Why Would An Investor Be Afraid Of Stranded Oil Assets?

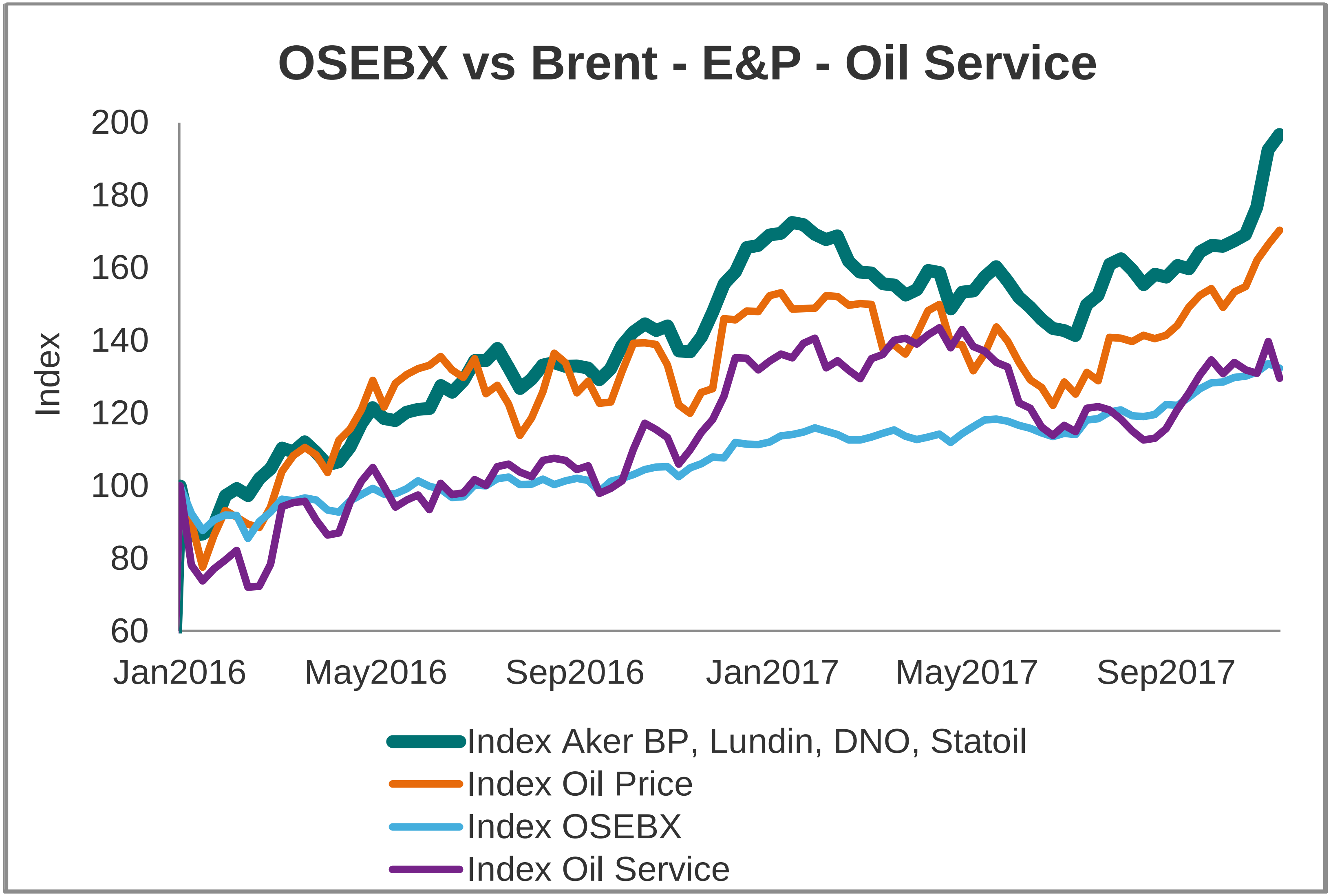
- Even if global oil demand peaks around 2030 why would you worry as an investor?
- 85% of the valuation relates to the cash flow the oil producer achieves before 2035

DNB oil story in pictures & graphs

November 2017 - Torbjørn Kjus

It Has Been Very Profitable To Bet On A Higher Oil Price

- Both the oil price and particularly oil shares have massively outperformed the Oslo stock exchange the past 2 years



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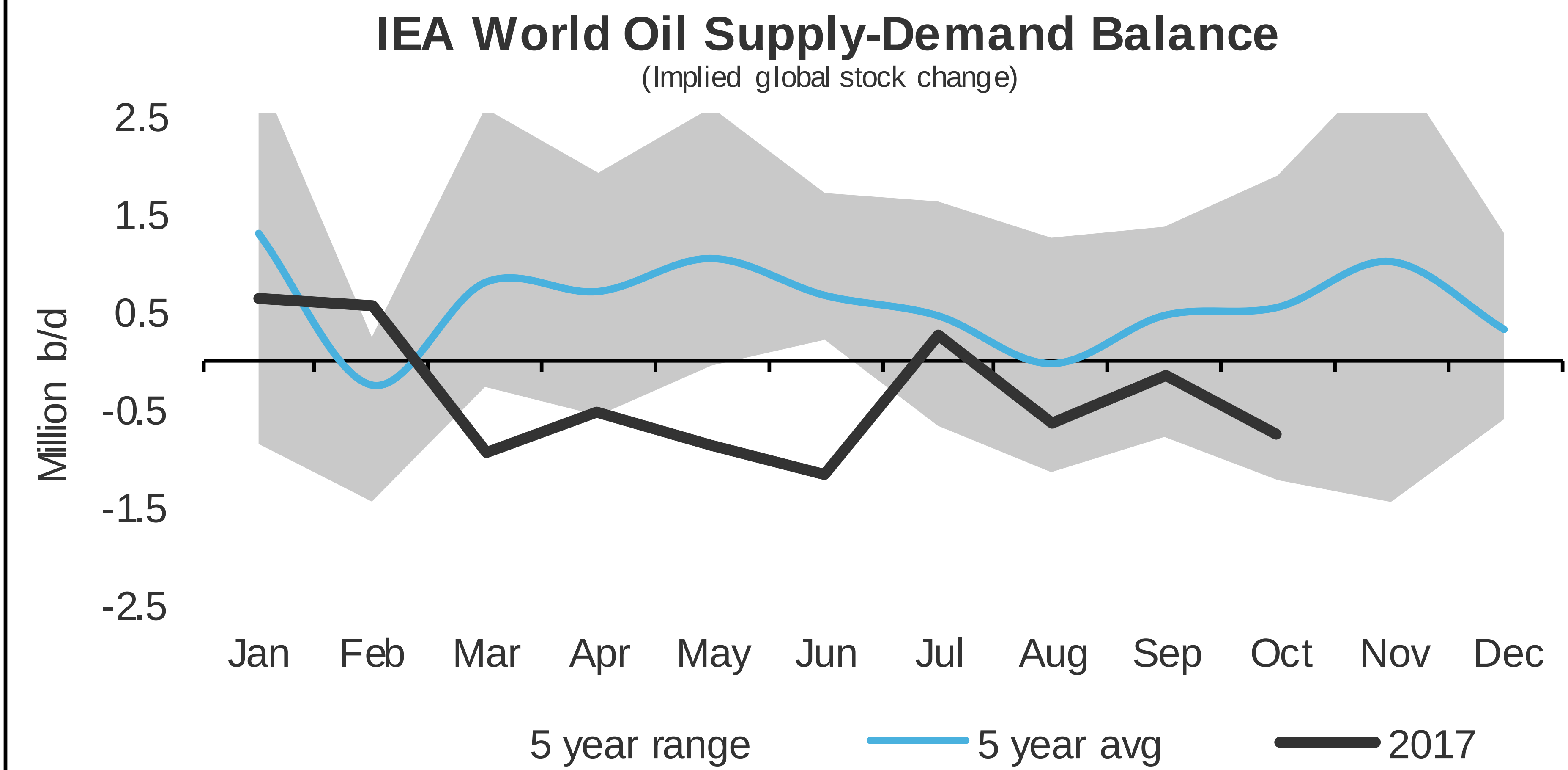
IEA Reports Global Oil Supply Lower Than Oil Demand In 2017

- This is the first year since 2013 where supply will be lower than demand



Source: IEA, DNB Markets

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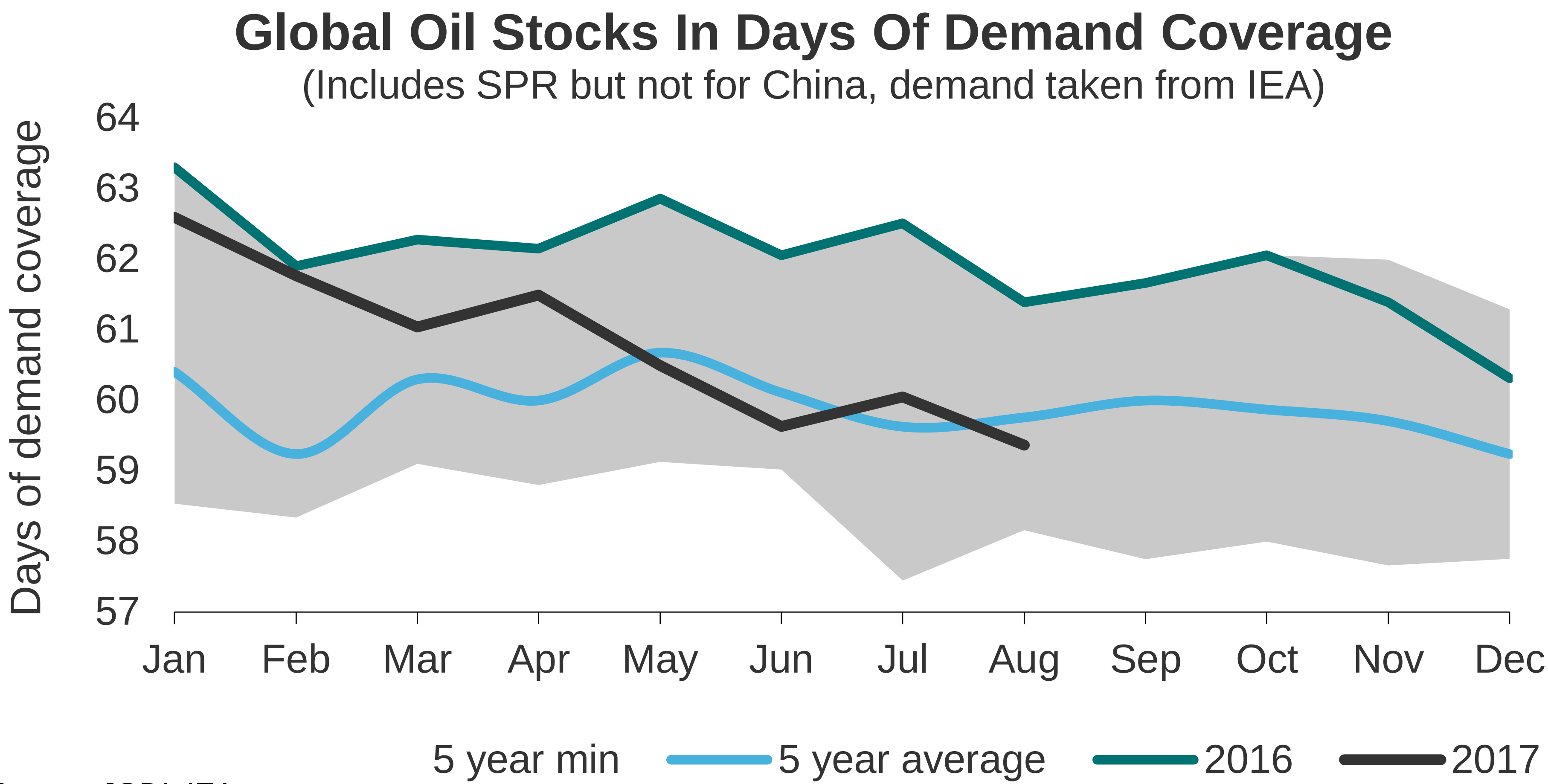
Global Onshore Stocks Are Drawing Down In 2017

- JODI stocks data shows that global trackable onshore stocks are now down at the 5-year average



Source: JODI, IEA

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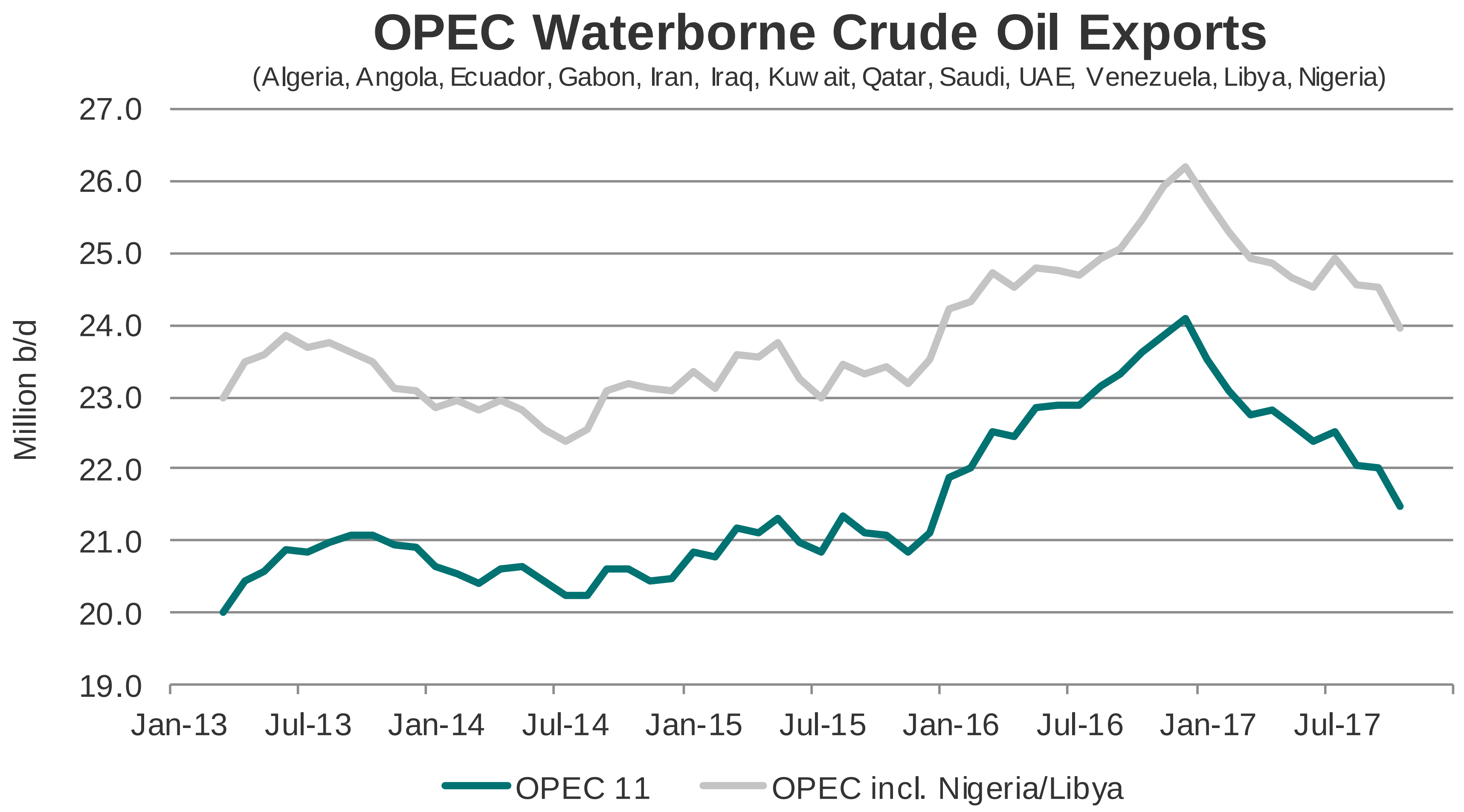
OPEC Waterborne Crude Exports Now Coming Down

- OPEC exports from the participating countries is down 2.1 million b/d since October (base line for the agreement) last year



Source: Platts cFlow, 3-month moving average

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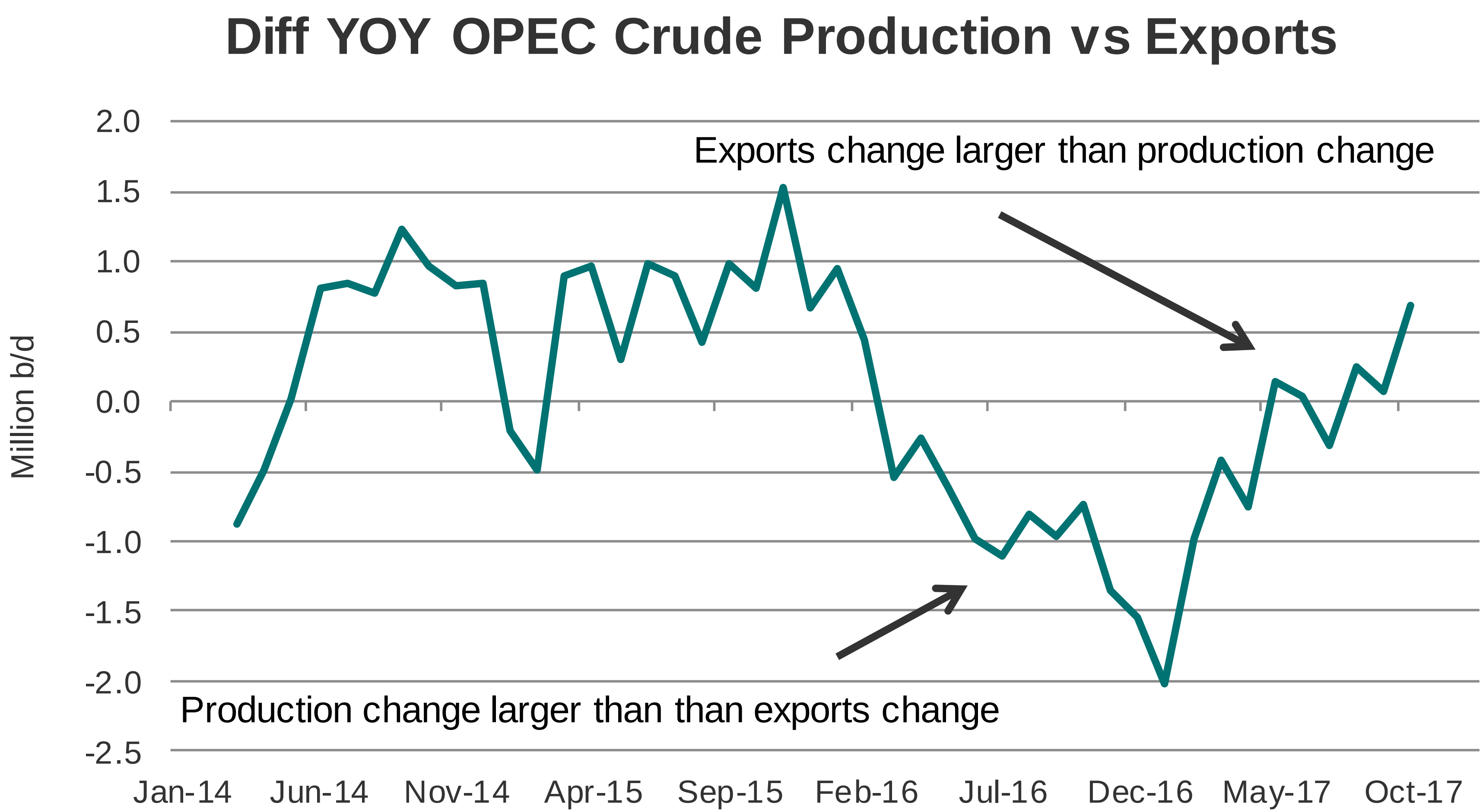
OPEC Has Until May Cut Production More Than Exports

- Some exports has been drawn from inventory, this has not been taken easily by the market who wants to see lower exports



Source: Platts cFlow, IEA

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Total Liquids Supply Cut By 1.9 Million b/d (excl. Libya/Nigeria)

Liquids Supply	Oct-16	Oct-17	Change
Algeria	1,629	1,489	-140
Angola/Cabinda	1,596	1,783	187
Ecuador	540	540	0
Gabon	220	200	-20
Equatorial Guinea	228	216	-12
Iran	4,680	4,683	3
Iraq	4,675	4,535	-140
Kuwait	3,240	3,005	-235
Qatar	1,983	2,003	20
Saudi Arabia	12,627	12,097	-530
United Arab Emirates	3,988	3,763	-225
Venezuela	2,340	2,090	-250
OPEC	**37,746**	**36,404**	**-1,342**
Russia	11,597	11,303	-294
Oman	1,019	989	-30
Kazakhstan	1,802	1,786	-16
Mexico	2,399	2,179	-220
Azerbaijan	815	802	-13
Bahrain	223	219	-4
Malaysia	685	679	-6
Sudan	76	70	-6
South Sudan	104	122	18
Brunei	135	119	-16
Non-OPEC	**18,855**	**18,268**	**-587**
Sum:	**56,601**	**54,672**	**-1,929**

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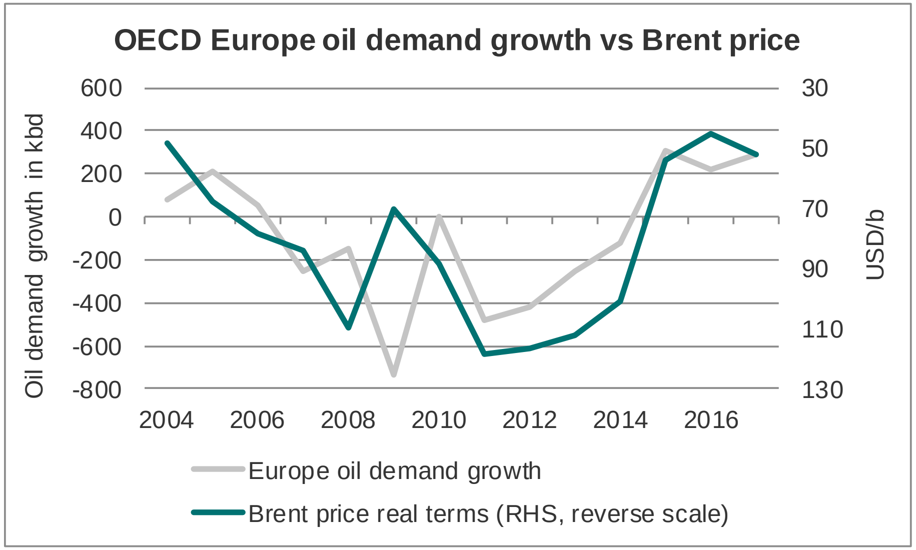
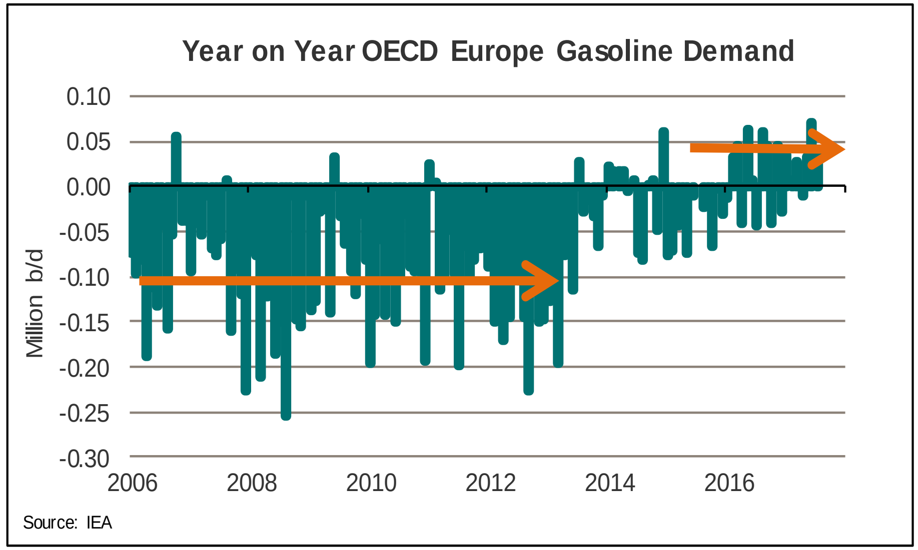
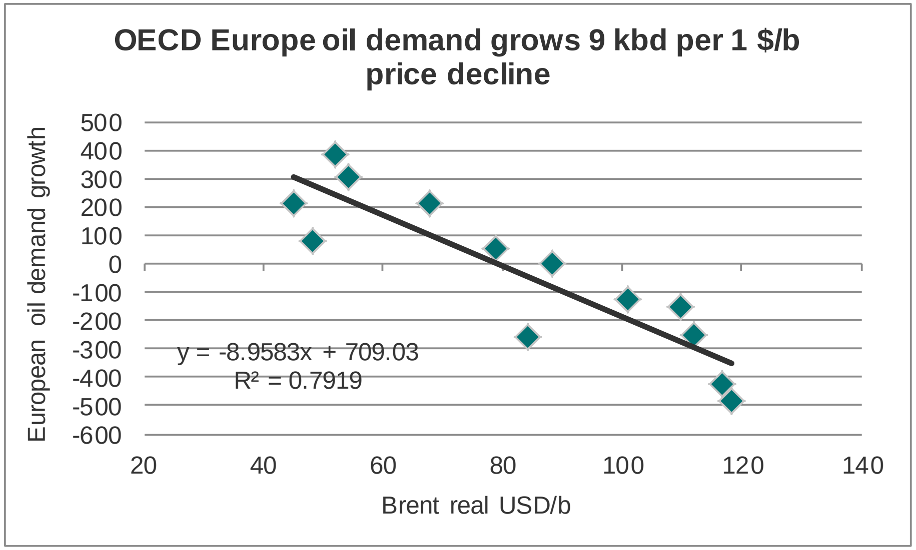
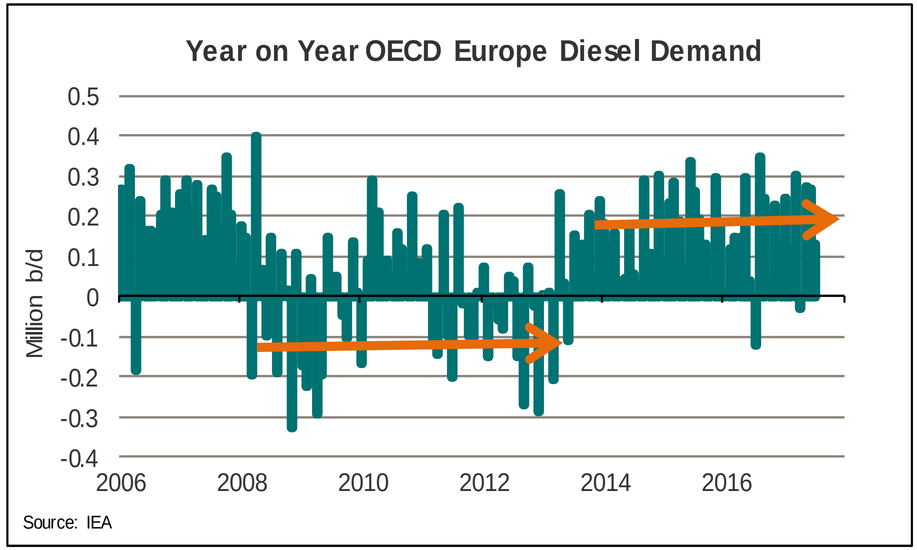
Strong Price Response To Demand In OECD Europe

- For each $/b Brent price decline OECD Europe demand grows 9 kbd









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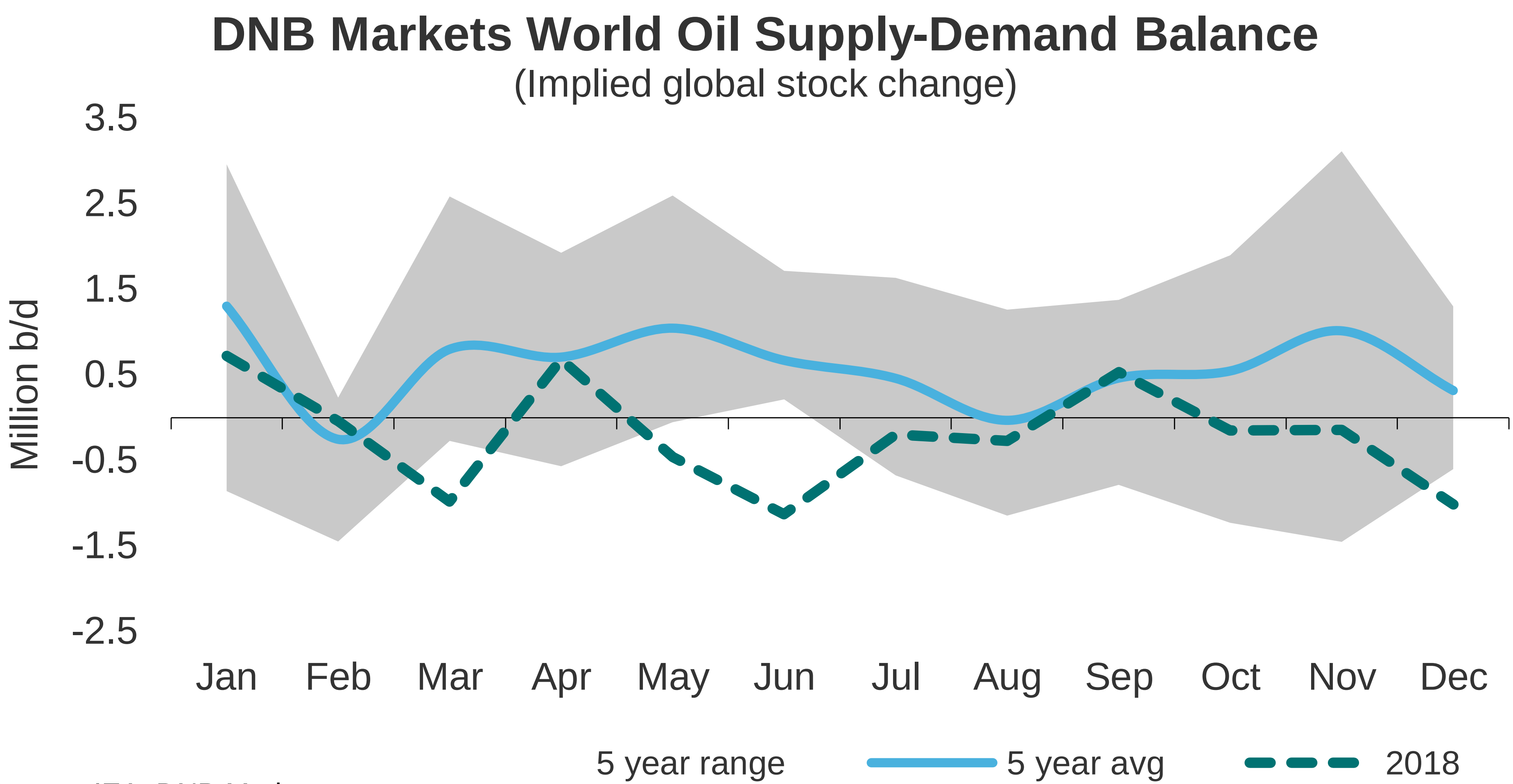
Average Stock Draw Of 0.2 mbd Predicted On OPEC Discipline

- The case below assumes OPEC average production for 2018 becomes 32.5 million b/d (same as October output)



Source: IEA, DNB Markets

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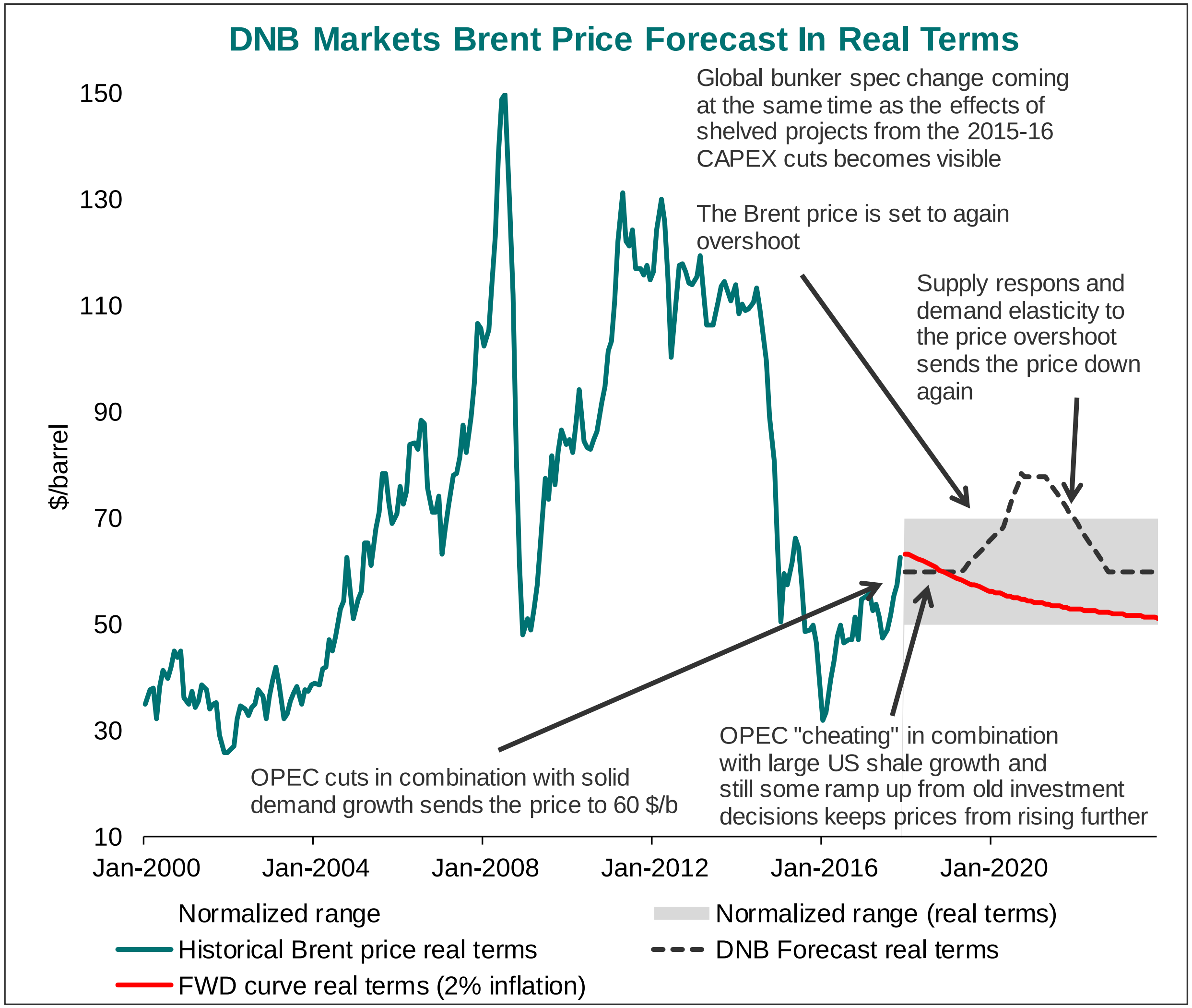
Longer Term Oil Price Forecast

(The forecast is for the rolling 1st month ICE Brent future contract)

	Historical Real $/b
2000	39.8
2001	33.7
2002	33.4
2003	37.1
2004	48.3
2005	67.9
2006	78.7
2007	84.1
2008	109.8
2009	70.1
2010	88.4
2011	118.3
2012	116.7
2013	112.0
2014	100.8
2015	54.3
2016	45.1
	Price forecast Real $/b
Q4-2017	60
Q1-2018	60
Q2-2018	60
Q3-2018	60
2017	54
2018	60
2019	65
2020	75
2021	70
2022	60



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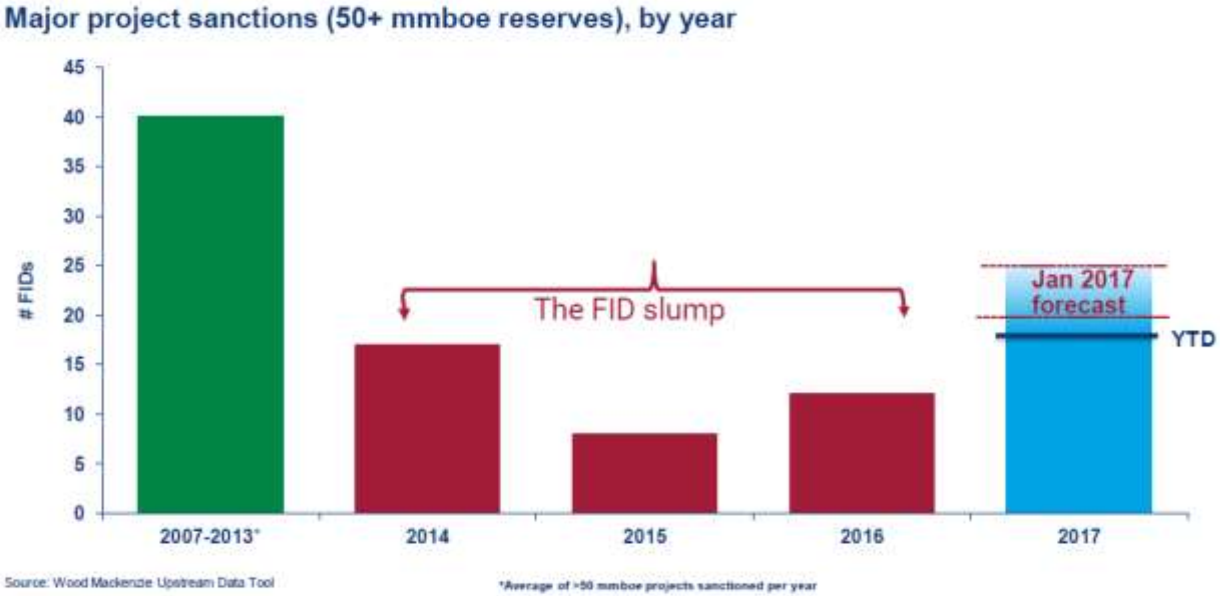
The FID-slump From 2014-16 Will Soon Hit The Oil Market

- The lack of FIDs are even more important than the lack of CAPEX, because we will soon run out of large startups



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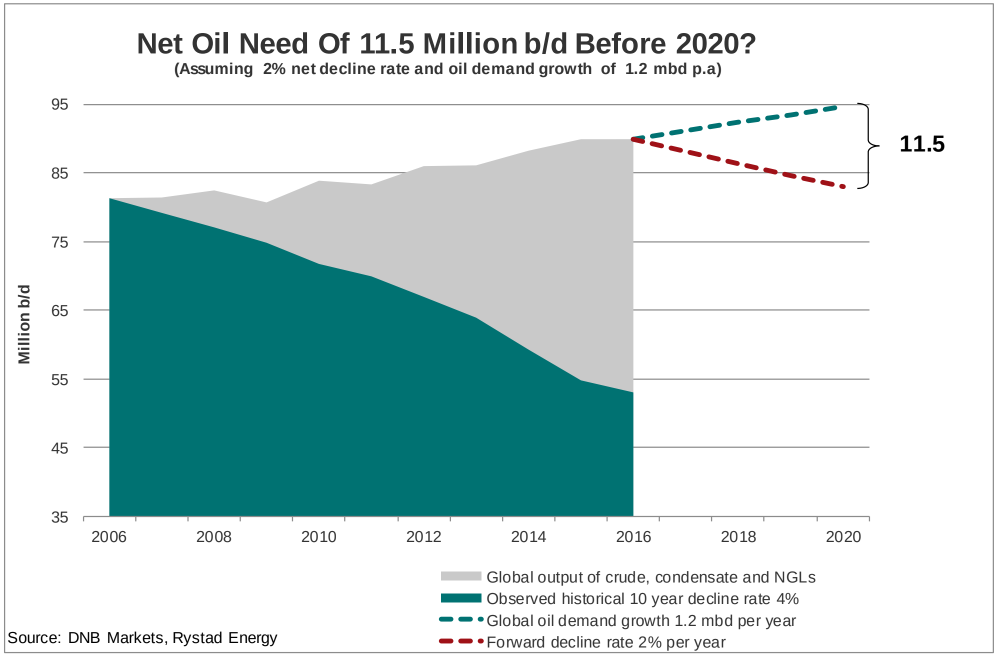
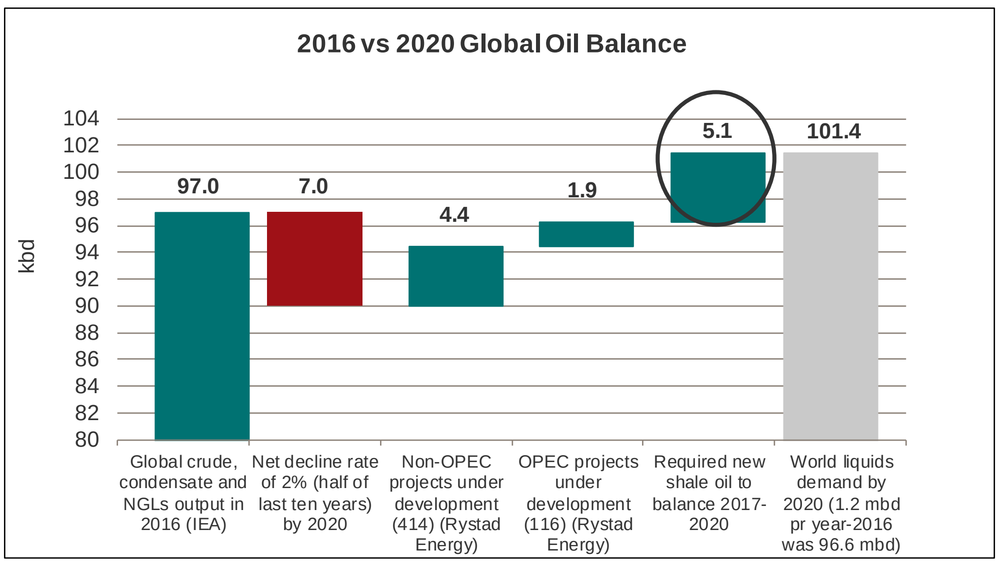
Net Need For Shale Of 5.1 mbd From 2017-2020

- Average growth of 1.3 mbd per year required by 2020 - US shale must grow from 4.3 mbd to 9.4 mbd





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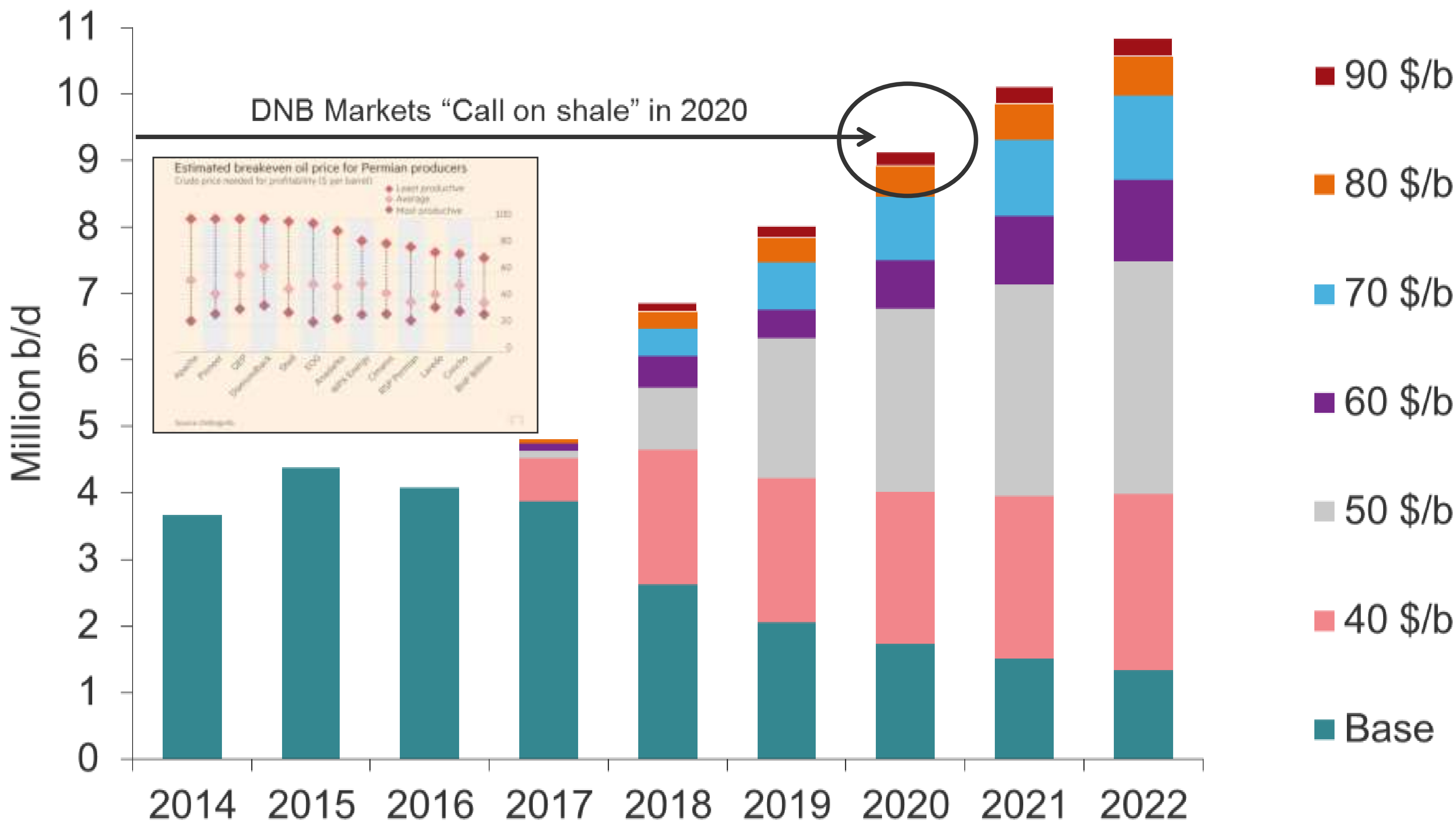
What Kind Of Brent Price Is Required For Economic Barrels?

- Our “call on US shale” in 2020 is 9.4 million b/d. The Brent price must then be higher than the 50-60 range to be economical.



Source for break even calculations: PIRA Energy - July 2017
(calculation using 10% cost of capital and is showing Brent equivalent prices, not wellhead prices)

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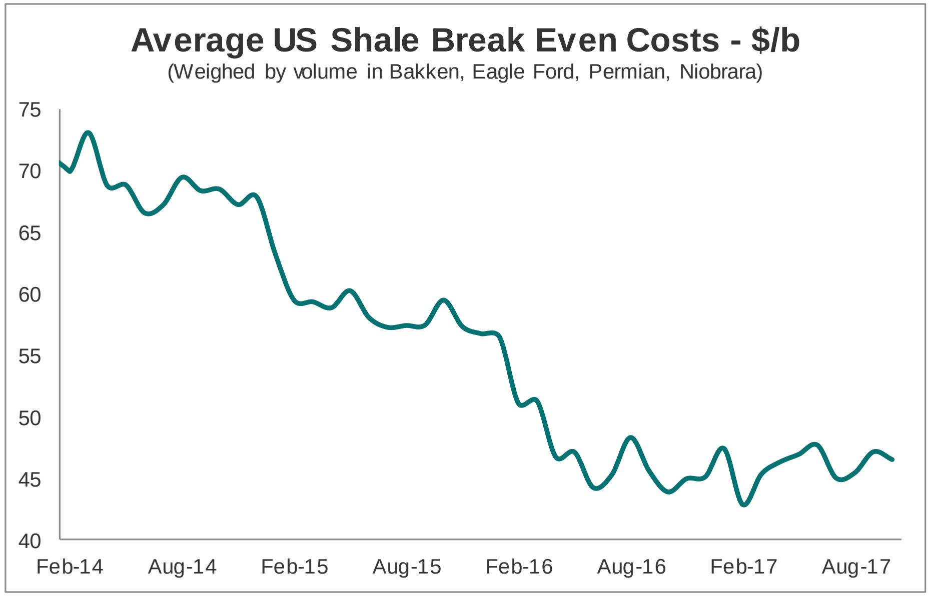
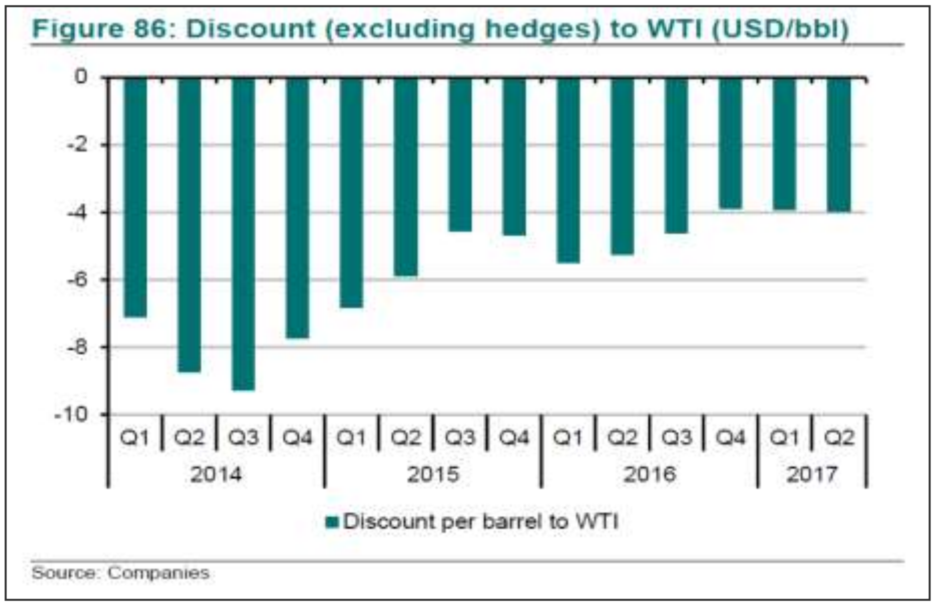
US Shale Wellhead Break Even Prices Below 50 $/b

- But has not fallen any further the past 6 quarters





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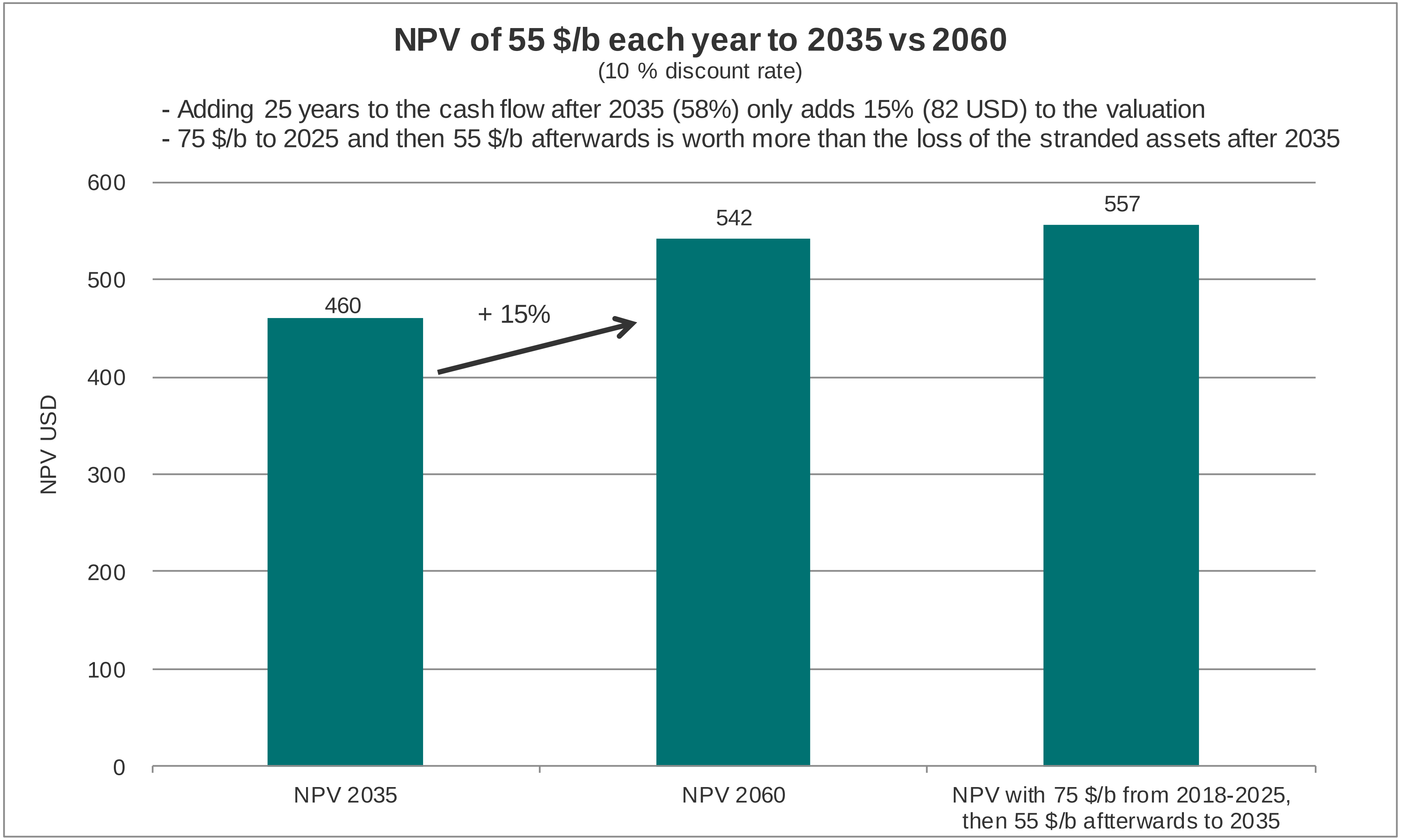
Why Would You Be Afraid Of Stranded Assets As An Investor?

- 85% of the value relates to the cash flow before 2035 – only 15 % of the value relates to the 2035-2060 period



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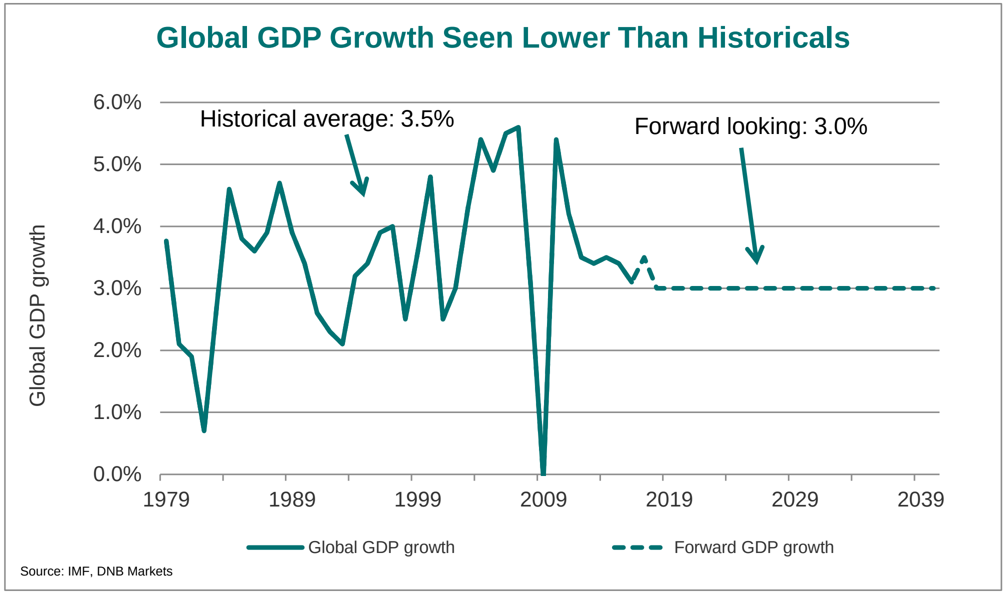
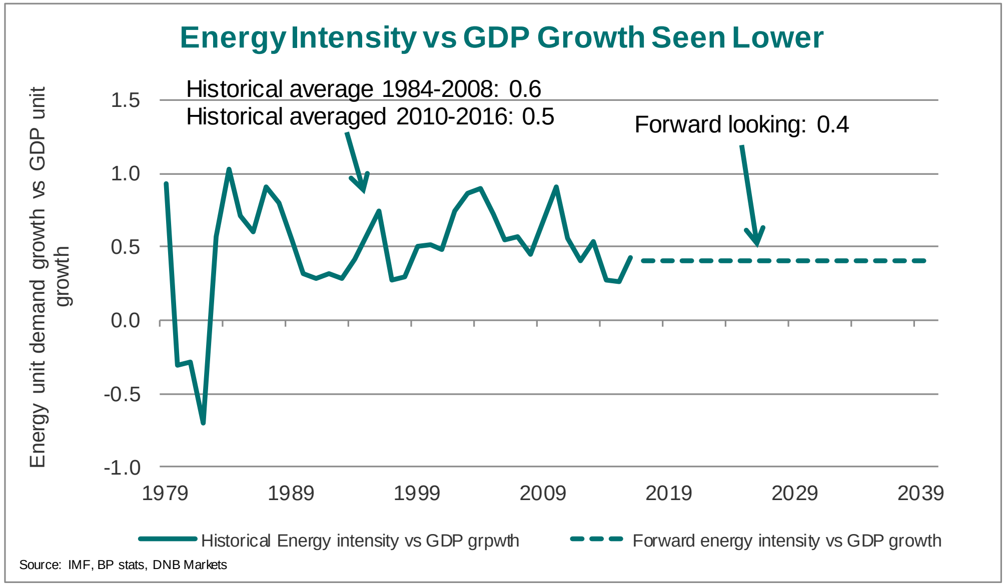
Growth In GDP & Energy Intensity Seen Lower Than Historicals





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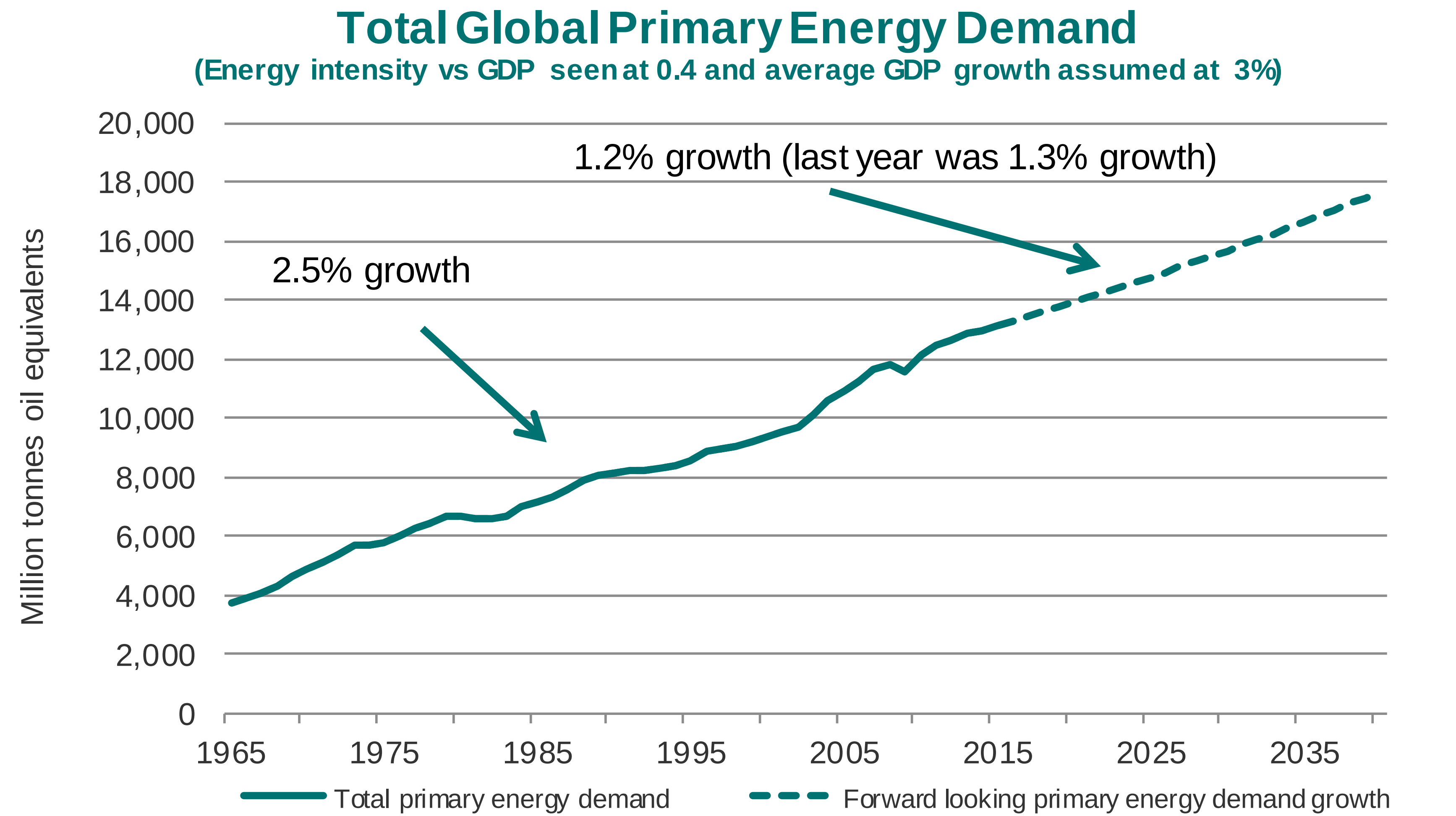
Primary Energy Demand Growth Much Lower Than Before

- Due to lower trend line GDP growth and lower energy intensity the forward growth in total energy demand is weaker than history



Source: BP stats, DNB Markets

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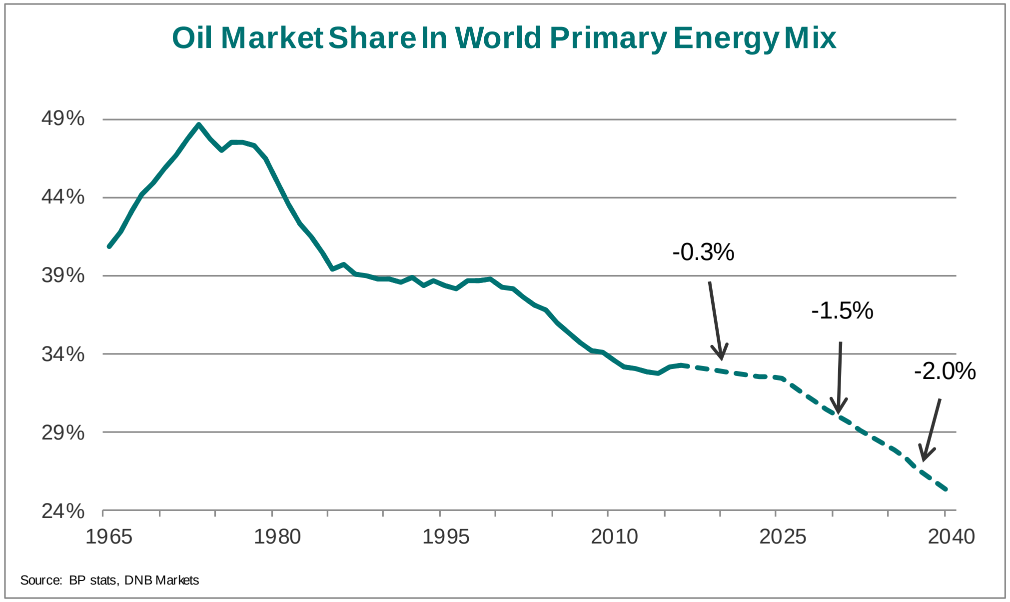
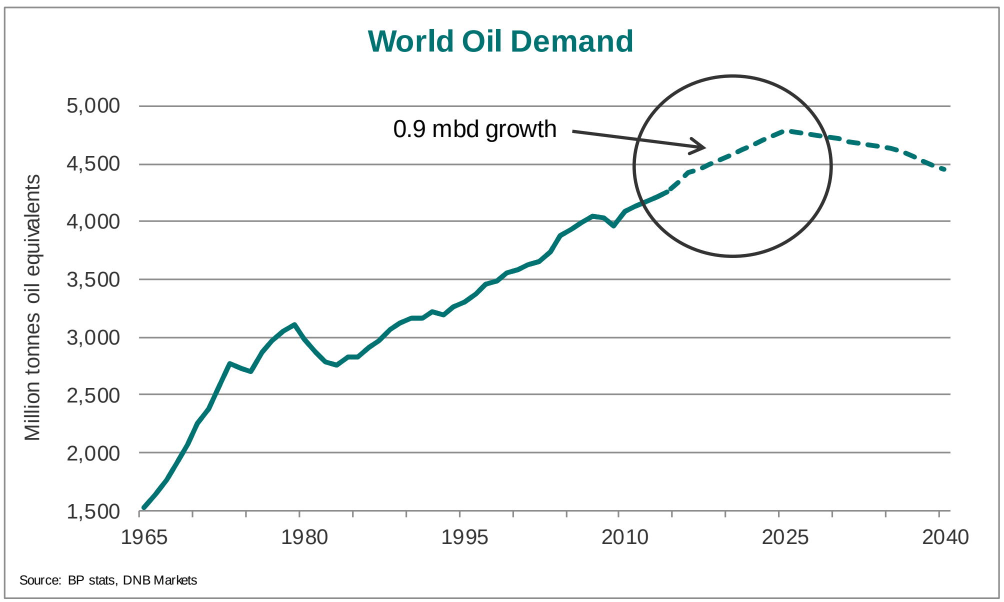
Oil Set To Loose Market Share – But Will Still Grow Until 2025

- Oil growth in barrels and tonnes until 2025 despite global GDP growth at 3.0% and decreasing energy efficiency





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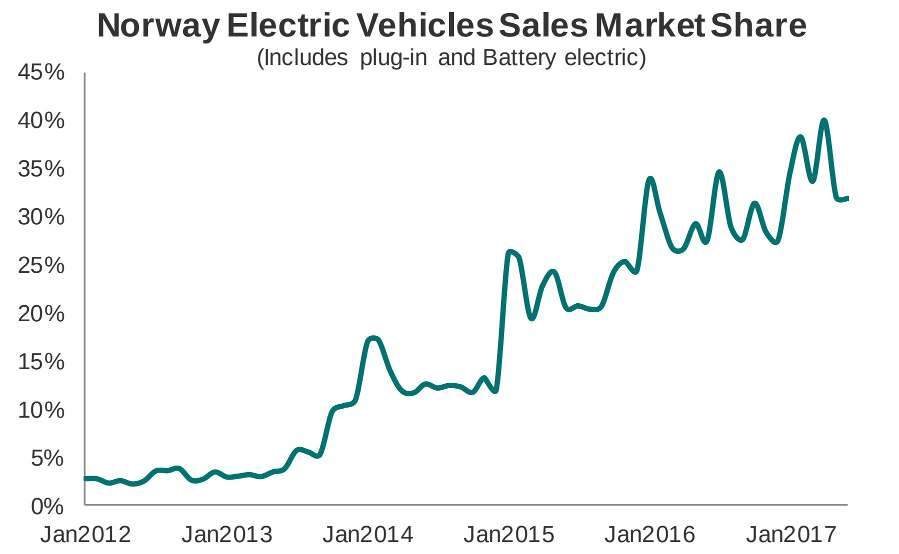
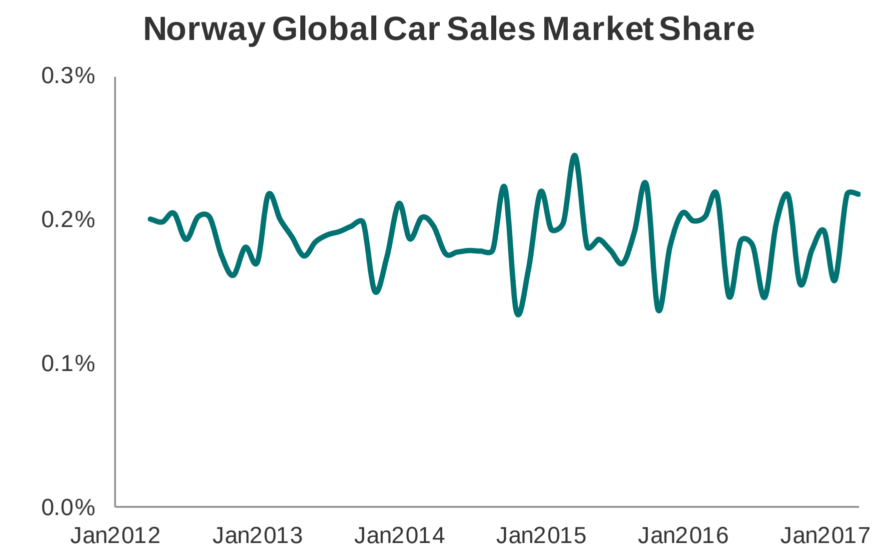
Electric Vehicles Are Almost One Third Of Sales In Norway

- But Norway car sales are less than 0.2% of the world…



Source: Bloombertg Intelligence



Source: Bloombertg Intelligence

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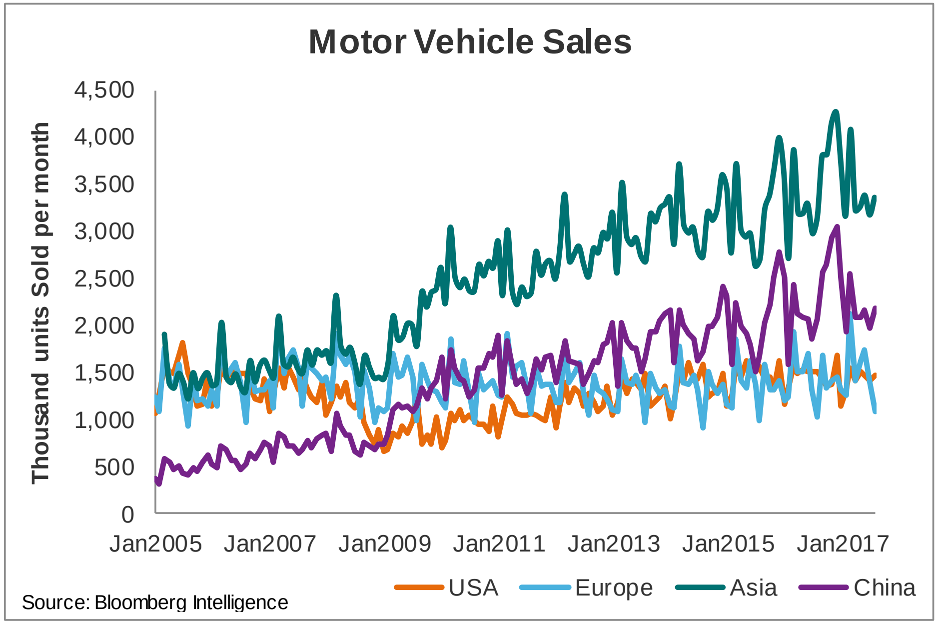
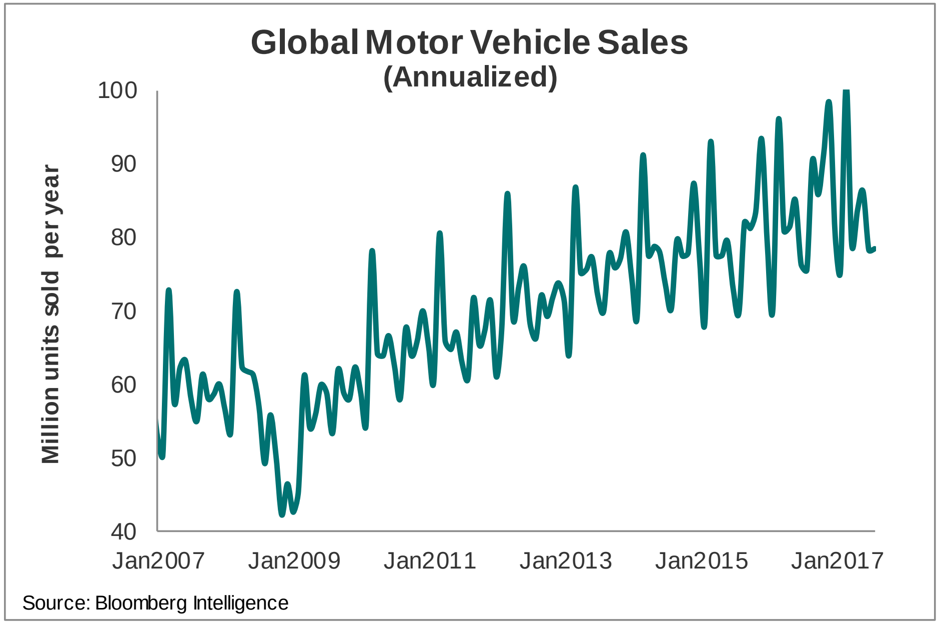
For The Motor Vehicle Fuel Market It Is Asia That Really Matters

- It is not like the key motor vehicle market is in USA/Europe anymore – What kind of fuel will be preferred in Asia?





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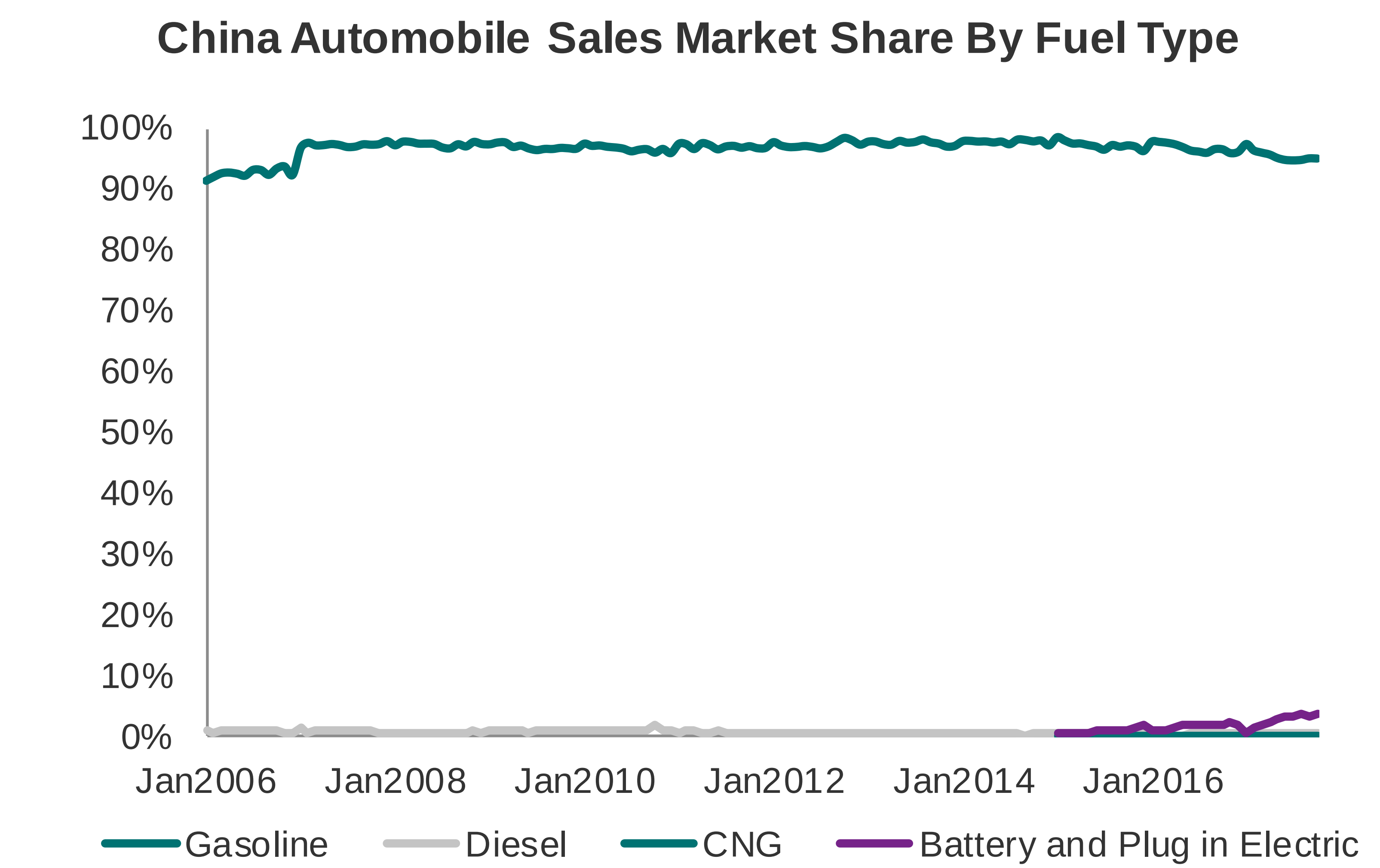
Still More Than 95% Of Cars Sold In China Runs On Gasoline

- This just means that it will take some time to make an impact on the oil market



Source: China Automotive Information

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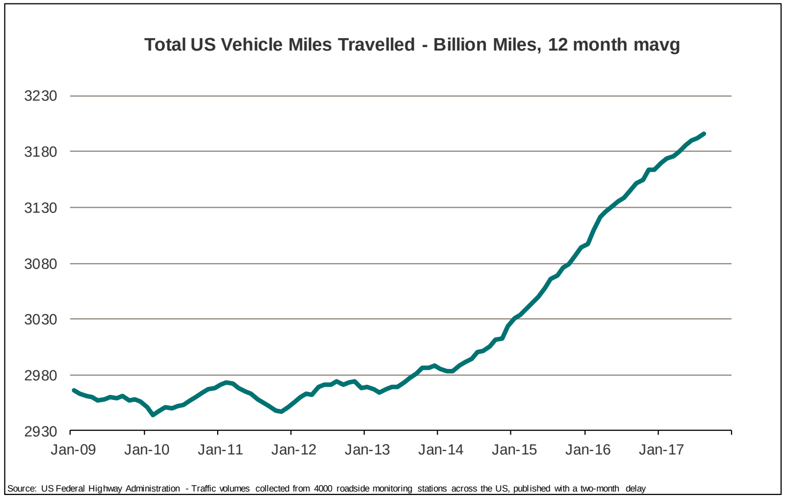
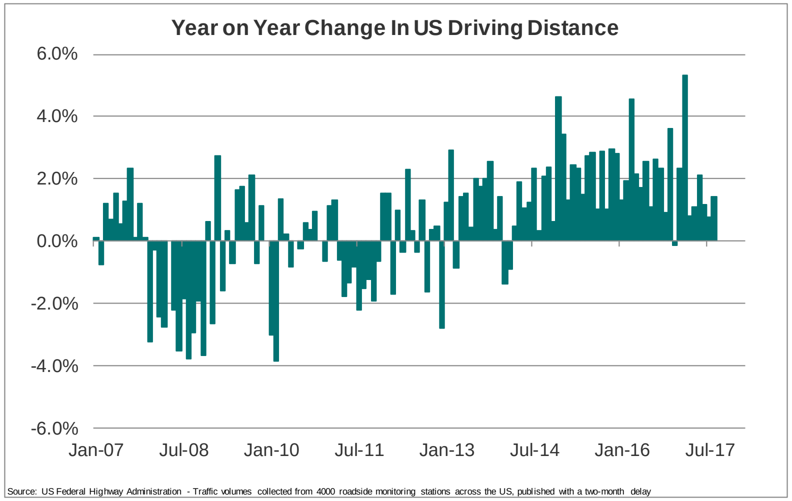
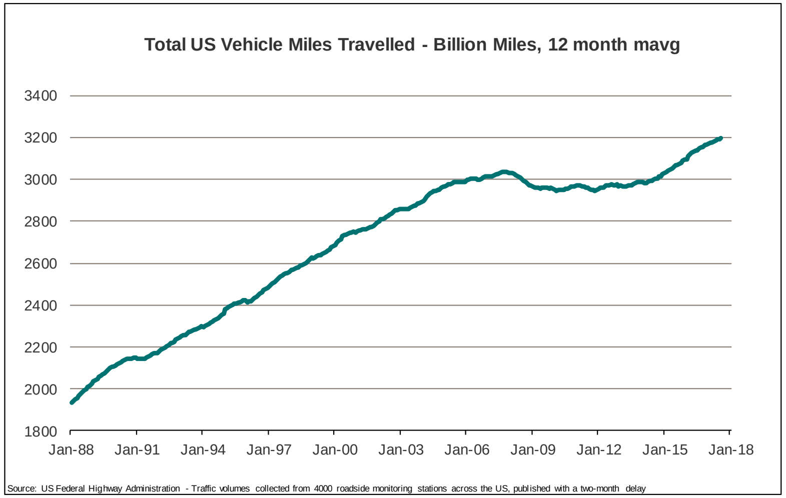
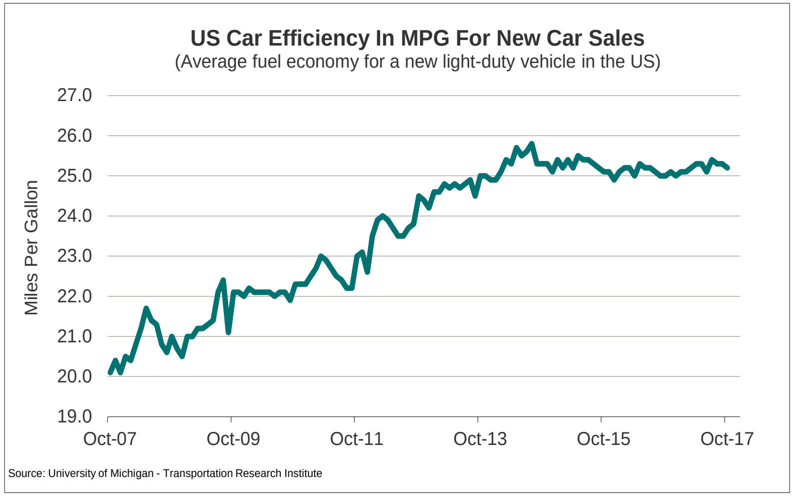
Driving Distance On The Rise As Gasoline Prices Drop

- Lower oil prices are incentivizing more driving, and at the same time the fuel efficiency of new car sales are dropping









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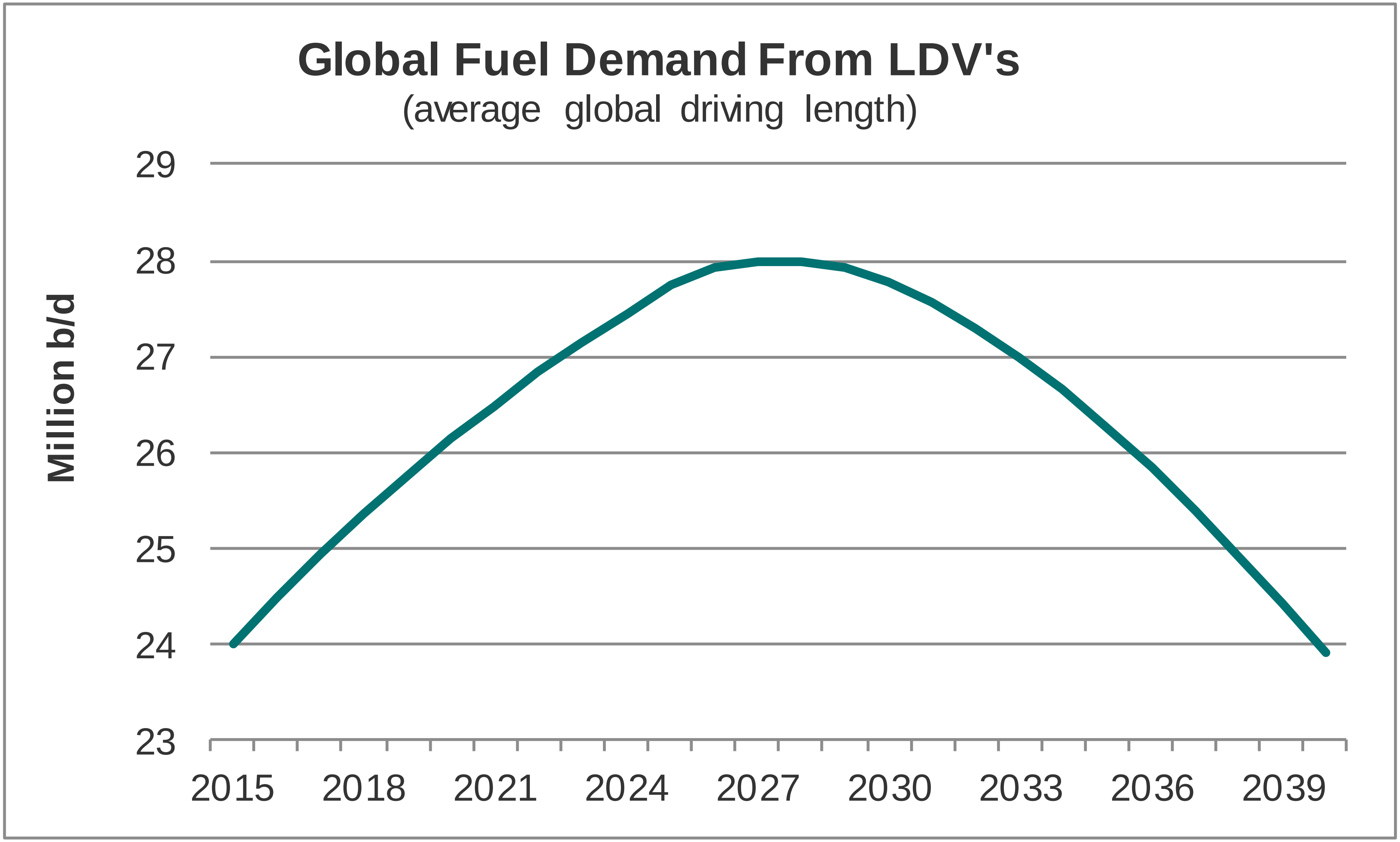
Fuel Demand From LDVs Will Increase For Another 10 Years

- This is despite an expected immense growth in sales of electric vehicles



Rule of thumb: If average MPG = 40 and average driving length = 12,000 km, Replacement per 1 million EVs will be 20 kbd
You would then need 50 million electric vehicles on the road to kill of 1 million b/d of oil demand from this sector

Source: Bloomberg New Energy Finance, DNB Markets, PIRA Energy

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DNB Markets Commodities

DNB Markets Commodities in brief

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