

# Global Energy: 3Q 2017 update

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**Tim Guinness (Co-manager)**

**Will Riley, CA (Co-manager)**

**Jonathan Waghorn (Co-manager)**



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- A stronger quarter for both oil prices and energy equities for a number of reasons:

## For oil prices:

- Global oil **demand growth being revised higher** – now 1.6m b/day for 2017 and forecast to reach 100m b/day in 3Q 2018 (per the IEA\*)
- Signs of **lower US oil production growth** potential – June and July US onshore production growth much lower than forecast
- **Increased confidence in OPEC's action** – exports are falling and compliance looks robust. OPEC are managing the process well at the moment

## For energy equities:

- **Capital discipline** from the US E&P community – Anadarko 10% of market cap share buyback saw the shares outperform peers by c.6%
- **Free cash flow generation** from Canadian large-caps and European Integrations – more FCF in 1H 2017 (at \$52/bl Brent) than in 1H 2014 (at \$109/bl Brent)
- **Bad news discounted** in prices – RD/Shell with a dividend yield of 7% when it looks like cash dividends will be covered in 2018 at \$50-55/bl Brent

- Global oil demand growth being revised higher
- US oil production growth potential under pressure
- Increased confidence in OPEC's actions

# Near term oil demand: world oil demand up 1.6m b/day in 2017

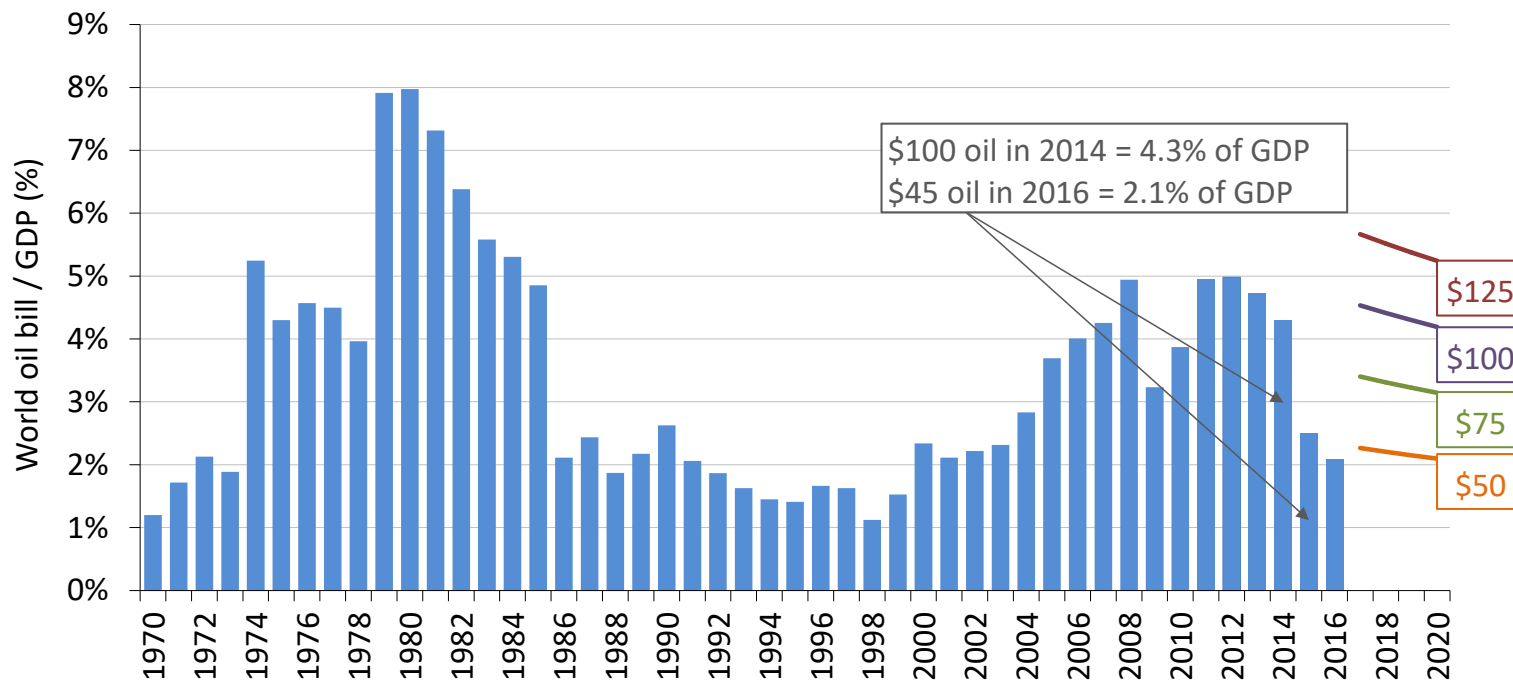
- 2017 world oil demand up around 10m b/day on pre-recession peak (2007)
- Non-OECD demand has grown unchecked for over a decade, not unseated by financial crisis
- Estimates for 2017 indicate healthy demand growth of 1.5m b/day – nearly all from non-OECD

## Global oil demand (m b/day)

|                                  | 2004        | 2005        | 2006        | 2007        | 2008        | 2009        | 2010        | 2011        | 2012        | 2013        | 2014        | 2015        | 2016        | 2017        |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>OECD demand</b>               |             |             |             |             |             |             |             |             |             |             |             |             | IEA         | IEA         |
| North America                    | 25.7        | 25.8        | 24.5        | 25.8        | 24.5        | 23.7        | 24.1        | 24.0        | 23.6        | 24.2        | 24.2        | 24.6        | 24.7        | 24.9        |
| Europe                           | 15.6        | 15.7        | 15.7        | 15.6        | 15.5        | 14.7        | 14.7        | 14.3        | 13.8        | 13.6        | 13.5        | 13.8        | 14.1        | 14.3        |
| Pacific                          | 8.8         | 8.9         | 8.7         | 8.7         | 8.3         | 8.0         | 8.2         | 8.2         | 8.5         | 8.3         | 8.0         | 8.1         | 8.1         | 8.1         |
| <b>Total OECD</b>                | <b>50.1</b> | <b>50.4</b> | <b>48.9</b> | <b>50.1</b> | <b>48.3</b> | <b>46.4</b> | <b>47.0</b> | <b>46.5</b> | <b>45.9</b> | <b>46.1</b> | <b>45.7</b> | <b>46.4</b> | <b>46.9</b> | <b>47.3</b> |
| <i>Change in OECD demand</i>     |             | 0.3         | -1.5        | 1.2         | -1.8        | -1.9        | 0.6         | -0.5        | -0.6        | 0.2         | -0.4        | 0.7         | 0.5         | 0.4         |
| <b>NON-OECD demand</b>           |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| FSU                              | 3.8         | 3.9         | 4.0         | 4.0         | 4.2         | 4.0         | 4.1         | 4.4         | 4.6         | 4.5         | 4.6         | 4.5         | 4.8         | 4.8         |
| Europe                           | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         |
| China                            | 6.4         | 6.7         | 7.2         | 7.6         | 7.7         | 7.9         | 8.9         | 9.3         | 9.9         | 10.4        | 10.8        | 11.6        | 11.9        | 12.4        |
| India                            | 2.6         | 2.6         | 2.7         | 2.9         | 3.1         | 3.2         | 3.3         | 3.5         | 3.7         | 3.7         | 3.8         | 4.2         | 4.6         | 4.7         |
| Other Asia                       | 6.4         | 6.4         | 6.6         | 6.9         | 6.8         | 7.1         | 7.5         | 7.6         | 7.6         | 7.9         | 8.0         | 8.4         | 8.4         | 8.7         |
| Latin America                    | 4.9         | 5.0         | 5.2         | 5.3         | 5.6         | 5.7         | 6.1         | 6.2         | 6.5         | 6.6         | 6.8         | 6.7         | 6.6         | 6.6         |
| Middle East                      | 5.5         | 5.9         | 6.1         | 6.4         | 6.7         | 7.1         | 7.3         | 7.5         | 7.9         | 8.0         | 8.4         | 8.4         | 8.3         | 8.3         |
| Africa                           | 2.8         | 2.9         | 2.9         | 3.3         | 3.3         | 3.4         | 3.5         | 3.5         | 3.8         | 3.8         | 3.9         | 4.1         | 4.1         | 4.2         |
| <b>Total Non-OECD</b>            | <b>33.1</b> | <b>34.1</b> | <b>35.4</b> | <b>37.1</b> | <b>38.1</b> | <b>39.1</b> | <b>41.4</b> | <b>42.7</b> | <b>44.8</b> | <b>45.6</b> | <b>47.1</b> | <b>48.4</b> | <b>49.3</b> | <b>50.5</b> |
| <i>Change in non-OECD demand</i> |             | 1.0         | 1.3         | 1.7         | 1.0         | 1.0         | 2.3         | 1.3         | 2.1         | 0.8         | 1.5         | 1.3         | 0.9         | 1.2         |
| <b>Total Demand</b>              | <b>82.5</b> | <b>83.8</b> | <b>85.1</b> | <b>87.2</b> | <b>86.4</b> | <b>85.5</b> | <b>88.4</b> | <b>89.2</b> | <b>90.7</b> | <b>91.7</b> | <b>92.9</b> | <b>94.8</b> | <b>96.1</b> | <b>97.7</b> |
| <i>Change in demand</i>          |             | 1.3         | 1.3         | 2.1         | -0.8        | -0.9        | 2.9         | 0.8         | 1.5         | 1.0         | 1.2         | 1.9         | 1.3         | 1.6         |

- We believe Saudi is targeting a price that gives a “reasonable” world oil bill
- Ten year average world oil bill\* is 4.2%, 20yr average is 3.2%, 30yr average is 2.8%
- \$100 oil will be affordable by 2020 if the ten year average is achieved
- If oil averages \$75 it will mean in 2020 the world oil bill is 3.1% of GDP
- If oil averages \$50 it will mean in 2020 the world oil bill is 2.1% of GDP

## The world oil ‘bill’ as a percentage of world GDP



Source Bloomberg LP; Guinness Atkinson, data as of October 2017

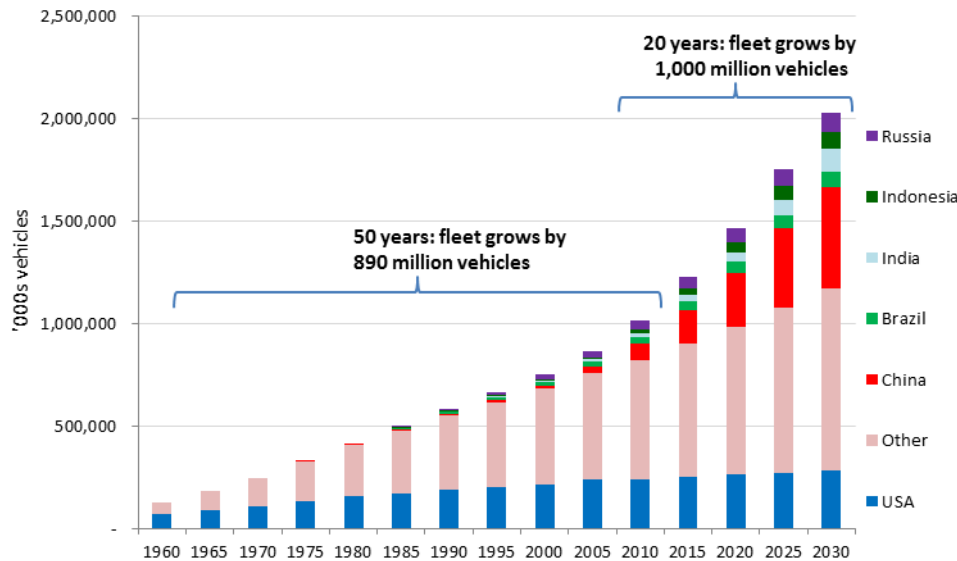
\*World oil bill = total global spend on oil consumption / world GDP

Forecasts are inherently limited and cannot be relied upon.

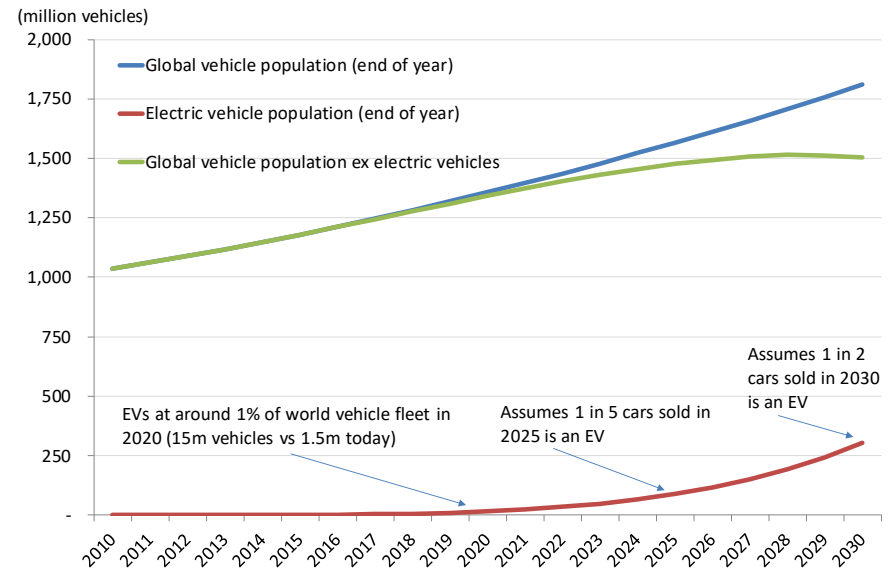


- Crude oil is 60% used in transportation and there are limited substitutes currently
- Long term oil demand will be driven by the non-OECD adopting mass transportation
- The global vehicle population grew by 890m from 1960 to 2010...  
 ... but we think could grow by 1,000m in the next twenty years
- Even allowing for strong electric vehicle demand growth, the outlook is robust

## World vehicle population (1960-2030e)

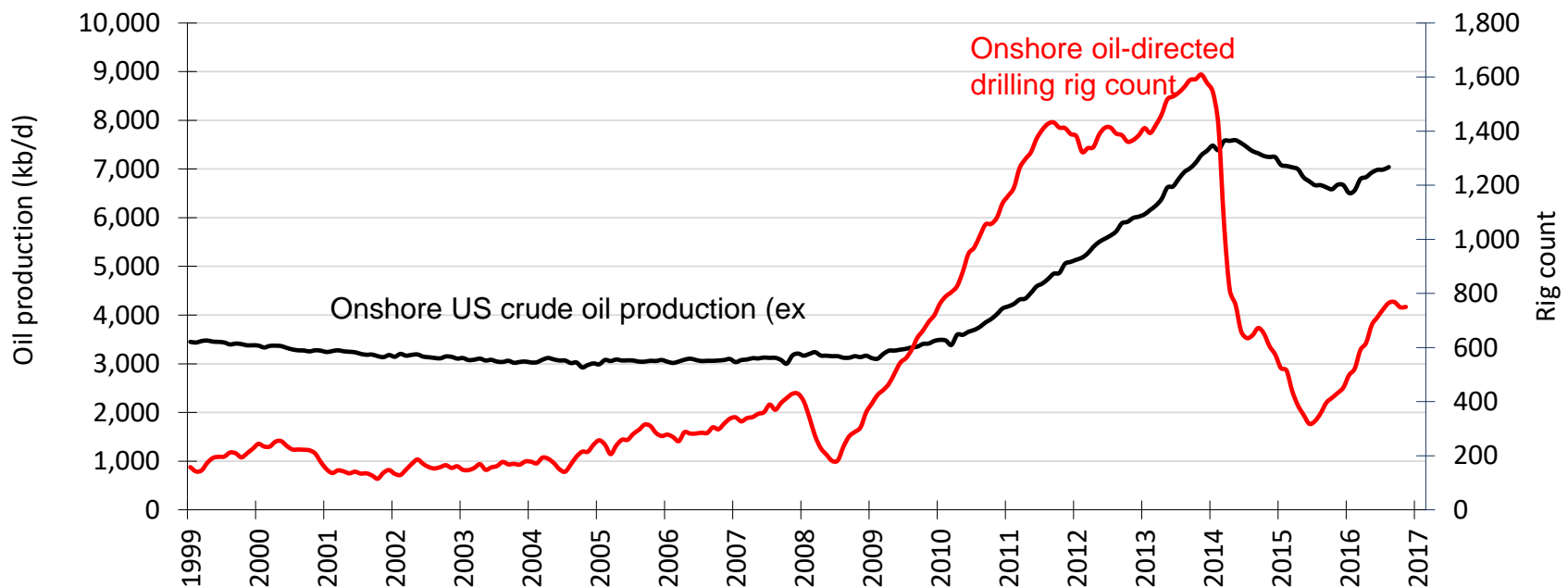


## Electric vehicles vs non-electric vehicles



- The decline of US onshore oil production in 2015/16 now reversed to growth
- US onshore (ex Alaska and GoM) oil supply was 7.0m b/day in July 2017
- US onshore oil peaked in Apr 2015 at 7.6m b/day and fell to 6.5m b/day in Dec 2016
- The US oil directed rig count has recovered from low of 330 mid-2016 to 750 in Sept 2017

## US onshore oil production vs oil rig count (table shows US onshore total rig count by shale basin)





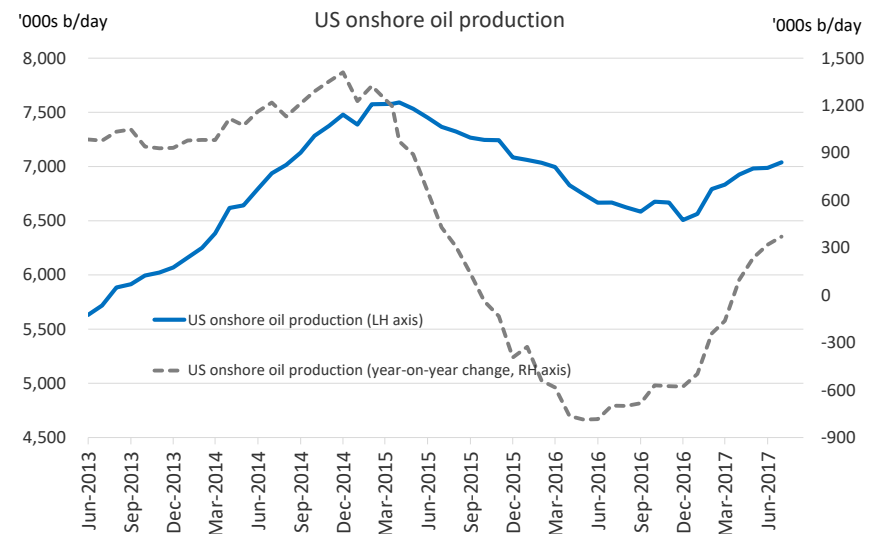
- We expect marginal investment (from higher oil prices) to be invested in US shale
  - The resource is available, payback is quick and technical, fiscal and political risks are low
- Too great a level of investment will bring too much oil onstream too quickly
- Efficiency gains will compete with cost inflation and infrastructure access
- We believe that a trajectory from \$50/bl today towards \$60/bl will be required
  - Delivering economic initial growth spurt in 2017/2018 as new wells come online
  - Delivering more growth in 2019/2020 as non-OPEC ex-US sees production declines

## Potential trajectories for US onshore oil production

| Brent oil price | Production change                |
|-----------------|----------------------------------|
| \$30-40/bl      | Declining 0.3-0.5m b/day         |
| \$40-50/bl      | Broadly flat                     |
| \$50-60/bl      | Increasing around 0.6-1.2m b/day |
| \$60-70/bl      | Increasing around 1.2-1.6m b/day |

## US onshore oil production (kb/day)

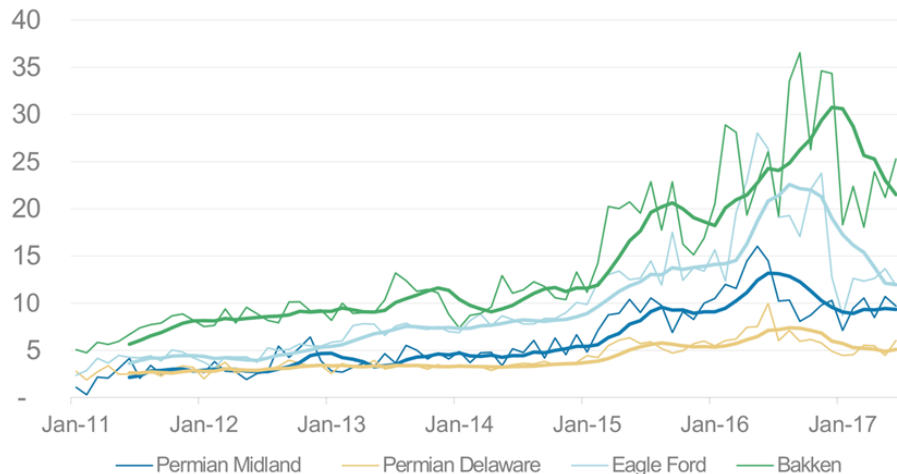
Actual production and annual change



- Structural and cyclical factors brought greater efficiencies to US onshore production
  - Structural - focus on better plays, longer horizontals, better positioning and larger frac intensity
  - Cyclical - looser oil service supply chain, lower service cost pricing, better quality personnel
- As oil prices have started to rise, efficiencies are showing signs of ending
  - Horizontal length drilled per rig has rolled over
  - Initial Production rates (adjusted for horizontal length) have flattened

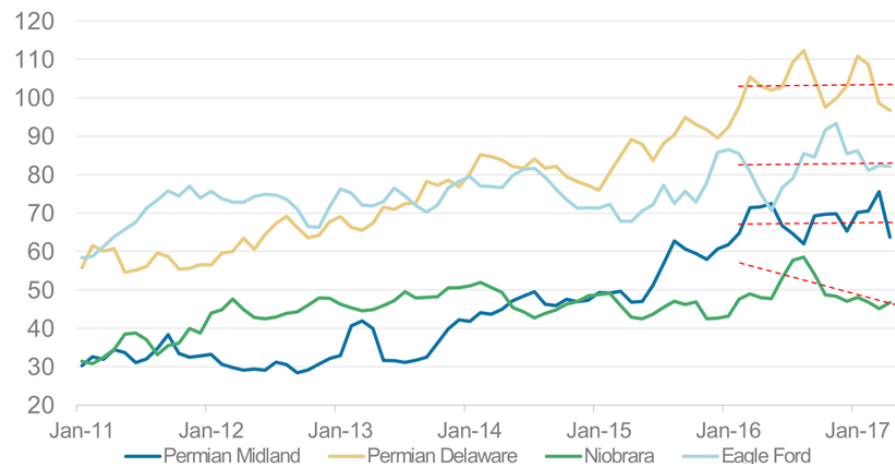
## Horizontal well length drilled per rig per month

Thousand feet

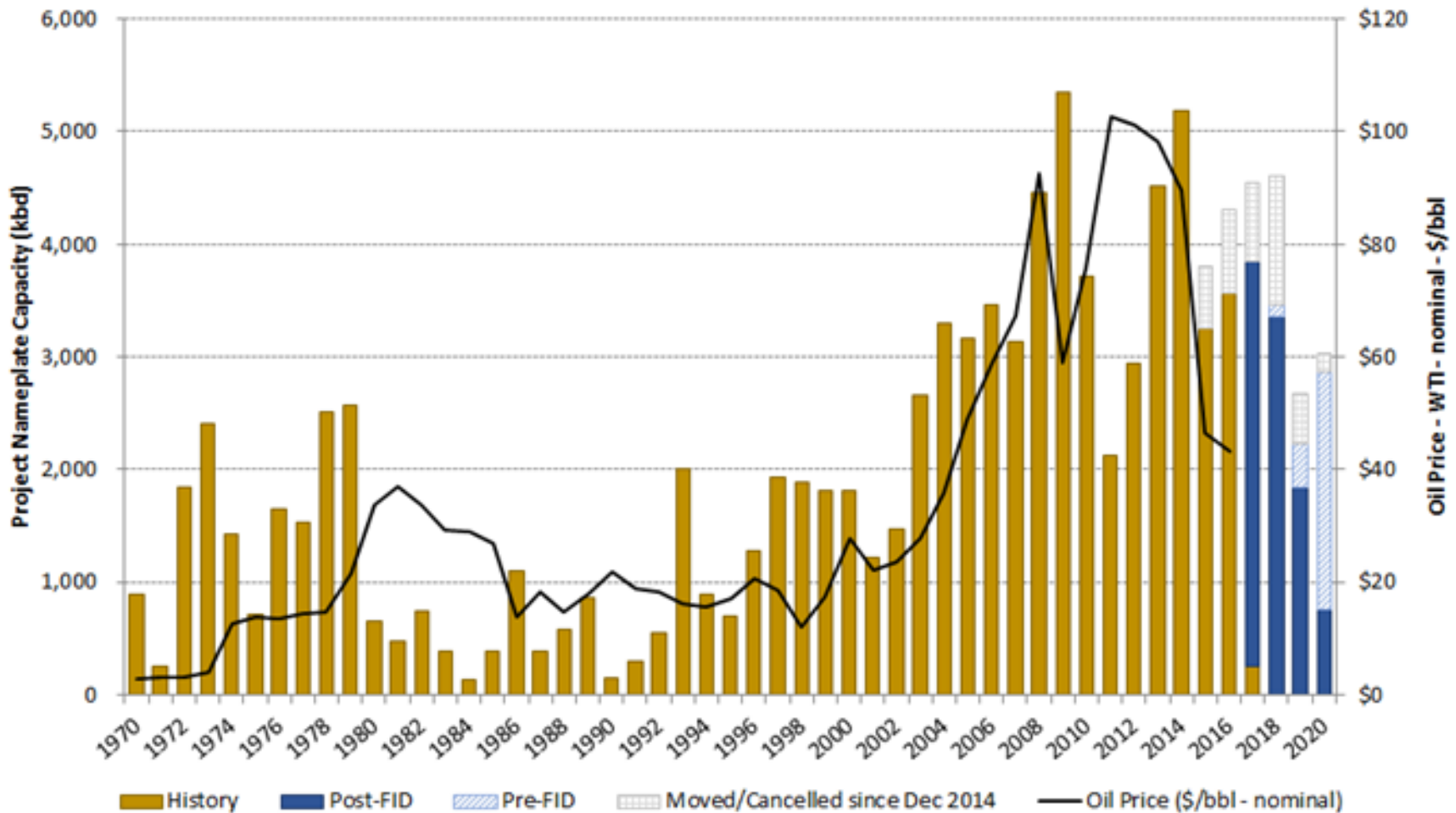


## Initial Production per well

Per thousand foot of well, 3mth average



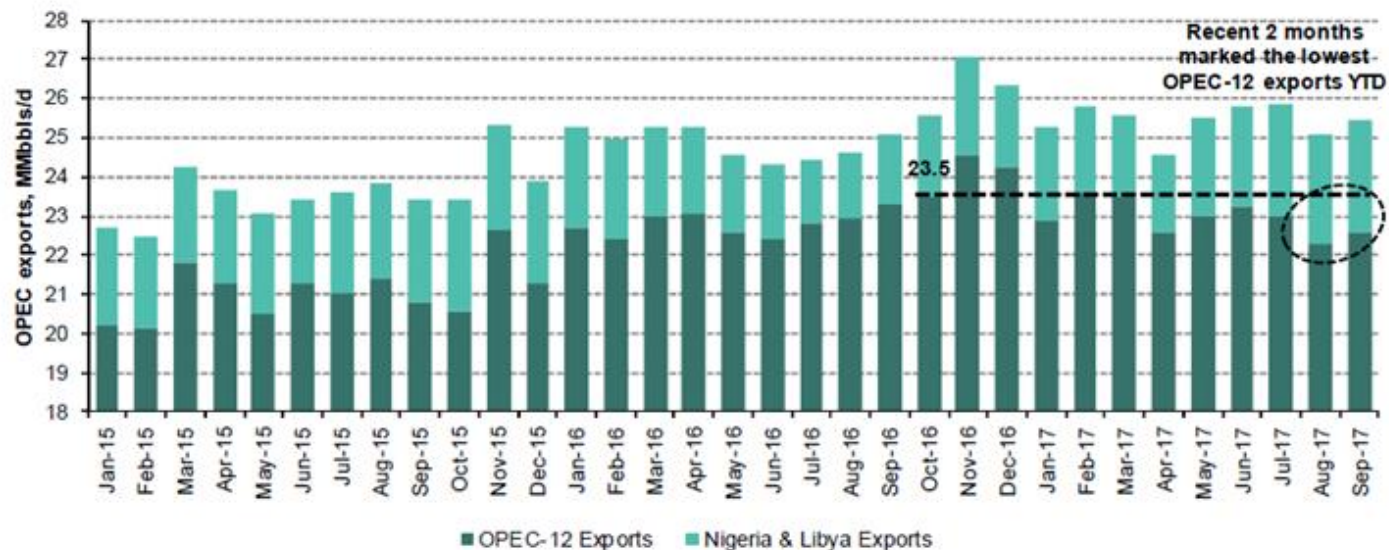
## Major non-OPEC (ex-US onshore) project start-up schedule



Source : Kessler Energy, Guinness Atkinson, July 2017  
 Forecasts are inherently limited and cannot be relied upon.

- While OPEC production fell at the start of 2017, OPEC exports remained high
- Many OPEC countries sold oil from onshore and offshore storage
- OPEC-12 exports (ie Ex Nigeria and Libya) have fallen steadily during 2017
  - Aug and Sept 2017 exports averaged around 22.3m b/day
  - Oct, Nov and Dec 2016 (ie pre quota) oil exports averaged around 24m b/day
- Libya and Nigerian exports have grown over the same period as production recovered

## OPEC oil exports (mn b/d) split between OPEC-12 and Nigeria/Libya

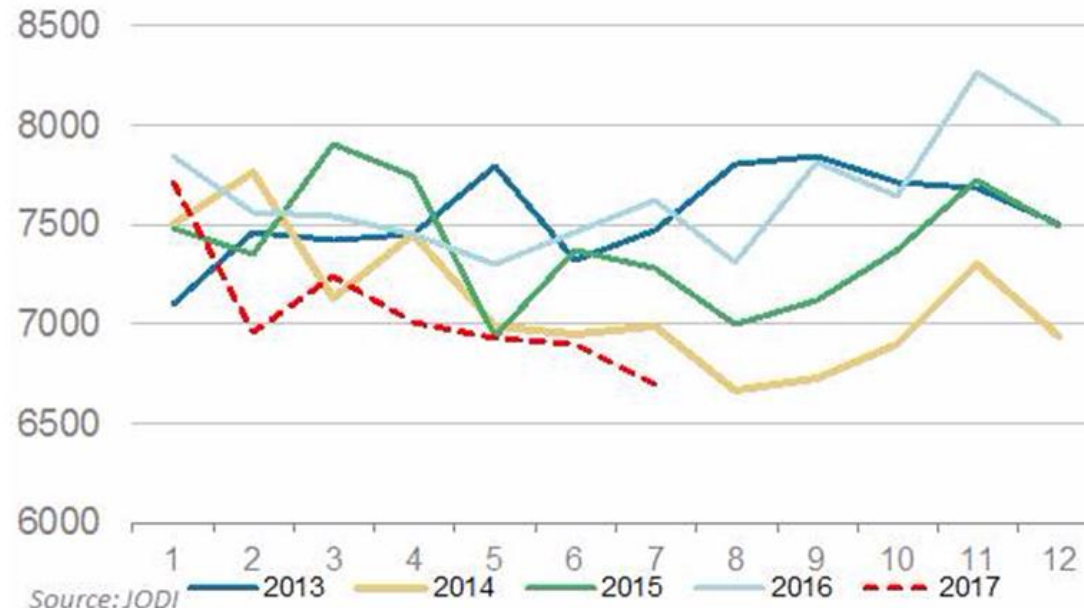


# OPEC oil supply: Saudi indicating that exports cuts will continue

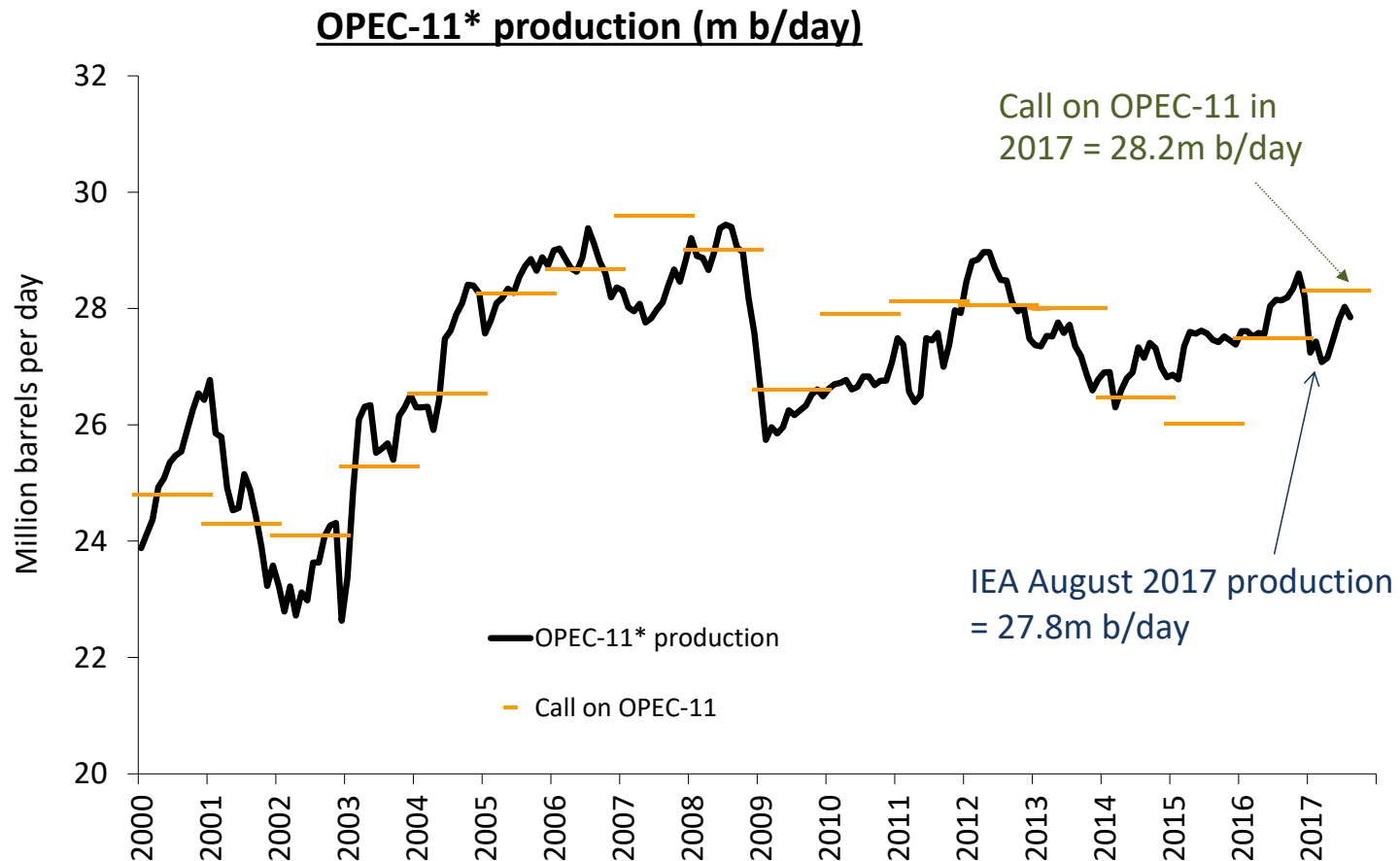
- Saudi is bearing the brunt of the export and production cuts
- Saudi cut exports to multi yr lows of c.6.6-6.7m b/day in Aug & Sept (ref Bloomberg)
- November tanker loadings indicate that Saudi will be sticking with the cuts, with exports to have an “unprecedented” cut of 560 k b/day
- November exports due to be 7.1m b/day, “despite demand that exceeds 7.7 m b/day”, according to the Saudi Energy Minister

## Saudi Arabia Crude Oil Exports

Thousand barrels per day



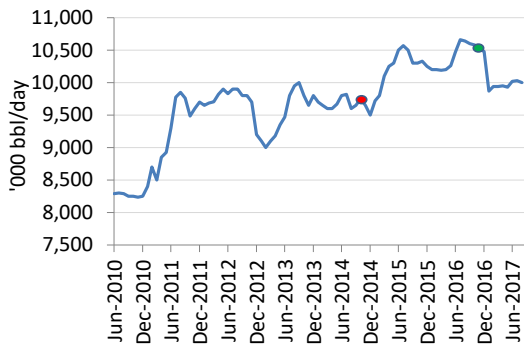
- OPEC (ex Libya & Nigeria) production was 1m b/day lower in August 2017 than in October 2017, broadly in compliance with announced quota reductions
- “Call on OPEC” for 2017 is now 28.2m b/day; 0.4m b/day above Aug 2017 production



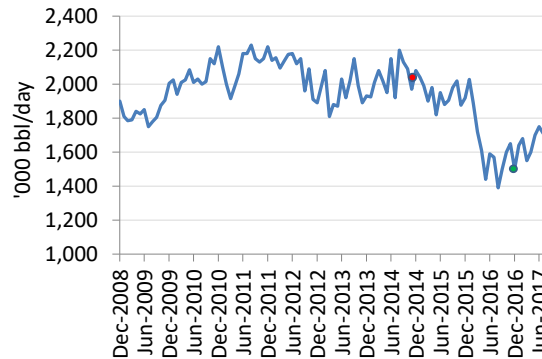
# OPEC oil supply: quota cuts after delivering growth

- OPEC oil production grew by nearly 2.0 m b/day after the Nov 2014 meeting, peaking in Dec 2016
- Libya production has partially returned, at around 0.8m b/day while Nigeria has recovered somewhat
- Incl Nigeria and Libya, OPEC production is 0.8mn b/d below the December 2016 peak

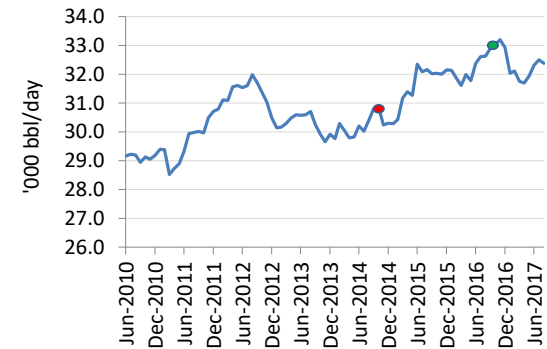
## Saudi Arabia



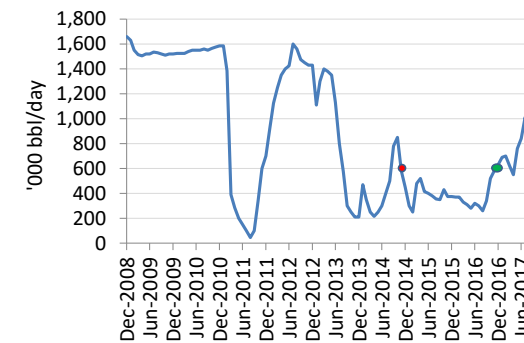
## Nigeria



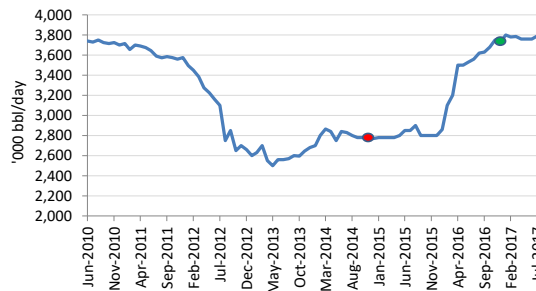
## OPEC-13



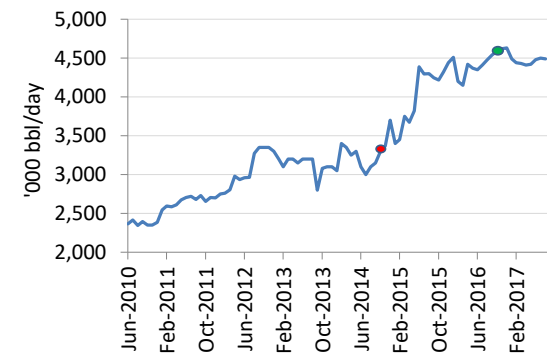
## Libya



## Iran



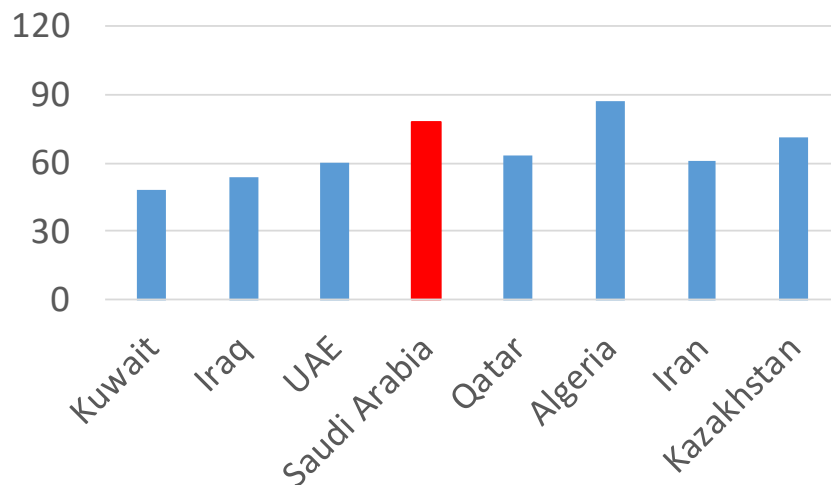
## Iraq



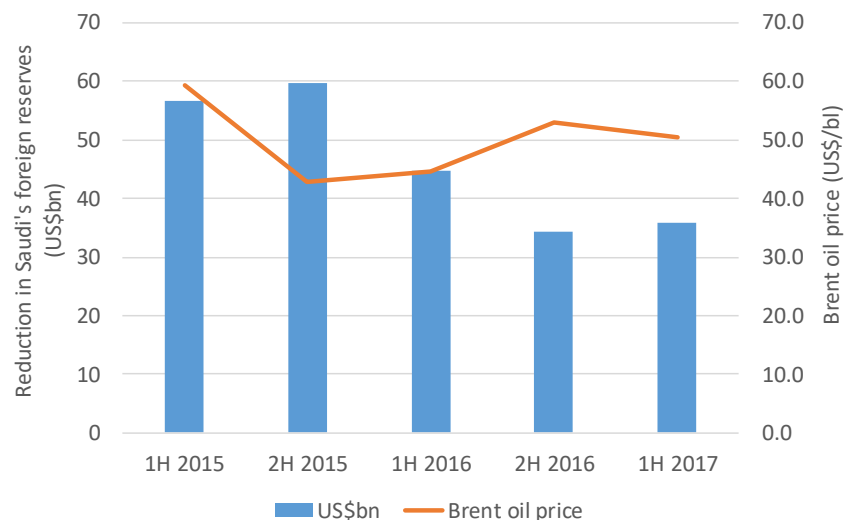
Source: Bloomberg, October 2017, red dot indicates November 2014 OPEC meeting; green dot indicates November 2016 meeting

- The actual economic cost of developing most OPEC oil remains very low
- Higher levels of government expenditure necessitate greater oil revenues
- The fiscal breakeven oil price\* for Saudi in 2017 is estimated to be \$78 per barrel

## OPEC (selected) fiscal breakeven oil prices \* 2017 (\$/bbl)



## Reduction in Saudi Arabia foreign reserves



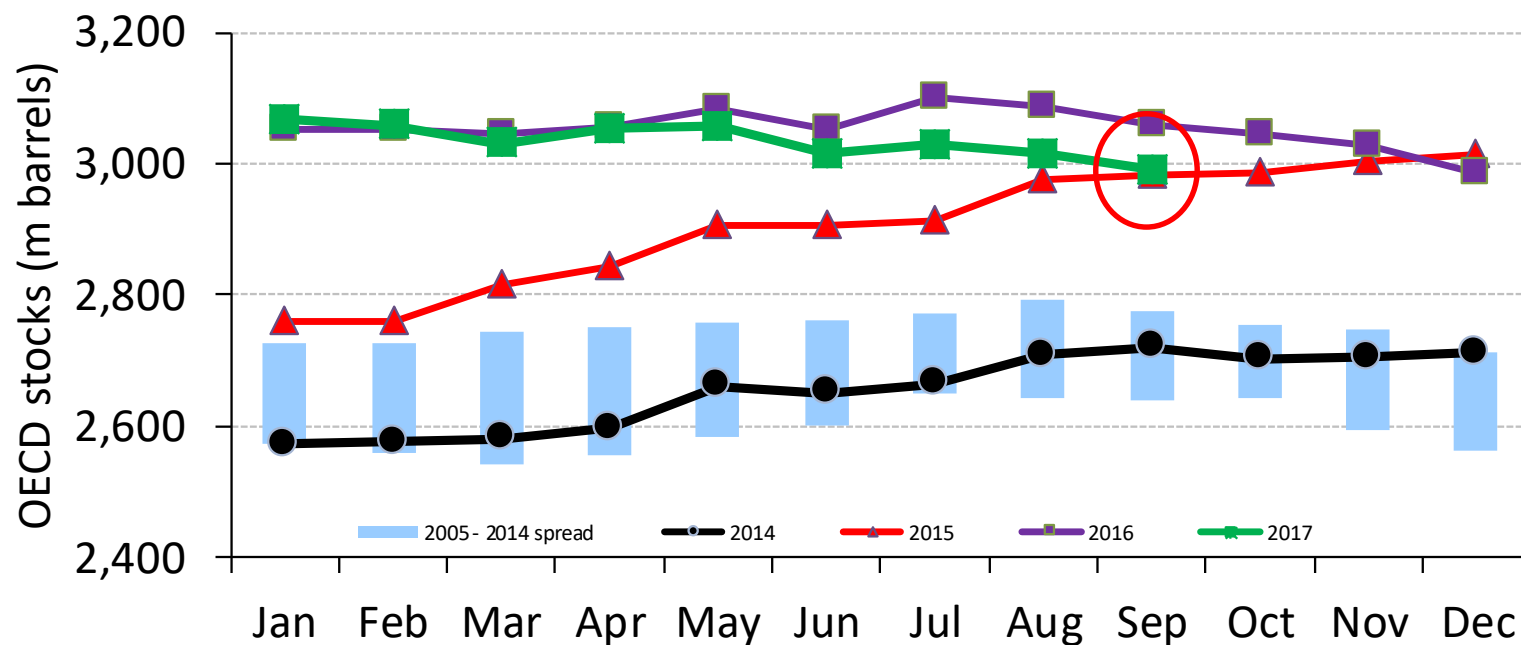
\*'Required oil price' is defined as the oil price that is needed by each country to balance fiscal budgets

Saudi's foreign reserves have fallen every half year over the period



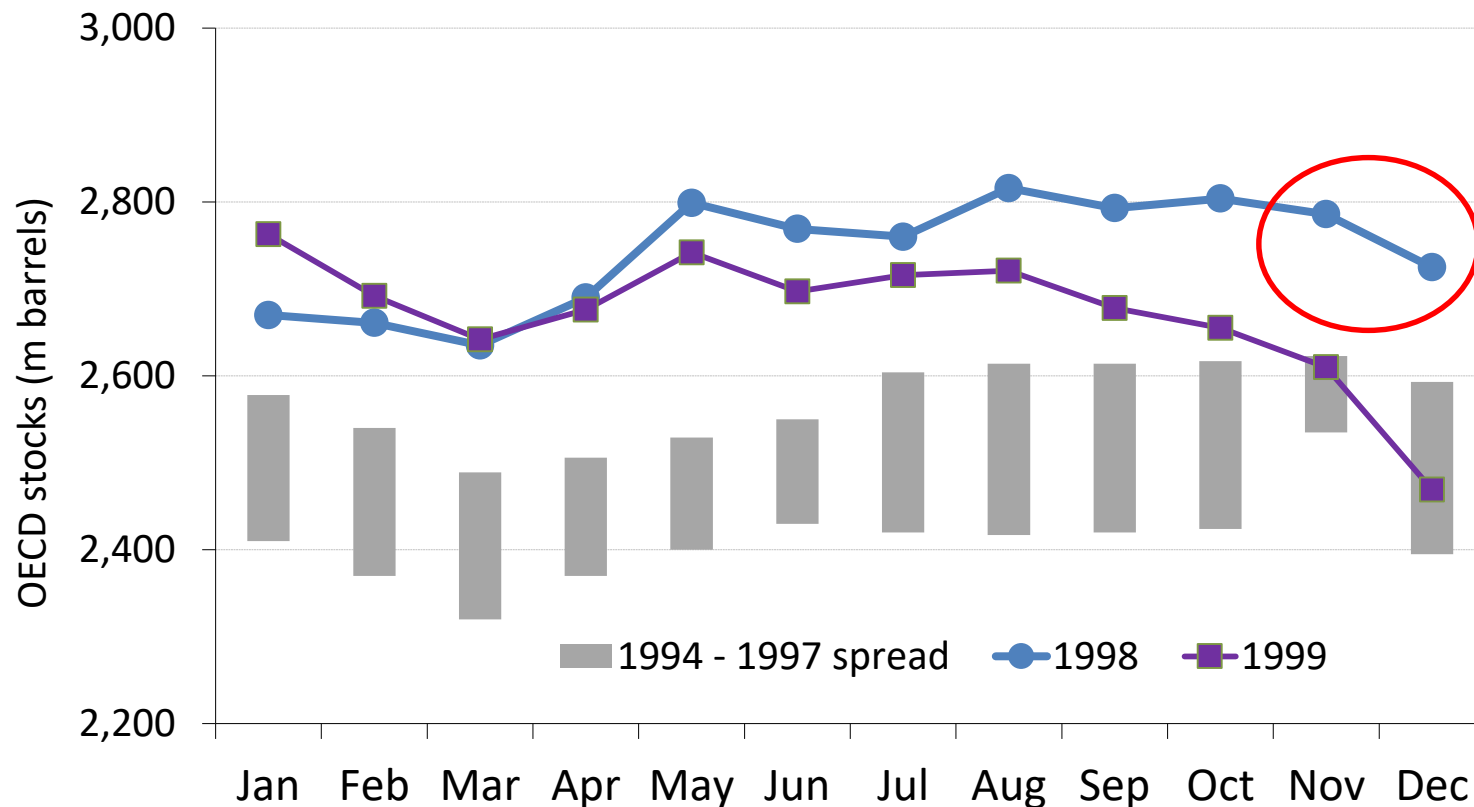
- In 2015, OECD inventories moved well above the top of the ten year range...  
...the move implied average oversupply of c.0.8m b/day
- In 2016, inventories fell slightly, indicating a tightening in the second half of the year
- In 2017, inventory levels tightening thanks to OPEC cuts, albeit slower than first hoped

## OECD oil inventories (million bbls)



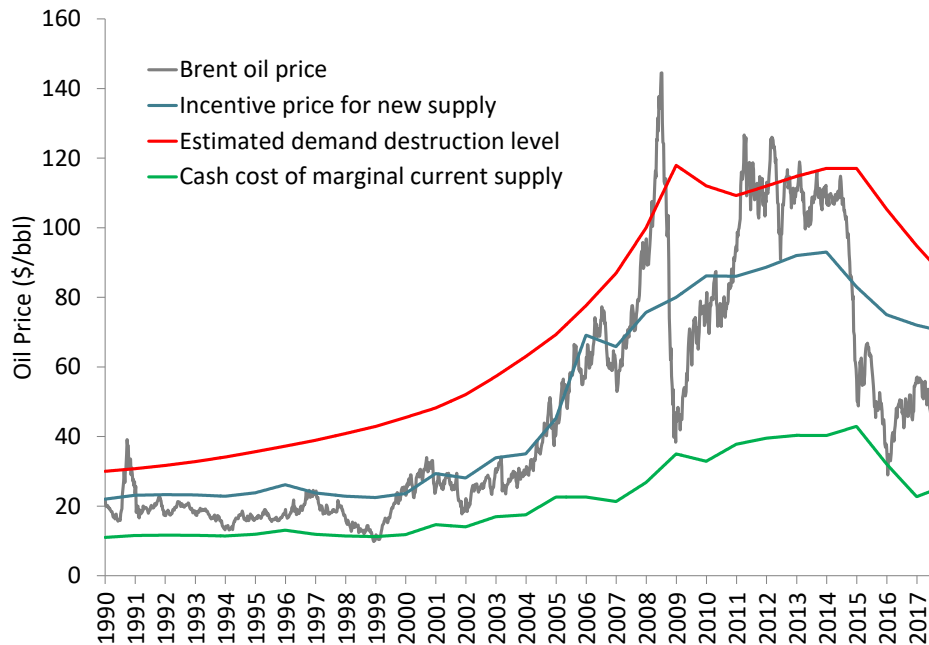
- In the 1998/99 downcycle, oil inventories peaked at around 300m above average...  
.... very similar to magnitude of oversupply in 2015/16
- Oil price recovery and end of 1998 coincided with inventories starting to fall

## OECD oil inventories 1994-1999 (million bbls)

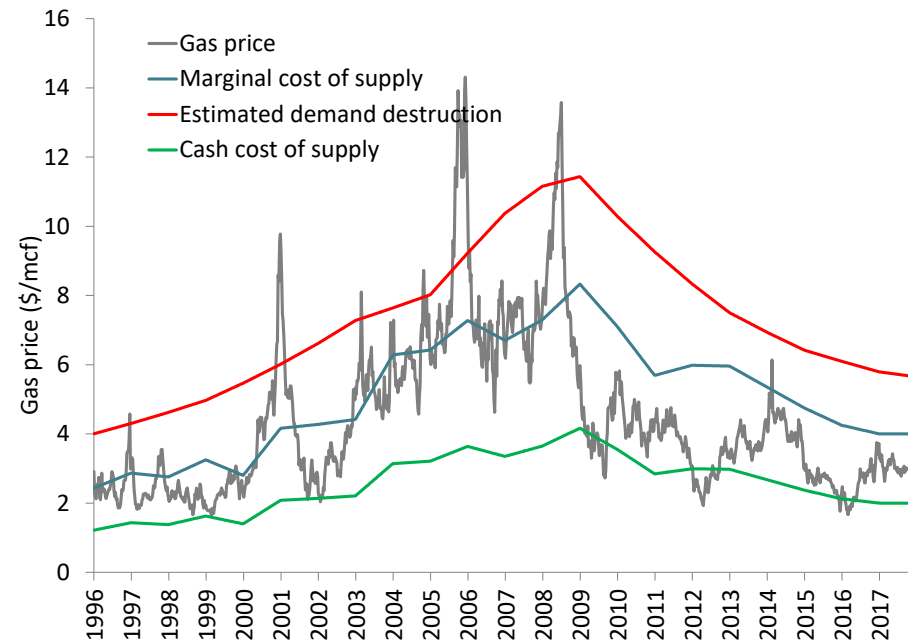


- Historically, both crude oil and natural gas commodity prices have traded between the cash cost of supply and the price at which demand is destroyed
- Crude oil has rebounded in 2016 from the marginal cash cost of supply, estimated to be the cost of running large scale Canadian oil sands and mature North Sea facilities
- Henry Hub natural gas is trading between cash cost and full marginal cost of supply

## Economics of crude oil



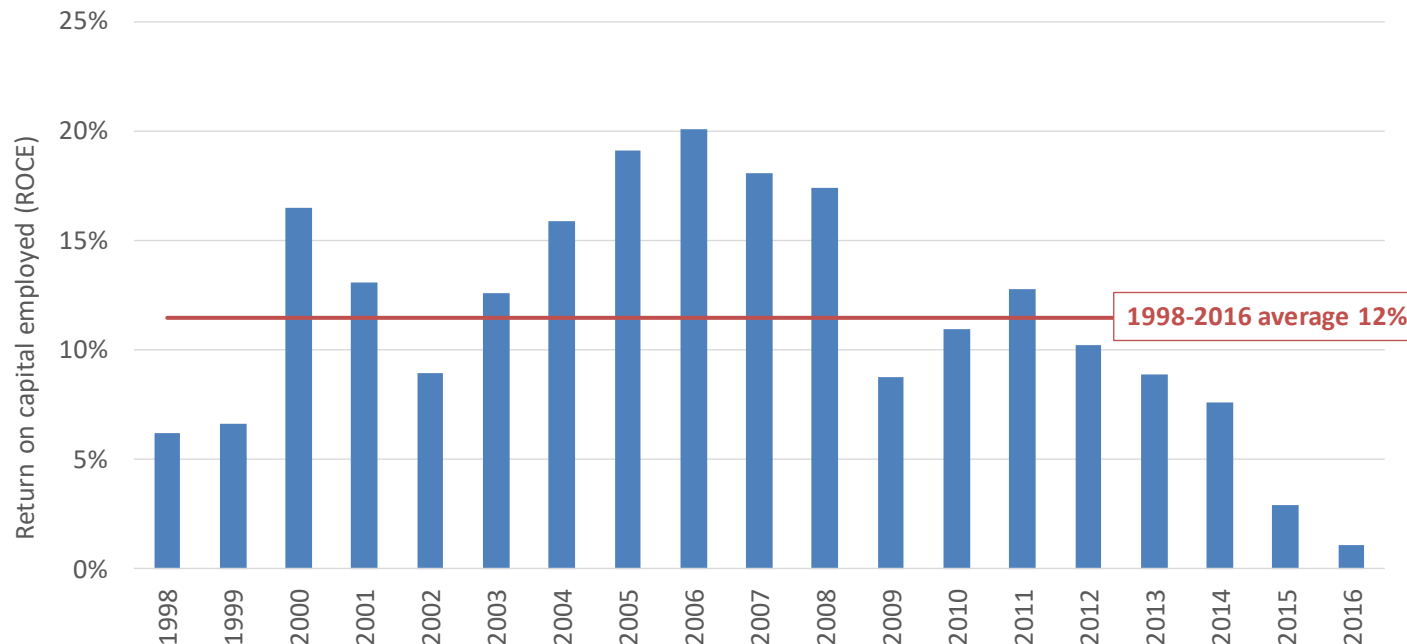
## Economics of US natural gas



- Capital discipline from the US E&P community
- Free cash flow generation
- Bad news discounted in prices

- The combination of lower oil prices and legacy higher cost structures leave ROCE depressed
- The ROCE of the Guinness Atkinson Global Energy portfolio was just over 1% at \$43 oil in 2016
- The long run average of the same portfolio of holdings would have been 12%
- We expect reported ROCE to improve as a result of
  - External factors: improvements in oil and natural gas prices
  - Internal factors: cost deflation, efficiency improvements and M&A activity

## ROCE of current Guinness Atkinson Energy fund portfolio holdings

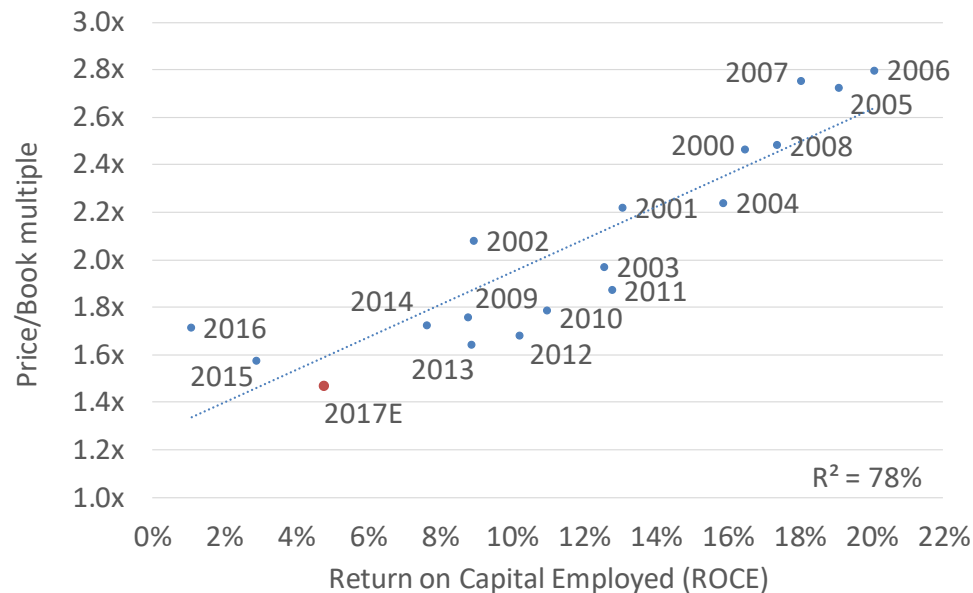


Source: Bloomberg, Company Data and includes analysis of all 'full position' holdings (for which 1998-2016 data is available) in the Guinness Atkinson Energy fund as of June 30 2017. ROCE=return on capital employed.

*Past performance is no guarantee of future results. Holdings are subject to change*

- Return on Capital Employed (ROCE) is a key driver of valuation for the energy sector
- ROCE has been depressed as a result of cost inflation, capital enlargement and now, oil prices
- The ROCE for the Guinness Atkinson portfolio was only around 1% in 2016 at \$43 Brent oil
- Even with \$70/bl oil in 2020, all else being equal, ROCE would be below the long run average of 12%
- The sector is focussing on cost cutting and efficiency gains to help boost ROCE
- We see good potential for ROCE to exceed our expectations and for valuation to benefit

## ROCE vs P/B multiple for Guinness Atkinson Energy portfolio

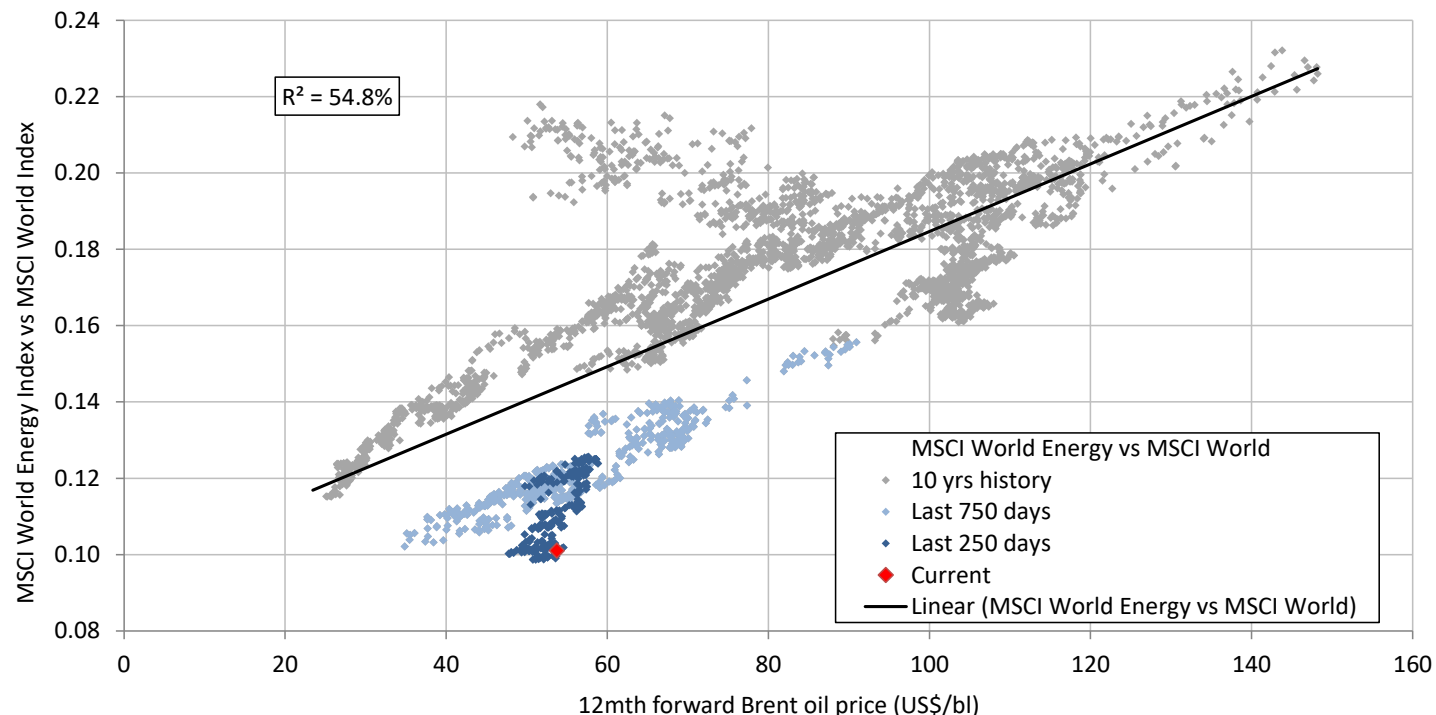


- According to Goldman Sachs, the European Oils generated more free cash in 1H 2017 (at US\$52/bl Brent) than in 1H 2014 at (US\$109/bl Brent)
- The Guinness Atkinson Global Energy portfolio holds a number of equities that have strong free cash flow generation and good coverage of dividends in 2018 at \$55/bl Brent
  - Majors
  - European Integrations
  - Chinese Oils
  - North American large cap E&Ps
  - Canadian oil sands
- Full holdings of the Guinness Atkinson Global Energy fund are available in our Monthly Report

|                  | Valuation multiples |      |         |                      |       |         |                     |       |         |
|------------------|---------------------|------|---------|----------------------|-------|---------|---------------------|-------|---------|
|                  | Dividend yield      |      |         | Free cash flow yield |       |         | FCF- dividend yield |       |         |
|                  | 2017                | 2018 | Syr ave | 2017                 | 2018  | Syr ave | 2017                | 2018  | Syr ave |
| BP               | 6.3%                | 6.3% | 4.7%    | 5.7%                 | 6.1%  | 0.5%    | -0.5%               | -0.2% | -4.2%   |
| Chevron          | 3.7%                | 3.8% | 3.8%    | 5.3%                 | 6.7%  | -2.2%   | 1.7%                | 3.0%  | -6.0%   |
| ENI              | 5.7%                | 5.7% | 5.8%    | 3.9%                 | 8.1%  | -2.8%   | -1.8%               | 2.4%  | -8.7%   |
| Exxon            | 3.8%                | 4.0% | 3.1%    | 4.0%                 | 3.8%  | 2.4%    | 0.2%                | -0.2% | -0.7%   |
| Galp             | 3.2%                | 3.4% | 3.4%    | 2.9%                 | 4.9%  | 2.5%    | -0.4%               | 1.5%  | -0.9%   |
| OMV              | 2.4%                | 2.5% | 5.8%    | 10.0%                | 10.5% | 1.5%    | 7.6%                | 8.0%  | -4.4%   |
| RDSshell         | 6.4%                | 6.4% | 4.9%    | 7.3%                 | 9.2%  | 1.4%    | 0.9%                | 2.8%  | -3.5%   |
| Repsol           | 3.9%                | 3.9% | 3.7%    | 5.5%                 | 3.6%  | 4.3%    | 1.6%                | -0.3% | 0.6%    |
| Statoil          | 4.5%                | 4.4% | 4.8%    | 6.3%                 | 2.5%  | -3.4%   | 1.8%                | -1.9% | -8.2%   |
| TOTAL            | 5.1%                | 5.1% | 4.4%    | 3.7%                 | 4.0%  | -3.6%   | -1.3%               | -1.1% | -8.0%   |
| CNOOC            | 3.9%                | 4.3% | 3.9%    | 6.3%                 | 6.6%  | 4.2%    | 2.4%                | 2.3%  | 0.3%    |
| Gazprom          | 6.3%                | 6.3% | 4.6%    | -7.1%                | -1.1% | 6.6%    | -13.4%              | -7.5% | 2.1%    |
| Lukoil           | 6.5%                | 7.2% | 6.0%    | 11.3%                | 9.2%  | 10.4%   | 4.8%                | 2.0%  | 4.4%    |
| Petrobras        | 2.0%                | 2.8% | 1.5%    | 3.1%                 | 3.1%  | -3.1%   | 1.2%                | 0.3%  | -4.6%   |
| PetroChina       | 3.5%                | 4.7% | 2.9%    | 7.8%                 | 10.1% | 1.2%    | 4.3%                | 5.4%  | -1.7%   |
| Anadarko         | 0.4%                | 0.5% | 0.8%    | 1.9%                 | 1.5%  | -5.5%   | 1.4%                | 1.0%  | -6.3%   |
| Apache           | 2.4%                | 2.4% | 1.3%    | -2.2%                | -1.0% | -8.6%   | -4.6%               | -2.5% | -9.9%   |
| Canadian Nat Res | 2.4%                | 2.5% | 2.4%    | 6.6%                 | 8.9%  | 0.5%    | 4.1%                | 6.3%  | -2.0%   |
| Conoco           | 2.1%                | 2.1% | 3.5%    | 4.3%                 | 4.9%  | -2.3%   | 2.2%                | 2.7%  | -5.8%   |
| Hess             | 2.2%                | 2.2% | 1.4%    | -1.8%                | 3.3%  | -9.0%   | -4.1%               | 1.1%  | -10.4%  |
| Husky Energy     | 0.0%                | 0.0% | 2.9%    | 2.6%                 | 0.4%  | -1.8%   | 2.6%                | 0.4%  | -4.7%   |
| Marathon Oil     | 1.5%                | 1.5% | 1.9%    | -0.2%                | -0.9% | -4.7%   | -1.7%               | -2.3% | -6.6%   |
| Noble Energy     | 1.5%                | 1.5% | 1.2%    | -2.9%                | -2.7% | -4.8%   | -4.4%               | -4.1% | -5.9%   |
| Occidental       | 4.5%                | 4.6% | 3.3%    | 2.2%                 | 3.8%  | 0.4%    | -2.3%               | -0.8% | -2.9%   |
| Cenovus          | 1.6%                | 2.0% | 2.4%    | 2.8%                 | 0.6%  | 0.2%    | 1.2%                | -1.4% | -2.1%   |
| Imperial Oil     | 1.5%                | 1.5% | 1.2%    | 4.1%                 | 4.3%  | -3.1%   | 2.7%                | 2.8%  | -4.3%   |
| Suncor           | 3.0%                | 3.1% | 3.1%    | 3.4%                 | 3.5%  | 1.6%    | 0.5%                | 0.4%  | -1.5%   |

- There is a 55%  $R^2$  between the energy sector relative and the forward oil price
- Energy company equities have de-rated relative to current commodity prices
- There is c.40% potential upside to the long run relationship
- Current sentiment very low, indicated by red dot at bottom of range

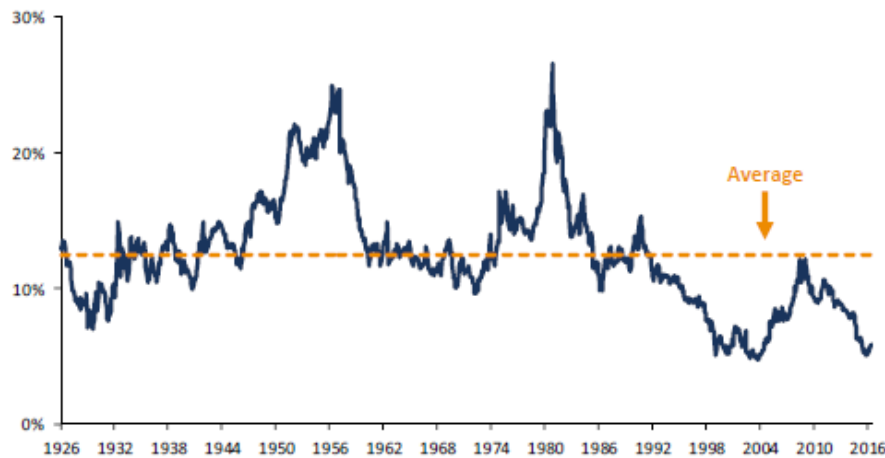
## Oil & gas company market-relative valuations vs long dated oil prices



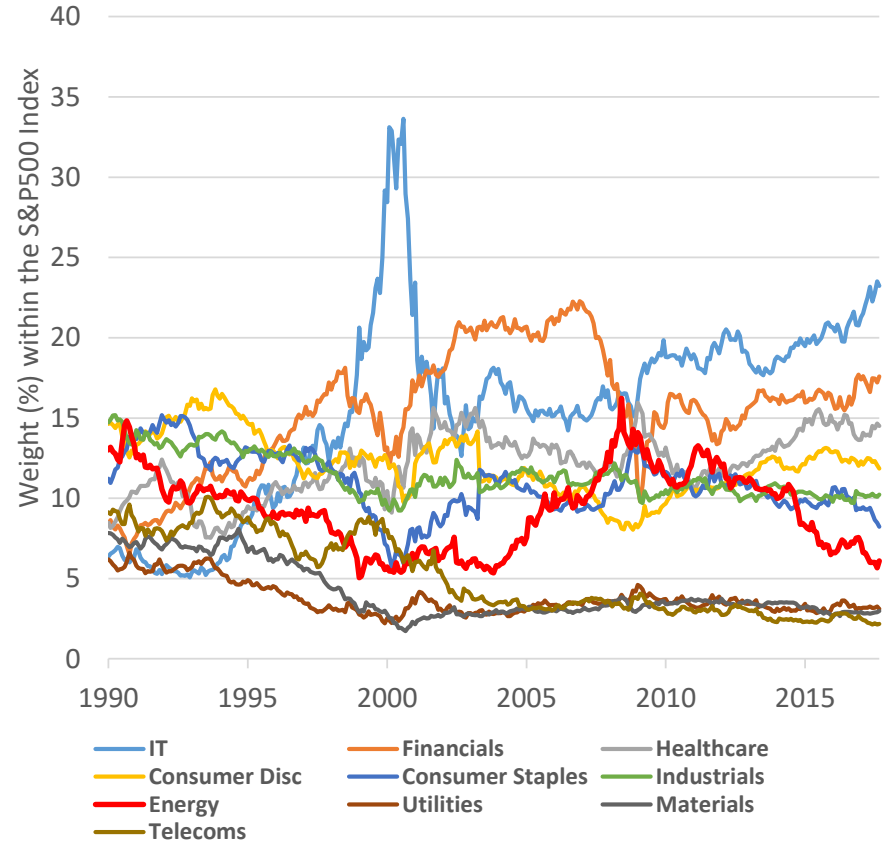


- The S&P500 energy index was 6.1% of the S&P500 index at 30 Sept 2017
- Since 1990, energy has ranged between 5.1% and 16.2% of the S&P500
- The average weight over the last 25 years has been 9.5%
- The weight of energy within the S&P 500 is close to multi-decade lows

## Weight of energy with the S&P Index (1926-2016)



## S&P Index sector weights (1990-2017)



# Fund and index performance, as of September 30, 2017

- Underperformance from energy vs S&P500 in 2017, leaving the sector, in our analysis, a long way from historical normalized valuation levels

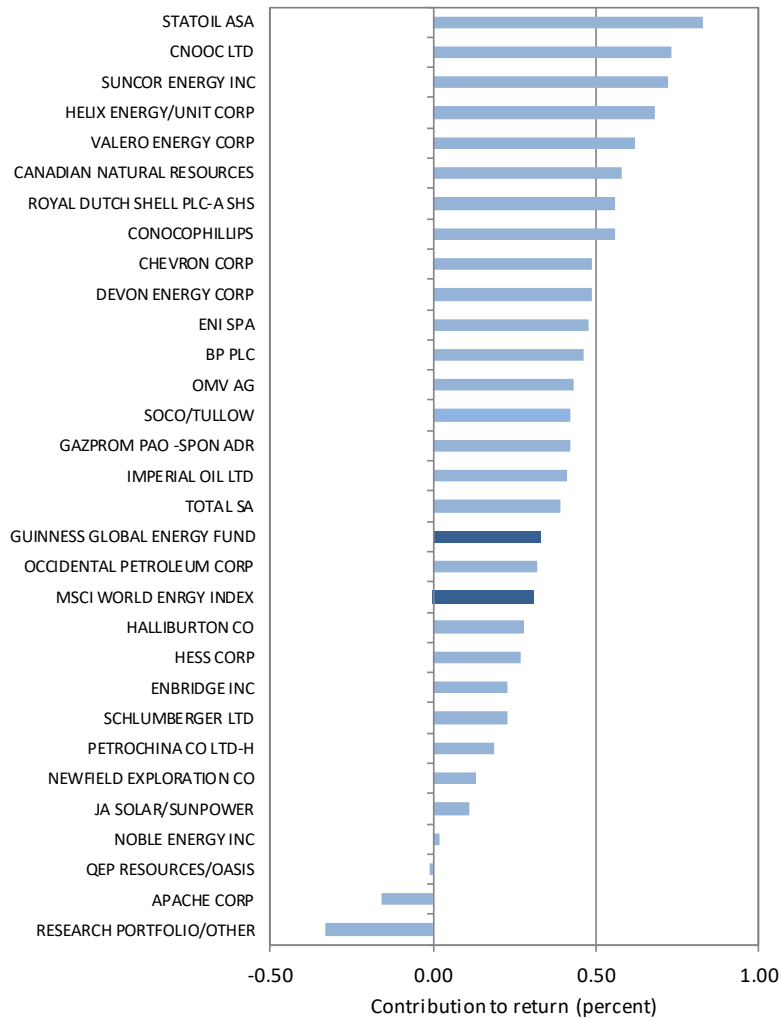
|                         | Q3 2017 | 1<br>Year | 5<br>Years* | 10<br>Years* | Since<br>Inception<br>(June 30, 2004)* |
|-------------------------|---------|-----------|-------------|--------------|--|
| Global Energy Fund      | 10.23%  | 1.92%     | -3.08%      | -1.65%       | 6.50%                                  |
| MSCI World Energy Index | 9.27%   | 6.64%     | 0.43%       | 0.10%        | 6.35%                                  |
| S&P 500                 | 4.48%   | 18.58%    | 14.18%      | 7.42%        | 8.39%                                  |

Expense ratio: 1.53% (gross); 1.45% (net)

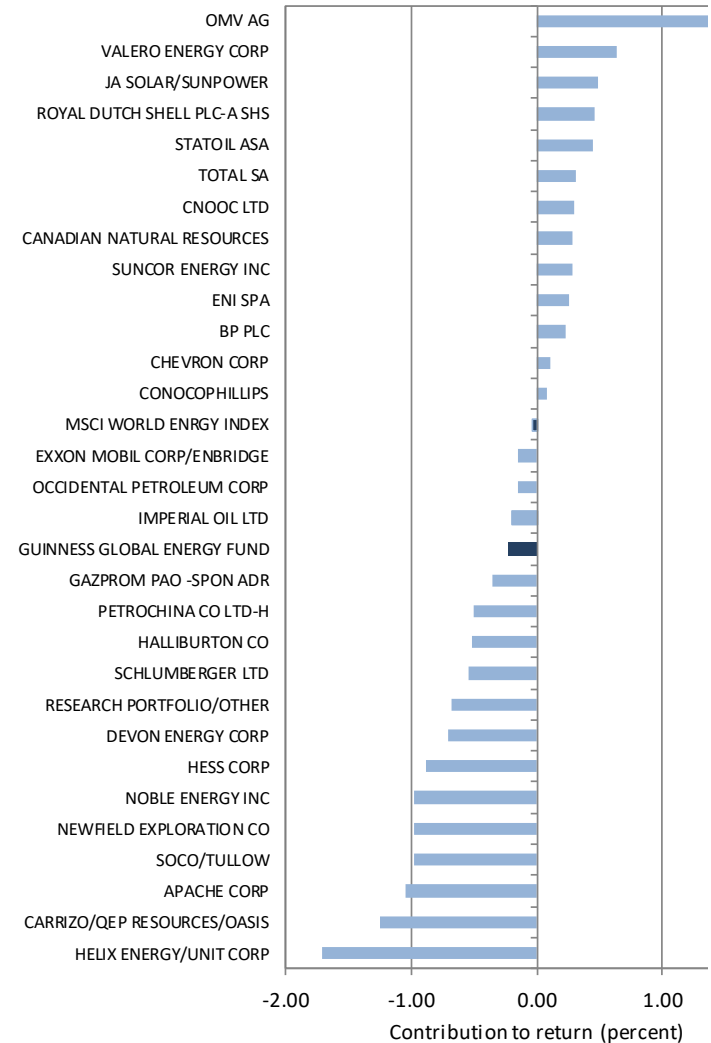
\*Periods over 1 year are annualized returns

*Performance data quoted represents past performance; past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the fund may be lower or higher than the performance quoted. Performance data current to the most recent month end may be obtained by calling 800-915-6566 and/or visiting [www.gafunds.com](http://www.gafunds.com)*

## 2017 3Q indicative contribution



## 2017 YTD indicative contribution



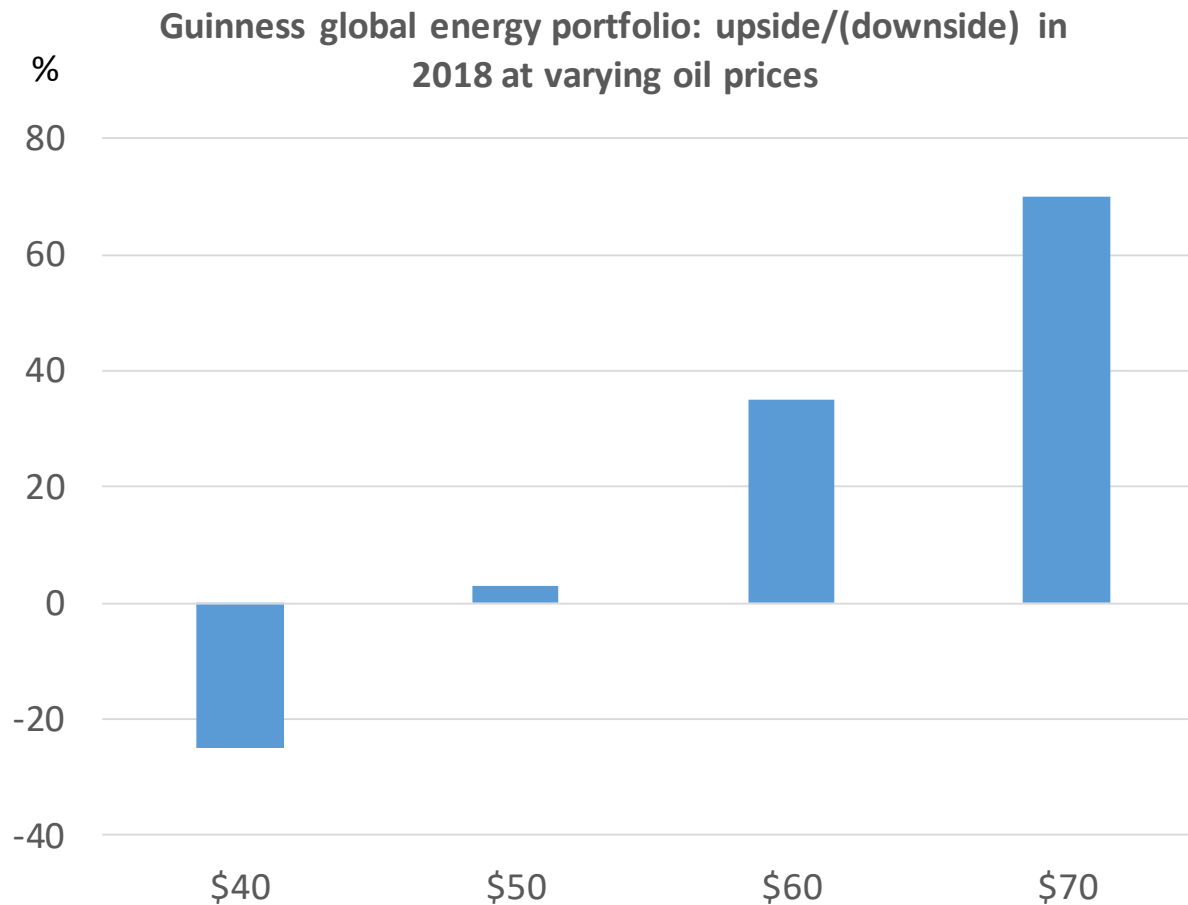
Source: Guinness Atkinson Funds, Bloomberg, data as of end Sept 2017

Past performance should not be taken as an indicator of future performance. The value of this investment and any income arising from it can fall as well as rise as a result of market and currency fluctuations as well as other factors. Fund holdings & sector allocations are subject to change and are not recommendations to buy or sell any security.

| Theme   | Example holdings  | Weighting (%) |
|---|---|---------------|
| 1 Cheap large-cap oil                           |    | 36.8%         |
| 2 Undervalued integrated oil & gas reserves     |    | 18.4%         |
| 3 US shale oil growth                           |    | 9.7%          |
| 4 Exploration & production spending plans       |     | 8.6%          |
| 5 International mid and small cap oil producers |    | 7.3%          |
| 6 Emerging market natural gas demand            |    | 6.8%          |
| 7 Other (incl cash)                             |    | 4.1%          |
| 8 US Gulf Coast refining advantages             |    | 3.7%          |
| 9 Rising US natural gas price                   |    | 3.3%          |
| 10 Low cost solar                               |    | 1.2%          |

**Top 10 holdings as of 09/30/2017:** 1. Valero Energy Corp 4.32% 2. Conocophillips 4.13% 3. Imperial Oil 4.01% 4.CNOOC 3.96% 5.Royal Dutch Shell 3.75% 6. Hess Corp 3.61% 7. Suncor 3.59% 8. Enbridge 3.58% 9. Statoil 3.58% 10. BP PLC 3.58%

- Upside/downside sensitivities estimated assuming each oil price stays flat into perpetuity



|                             |  |
|-----------------------------|--|
| <b>Single sector</b>        | Companies engaged in the production and distribution of energy (oil, natural gas, coal, alternative energy, nuclear and utilities) |
| <b>High conviction</b>      | Equally weighted, concentrated portfolio (30 positions)  |
| <b>Unconstrained</b>        | No reference to index  |
| <b>Global</b>               | Diversified globally   |
| <b>Investment type</b>      | Listed equities (long-only)  |
| <b>Investment objective</b> | Long-term capital appreciation   |



## Timothy Guinness

- Executive Chairman and Chief Investment Officer of Guinness Atkinson Asset Management
- Portfolio manager of the Investec Global Energy Fund from November 1998 to February 2008
- Co-founder of Guinness Flight Global Asset Management and, after its acquisition by Investec, chairman of Investec Asset Management until March 2003
- Graduated from Cambridge University in 1968 with a degree in Engineering. After obtaining an MBA at MIT, worked for 10 years as a corporate financier



## Will Riley CA

- Joined Guinness Atkinson Asset Management in 2007
- Company valuation expert for PricewaterhouseCoopers 2000-2007
- Qualified as a Chartered Accountant in 2003
- Graduated from Cambridge University with a Masters degree in Geography in 1999



## Jonathan Waghorn

- Joined Guinness Atkinson Asset Management in 2013
- Co-portfolio manager of the Investec Global Energy Fund from February 2008 to May 2012
- Co-head of energy equity research at Goldman Sachs from 2000-2008
- Drilling engineer in Dutch North Sea for Shell

## Corporate Office (California)

**Sarah Sollesa**

**Sarah.sollesa@gafunds.com**

**1-818-716-2741**

**21550 Oxnard Street  
Suite 850  
Woodland Hills  
California 91367**

## Investment management team (London)

**Tim Guinness**

**tim.guinness@gafunds.com**

**+44 (0) 20 7222 7978**

**Will Riley**

**will.riley@gafunds.com**

**+44 (0) 20 7222 3451**

**Jonathan Waghorn**

**jonathan.waghorn@gafunds.com**

**+44 (0) 20 7222 3457**

**14 Queen Anne's Gate  
London  
SW1H 9AA**

*For your protection, calls to these numbers may be recorded*



- **Guinness Atkinson Asset Management:** founded in 2003, along with UK sister firm Guinness Asset Management
- **Four core areas of expertise:** Global Equities, Energy, Asia & Financials
- **Guinness Group AUM (at September 30, 2017): \$1.5bn**
- **Staff of 30, including 14 investment professionals**
- **Company is 100% owned by employees**

Opinions expressed are subject to change, are not guarantee and should not be considered investment advice.

The Fund's holdings, industry sector weightings and geographic weightings may change at any time due to on-going portfolio management. References to specific investments and weightings should not be construed as a recommendation by the Fund or Guinness Atkinson Asset Management, Inc. to buy or sell the securities. Current and future portfolio holdings are subject to risk. References to other mutual funds should not be interpreted as an offer of these securities.

**Mutual fund investing involves risk and loss of principal is possible. The Fund invests in foreign securities which will involve greater volatility, political, economic and currency risks and differences in accounting methods. The Fund is non-diversified meaning it concentrates its assets in fewer individual holdings than a diversified fund. Therefore, the Fund is more exposed to individual stock volatility than a diversified fund. The Fund also invests in smaller companies, which involve additional risks such as limited liquidity and greater volatility. The Fund's focus on the energy sector to the exclusion of other sectors exposes the Fund to greater market risk and potential monetary losses than if the Fund's assets were diversified among various sectors. The decline in the prices of energy (oil, gas, electricity) or alternative energy supplies would likely have a negative effect on the funds holdings.**

While the fund is no-load, management and other expenses still apply. Please refer to the prospectus for further details.

*The Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectus contains this and other important information about the investment company, and it may be obtained by calling 800-915-6566 or visiting [gafunds.com](http://gafunds.com). Please read it carefully before investing.*

You cannot invest directly in an index.

Fund holdings & sector allocations are subject to change and are not recommendations to buy or sell any security.

**Diversification does not assure a profit nor protect against a loss in a declining market.**

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