,088</b>	<b>829</b>
North America	-1,327	-902	517	-164	-423	435	84	478	390	350	206
Europe/Africa Med & FSU	111	-838	204	-204	-302	-228	46	136	315	234	13
Middle East AG/Asia Pacific/East Africa	218	609	1,988	1,049	1,552	777	544	1,312	1,137	1,111	1,086
Middle East AG	424	404	98	202	408	91	160	110	73	94	139
Asia Pacific/East Africa	-206	205	1,890	848	1,145	687	384	1,202	1,063	1,017	947
West Africa	81	-14	76	41	53	52	-9	39	20	22	26
Latin America (excl. Mexico)	328	54	403	134	262	161	165	-54	15	-12	-64
<b>Total World</b>	<b>-591</b>	<b>-1,091</b>	<b>3,187</b>	<b>857</b>	<b>1,142</b>	<b>1,197</b>	<b>831</b>	<b>1,911</b>	<b>1,877</b>	<b>1,706</b>	<b>1,267</b>

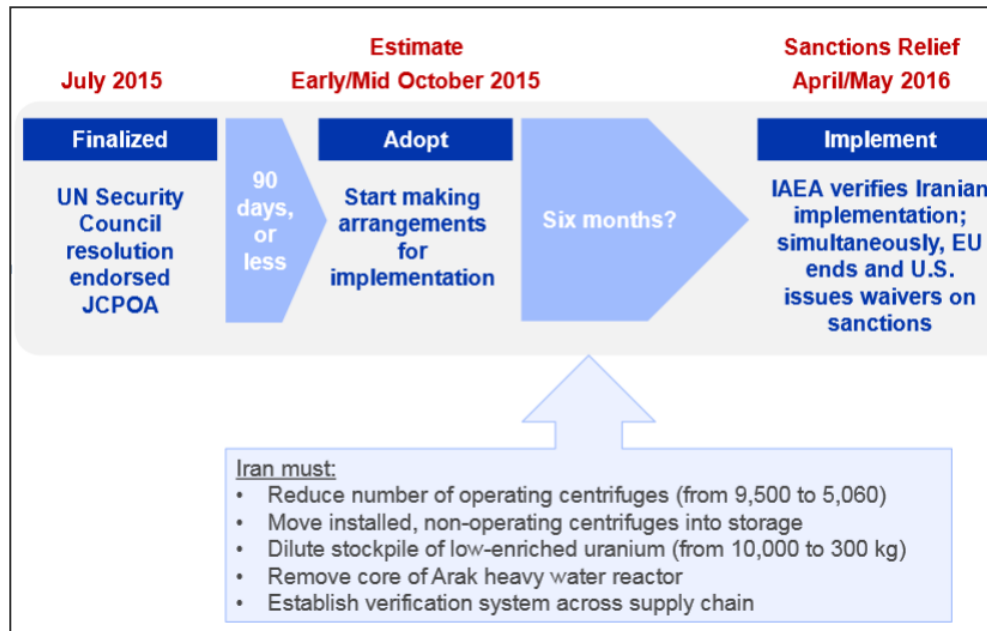
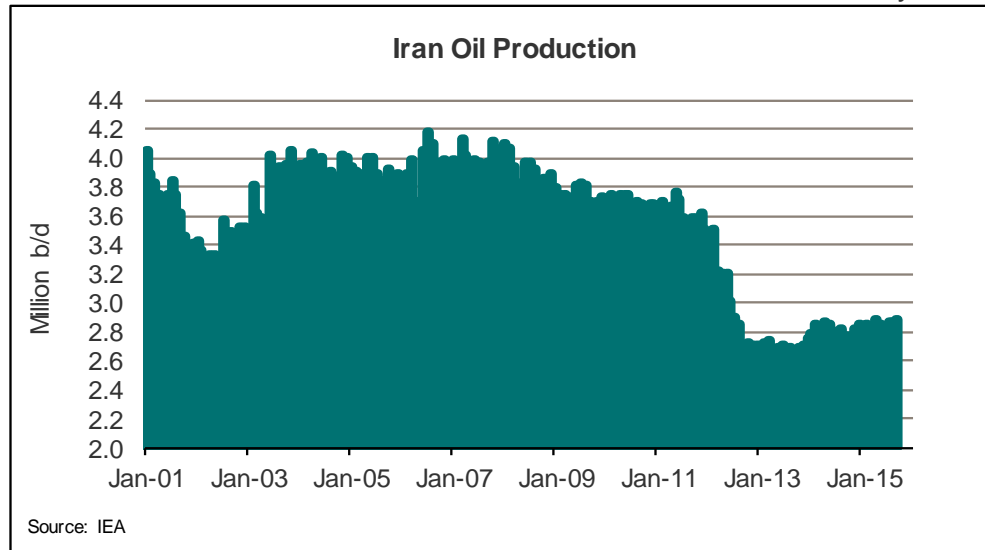
# Almost All Demand Growth From The Subsidizing Countries

- Almost all growth in global oil demand since 2002 has been coming from subsidizing countries



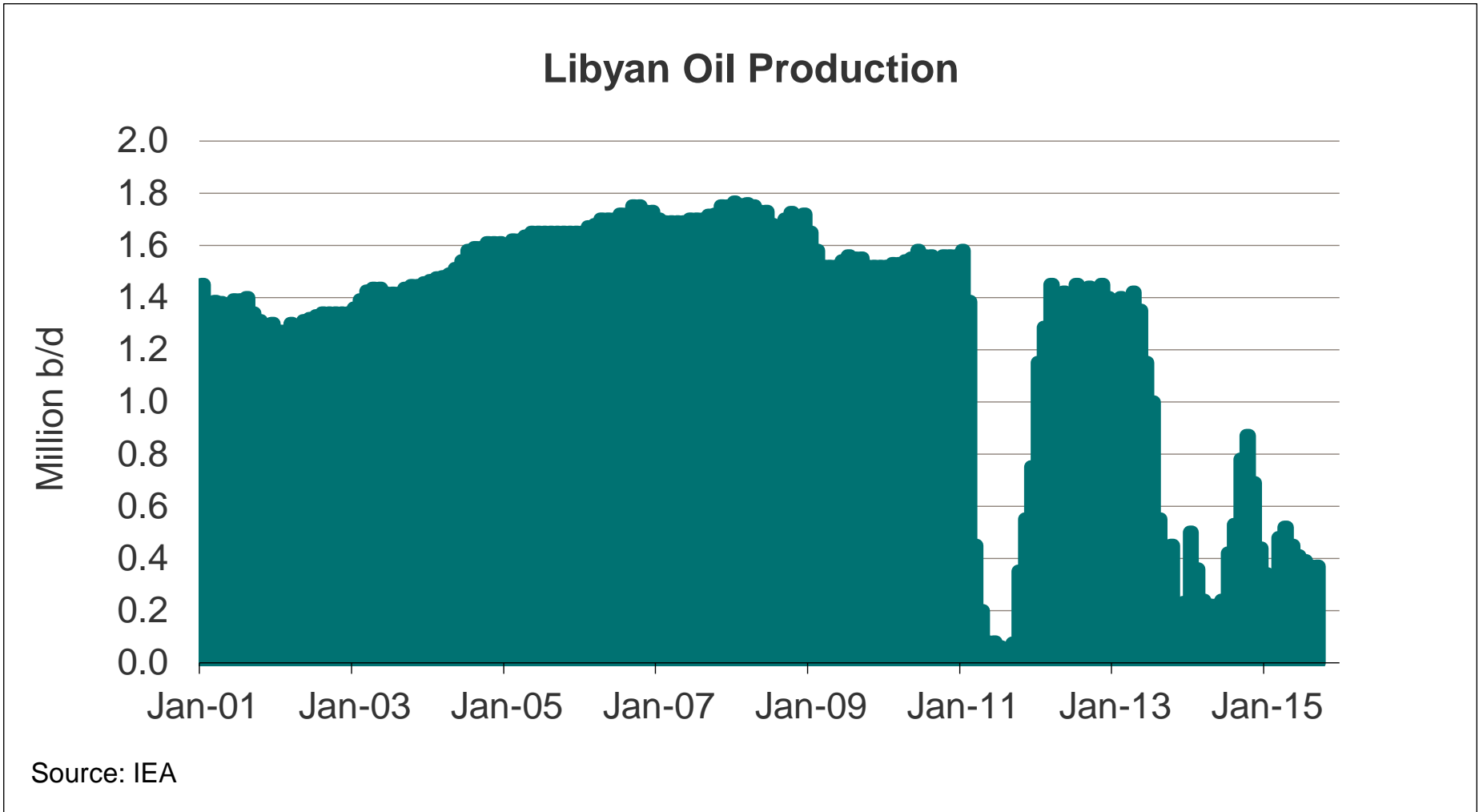
# Iran Set To Return To 3.6 Million b/d Next Year

- The nuclear deal reached with Iran means more Iranian barrels to the market next year



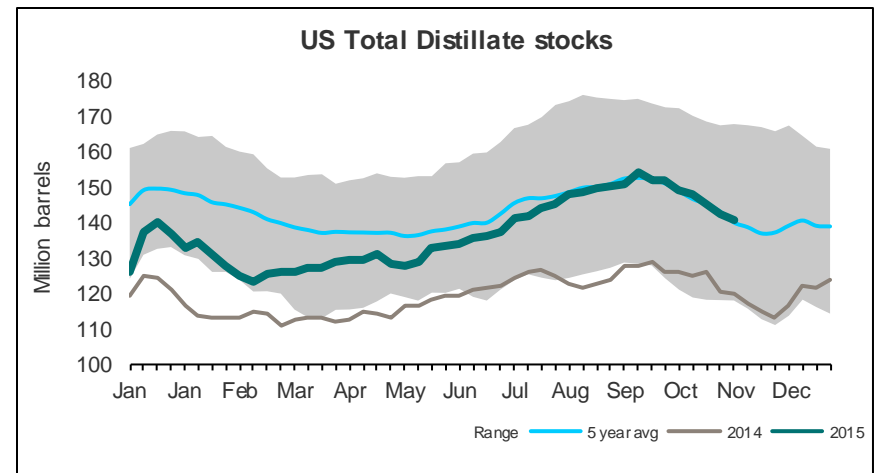
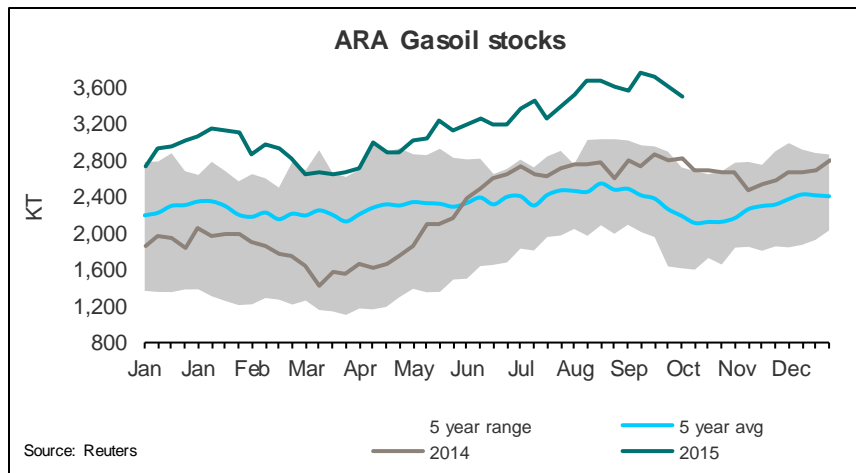
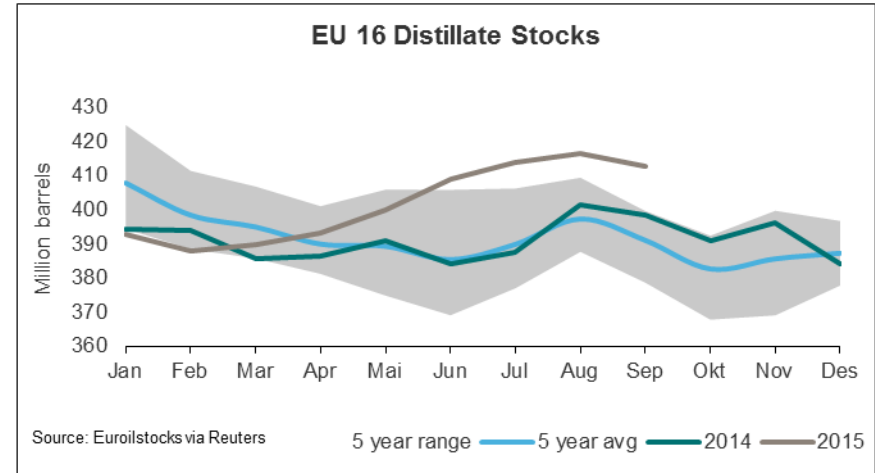
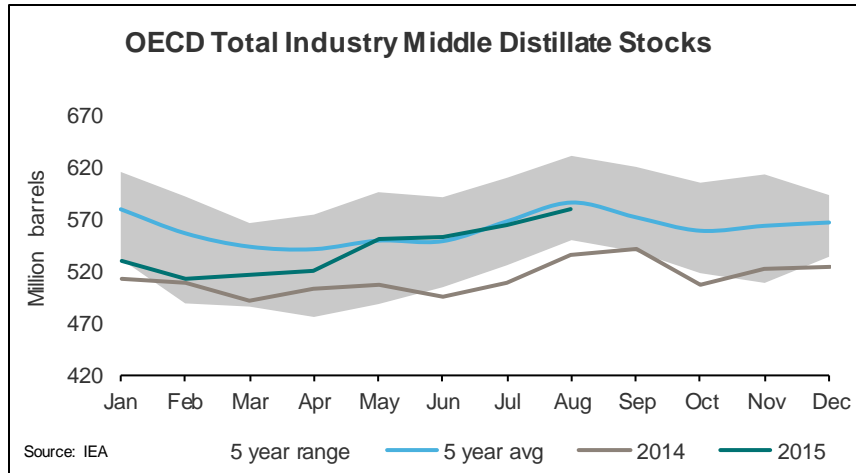
# Libyan Production Cannot Fall Much Further

- You cannot lose what you don't have



# High Distillate Stocks Could Hurt Refinery Margins

- High distillate stocks could hurt refinery margins when we are outside the gasoline season





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