GUINNESS ATKINSON FUNDS

Energy brief


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Commentary and Review by portfolio managers
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REPORT HIGHLIGHTS

FUND NEWS
• Fund size $63 million at end of December

OIL
• Brent and WTI fall very sharply over the quarter; global supply growth surpasses demand
Brent oil fell from $94.7/barrel(bbl) to $55.8 in the quarter while the WTI oil price fell from $91.1 to $53.3, compressing the Brent/WTI discount to around $2/bbl. OPEC's (Organization of the Petroleum Exporting Countries) announcement at the end of November that they would be keep their production quota unchanged, despite weaker prices, together with accelerating non-OPEC production growth, combined to push the price down.

NATURAL GAS
• US gas price down; gas market structurally oversupplied as inventories build into winter
Henry Hub gas fell during the quarter, down from $4.12 to $2.89. Strong US gas production continued, driven by production from the Marcellus. A warmer than average first half of the 2014/15 winter, reducing heating demand for gas, has also helped to bring gas inventories up closer to the ten-year average level.

EQUITIES
• Energy underperforms the broad market
The fourth quarter of 2014 was reasonable for global equities, with energy equities significantly underperforming in the face of a sharply falling oil price. See how the industry and our Fund compared to the market at large on pg. XX (will fill in when formatted).

ENERGY OUTLOOK FOR 2015

We expect the oil price to remain volatile for a number of months. At $50-60/bbl, the oil price is not yet at an economic extreme, and thus, there is a reasonable chance that it continues to decline while the market starts to rebalance. A supply reduction is required to bring the market into balance, and we expect that this will come from North America (during the second half of 2015) if it does not come from OPEC earlier via an 'emergency' quota cut. Saudi and other OPEC members are acting rationally in their response to the falling oil price by waiting for other higher cost producers to curtail production first. As a result of lower prices, we expect oil demand to bounce back to growth of over 1 million(m) barrels(b)/day (vs 0.6m b/day in 2014) in 2015 and that the market should return to supply/demand equilibrium during 2015.

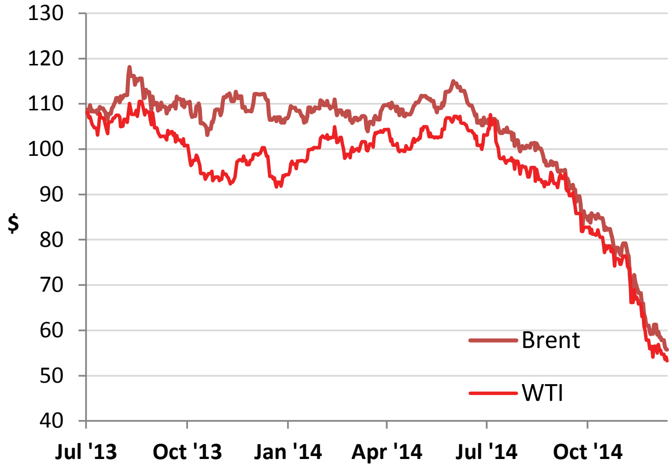
The political backdrop to OPEC's actions remains as complicated as it ever has been and is not reflected in the price, in our opinion. We look at the oil price decline in 1985-1987 as providing the most relevant historical precedent for comparison with current oil markets and we note that energy equities have now underperformed the broad market for longer than they did in that 1985-1987 period. Steel yourselves to be ready to buy the sector when other investors are most fearful.

PLEASE SEE OUR SEPARATE '2015 OUTLOOK' FOR MORE DETAILS

1. Fourth Quarter 2014 Review

Oil market

Figure 1: Oil price (WTI and Brent $/barrel) 18 months June 30, 2014 to December 31, 2014



Source: Bloomberg LP

The West Texas Intermediate (WTI) oil price started October at $91.1 and fell very sharply during the quarter, closing on its lows of $53.3 at the end of December. This is the first time we have seen sub-$55 WTI since May 2009. WTI averaged $93.1 in 2014, having averaged $98.0 in 2013, $94.1 in 2012 and $95.0 in 2011.

The Brent oil price followed a similar trajectory during the quarter, moving from $94.7 to $55.8. The gap between the WTI and Brent benchmark oil prices therefore closed December at just over $2/bbl. The WTI-Brent spread averaged $5.8/bbl during 2014, having been well over $20/bbl at times since 2011.

Factors which weakened the WTI and Brent oil prices in Q4 2014:

- **OPEC met and production quotas were maintained**

  OPEC met for its 166th conference on November 27th and left overall quotas unchanged. Our simple take is that Saudi would have been willing to make a production cut if other OPEC members had been willing to join in. We believe that Kuwait and the United Arab Emirates (UAE) would have been willing participants but that the other OPEC members could not form a consensus for various reasons. Please see the Manager's Comments section for more analysis of the OPEC decision and its implications for oil prices and energy equities.

- **Build in oil inventories**

  OECD total product and crude inventories were estimated to have built by 3m barrels in the three months to November (the latest available data point, according to the International Energy Agency, i.e. IEA). The build in inventories over this period was counter to the 10 year average move (-25m barrels), indicating an oversupplied market and leaving inventories towards the top of the historic range. Weekly US inventory data for December also painted a bearish picture, with a build of 36m barrels over the first three weeks of the month comparing to an average 5 year move of -3m barrels over this period.

- **Expectations for non-OPEC supply revised higher**

  During the quarter, the IEA revised their non-OPEC supply forecast for 2014 up by 0.3m b/day, from annual growth of 1.6m b/day to 1.9m b/day. The majority of the upward revision came from North America (NA), where unconventional oil and other liquids production growth has accelerated. Note that the IEA expect demand to have grown 0.6m b/day in 2014, implying an oversupply to the market of around 1.3m b/day.

- **Decline in NYMEX net non-commercial positions**

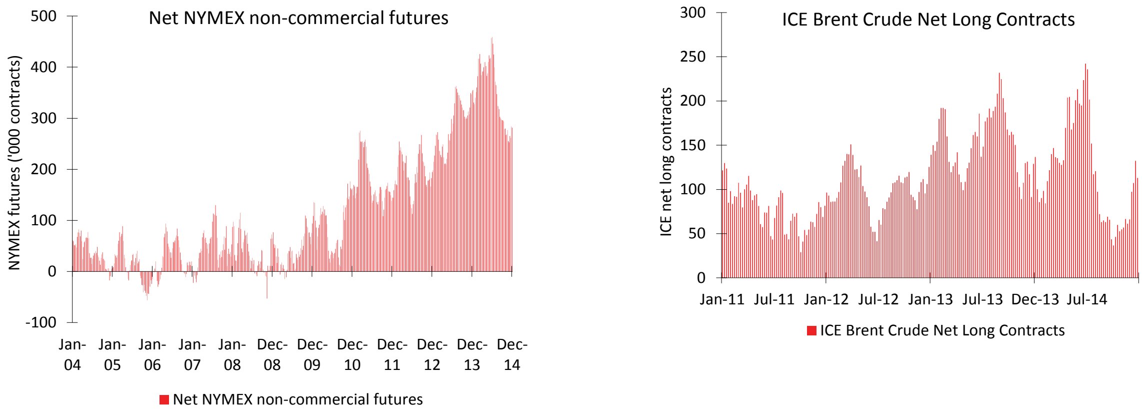
  The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position fell over the quarter, ending December 14% lower at 273,000 contracts long, versus 318,000 contracts long at the end of June. We regard a net long position of 273,000 contracts as still relatively high but well down from its peak of 460,000 contracts in June 2014.

Speculative and investment flows

As stated above, the New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position fell over the quarter, ending December 14% lower at 273,000 contracts long, versus 318,000 contracts long at the end of June. We regard a net long position of 273,000 contracts as still relatively high but well down from its peak of 460,000 contracts in June 2014.

The equivalent non-commercial position for Brent oil, ICE Brent crude oil net long contracts, rose over the quarter, from 65,000 contracts to 116,000 contracts long.

Figure 2: NYMEX Non-commercial net futures contracts: WTI January 2004 – December 2014 ; ICE Brent crude net long contracts : January 2011 – December 2014

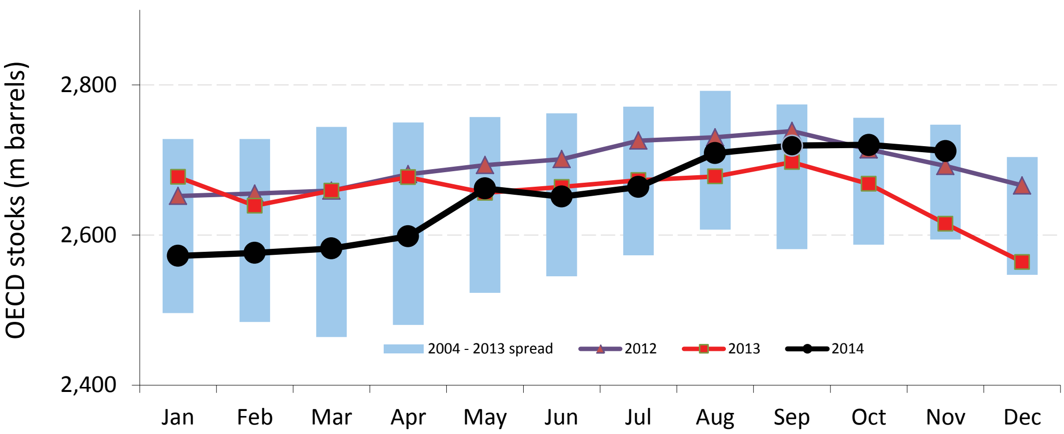


Source: Bloomberg LP/NYMEX (January 2015)

OECD stocks

OECD total product and crude inventories at the end of November were estimated by the IEA to be 2,712m barrels, down 8m barrels compared to October 2014. The month on month decline in inventories was shallower than the 10 year average move. The month on month decline in inventories was shallower than the 5 year average move (-17m barrels), indicating an oversupplied market and leaving inventories towards the top of the historic range.

Figure 3: OECD total product and crude inventories, monthly, 2004 to 2014



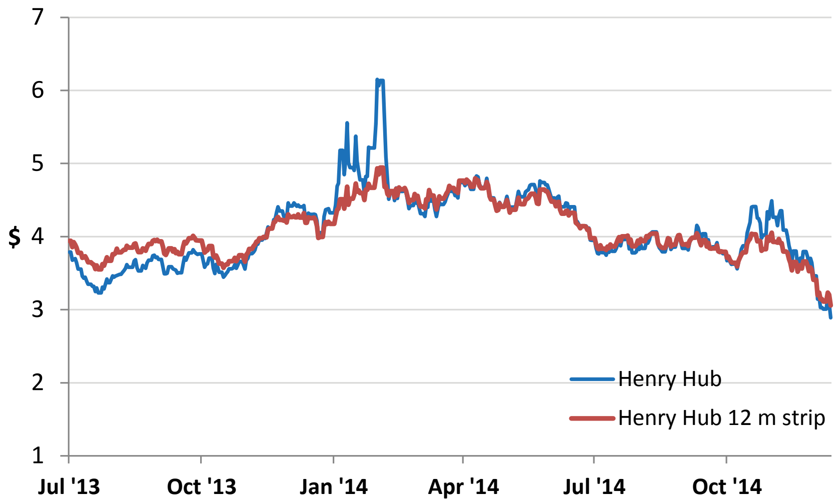
Source: IEA Oil Market Reports (December 2014 and older)
**OECD – Organization for Economic Co-Operation and Development*

2. Natural Gas Market

The US natural gas price (Henry Hub front month) opened the quarter at $4.12 per Mcf (1000 cubic feet), and traded in a relatively wide range over the quarter, ending at $2.89 per Mcf. In 2014, the gas price averaged $4.26, assisted by a very cold 2013/14 US winter and then hampered by a mild summer and warm early 2014/2015 winter. Despite the weak end to the year, this is the highest yearly average (spot) gas price since 2008. The price averaged $3.73 in 2013, well above the 2012 average of $2.75 but down on the 2010 and 2011 averages of $4.38 and $4.00 and significantly below the average in each of the previous 5 years (2005-2009).

The 12-month gas strip price (a simple average of settlement prices for the next 12 months' futures prices) traded in a similar fashion, starting the quarter at $4.01, trading down to end the month at $3.06. The strip price averaged $3.92 in 2013, having averaged $3.28 in 2012, $4.35 in 2011, $4.86 in 2010 and $5.25 in 2009.

Figure 4: Henry Hub Gas spot price and 12m strip ($/Mcf) June 30, 2013 to December 31, 2014



Source: Bloomberg LP

Factors which weakened the US gas price in the quarter included:

- **US domestic production continued to grow**

Despite the low number of rigs drilling for natural gas, US gas production continues to grow. Gross gas production in October 2014 (the latest data point available) for the lower 48 states was up 6.1 Bcf (billion cubic feet)/day (year over year) to 81.0 Bcf/day. The biggest contributor to the production growth over the past year has been the Marcellus region in the north-east of the country, which has grown year-on-year by around 4.5 Bcf/day. According to the America Gas Association, there were 57 daily US natural gas production records set during 2014.

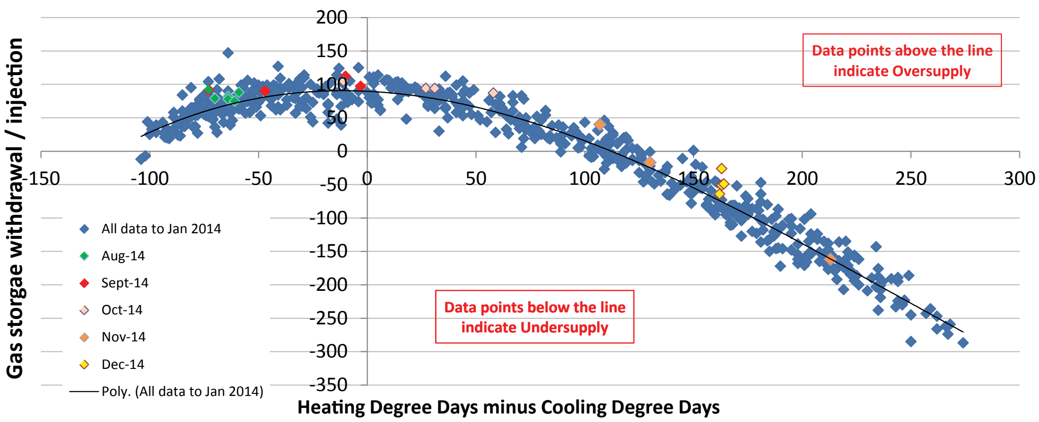
- **Warmer than average winter**

Since early October 2014, weather in the United States has been around 7% warmer than usual and the most recent injections of gas into storage suggest the market is, on average, about 2-3 Bcf/day oversupplied (as indicated on the graph below). The market has been consistently oversupplied over recent months and has caused natural gas inventory levels to return to a surplus versus last year.

- **Underlying gas market looks oversupplied and storage injection rates are above average**

The most recent injections of gas into storage suggest the market is, on average, about 2 Bcf/day oversupplied, as indicated on the graph below. If this level is maintained, the natural gas inventory position will normalize by the start of the winter.

Figure 5: Weather adjusted US natural gas inventory injections and withdrawals



Factors which strengthened the US gas price in the quarter included:

- **Gas to coal switching reversing at the lower end of the current trading range**

The gas price has recently been trading in a range ($3 - $4) at which the market is particularly sensitive to the switch between gas and coal for electricity generation. With the price moving to the lower end of this range in December, switching to gas likely increased around 1 -2 Bcf/day. However, we expect any move over $4.00 to cause this to reverse.

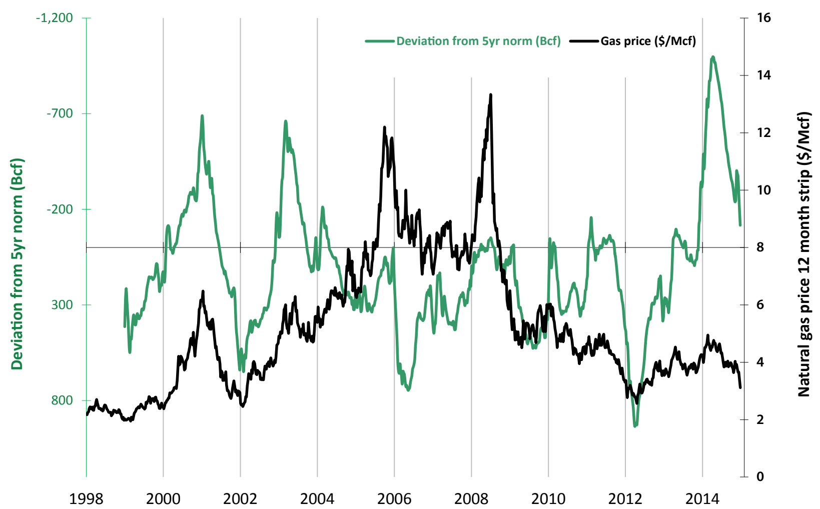
- **Lower oil prices**

The fall in oil prices in the second half of 2014, with WTI trading below $50/bbl, raises the prospect of a substantial slowdown in US shale oil production, which will have a knock-on effect to gas production. While oil and gas prices in the US are not explicitly linked, a significant proportion of onshore gas production growth in the last three years has come from 'associated' gas: gas produced as a by-product from shale oil wells. In 2014, we estimate that associated gas production growth will be around 2.5 Bcf/day. If US shale production growth starts to fall, so will associated gas growth.

Natural gas in storage

Swings in the supply/demand balance for US natural gas should, in theory, show up in movements in gas storage data. The following graph shows the 12 month gas strip price (in black) against the amount of gas in storage expressed as the deviation from the 5 year storage average (in green). Swings in storage have frequently been a leading indicator to movements in the gas strip price.

Figure 6: Deviation from 5yr gas storage norm vs gas price 12 month strip (H. Hub $/Mcf)



Source: Bloomberg; Energy Information Agency (EIA) (October 2014)

The surplus of gas in the second half of 2008 and 2009, a result of oversupply during the recession, can be seen in gas storage data, with the inflection point in storage occurring in July 2008 and the storage line moving from negative (i.e. deficit) to positive (i.e. surplus) territory over this 18 month period. This coincided with the gas strip price falling from a peak of over $13 in July to below $5. An unusually cold 2009/10 winter boosted demand and pushed the gas storage level back into balance, only for oversupply to persist again for much of the rest of 2010. A cold 2010/11 winter followed by a hot 2011 summer tightened storage again, with storage levels staying around the 5 year average for much of this period.

The very mild 2011/12 winter (in combination with rising production) caused gas storage levels to balloon to record levels, driving prices down to their lowest levels for a decade. Since then coal-to-gas switching and shut ins and the sharp rig count drop have worked in the other direction, seeing gas prices rising from their sub $2 lows in April 2012 to around $4 at the end of 2013. The 2013/2014 winter saw gas in storage tighten very considerably as a result of extremely cold weather rather than any structural tightening. Coal regained some market share in the spring and summer of 2014 as a result of the higher natural gas prices, though gas in storage remains lower than average. A warm start to the 2014/2015 winter has since led to gas in storage levels reaching previous year levels.

We watch movements in gas storage closely as a tightening from here, weather adjusted, is likely to be a coincident indicator for the start of the next leg of gas price recovery.

3. Manager's Comments

2015 Outlook for Energy

First, we would like to wish all our investors a very happy and prosperous 2015.
Second, we'd like to share with you some 'big picture' thoughts on the energy markets. What happened in 2014, what we can learn from it and what might the next 12 months hold for us as investors in, and interested observers of, the energy markets?

REVIEW OF 2014

- Although the Brent (global) oil price averaged around $100/bbl for the fourth year in a row, it fell sharply towards the end of the year to close at around $55/bbl. An acceleration in North American unconventional oil production growth, together with weakening Far East and European oil demand, combined in mid-to-late 2014 to weaken the supply/demand balance and pressure oil prices.
- The dominant themes for global oil markets last year were:

  i) Surging non-OPEC supply, up by around 1.9m b/day. This is the largest annual growth from non-OPEC since 1978 and the fourth largest ever. The growth was dominated by the US, up 1.4m b/day, as shale oil producers took advantage of high oil prices for the first nine months of the year to accelerate oil drilling.

  ii) Weaker global oil demand, expected to have grown by around 0.6m b/day. This is made up of non-OECD oil demand growth of 1.1m b/day and OECD oil demand shrinkage of around 0.5m b/day. Demand growth of over 1m b/day in 2014 had initially been expected, but forecasts were lowered, coincident with downgrades to global GDP forecasts in the middle of the year.

  iii) A shift in policy from OPEC. In response to falling oil prices, OPEC announced in November that they were leaving their production quota unchanged, while providing no clarity on when any action might be taken. Saudi have since amplified this message, declaring an intention to maintain production regardless of price.

- For natural gas in the US, 2014 continued the theme of the past few years. Production growth from newer gas shales (the Marcellus in particular) along with gas produced as a by-product of new shale oil production regularly outran demand growth. Henry Hub averaged $4.27/mcf in 2014, vs $3.73 in 2013; this increase can largely be attributed to an unusually cold start to the year, boosting heating demand for gas, rather than anything fundamental.

It was a tough year for energy equities, which fell in sympathy with the decline in the oil price. The MSCI World Energy Index produced a total return of -10.9% versus the MSCI World +5.6%. The first half of 2014 delivered strong gains but the second half erased those gains, and more, as a result of the crude oil price weakness. The performance of the MSCI World Energy Index was only part of the story, with a number of energy equity subsectors finishing 2014 down by 20% to 50%, particularly those more levered to oil.

OUTLOOK FOR 2015

- **We expect the oil price to remain volatile for a number of months,** with a recovery to $75+/bbl likely over the next 12 months. A necessary part of this outcome is for US oil shale growth to fall back by the end of 2015. After 2015 the likelihood is that the price will fluctuate quite widely, but move on an upwards trajectory as accelerating emerging country demand growth and flattening US shale oil growth slowly tighten the global oil supply/demand balance.

- **The oil price at $50-60/bbl is not yet at an economic extreme, leaving a reasonable chance that it continues to decline while the market starts to rebalance.** An oil price in the $50-60/bbl range is not high enough to justify new investment in higher cost and more marginal non-OPEC projects. However, it is not low enough to warrant existing high cost producers to shut in reasonable volumes of supply. We believe that oil prices would need to fall to around $35-40/bbl to warrant this.

- **Saudi and other OPEC members are acting rationally in their response to the falling oil price.** OPEC's decision not to cut production is borne out of a realisation that the falling price is principally a function of non-OPEC over-supply, making 'emergency' quota cuts a fools' errand as they would simply encourage more non-OPEC growth. We sense that Saudi are eyeing US shale oil growth and would prefer a shallower oil price recovery for the time being (i.e. one that doesn't allow US oil growth to accelerate unabated), rather than a 'V' shaped recovery that restores it to $100/bbl. If we are right, it is logical for Saudi & co to tolerate a lower oil price for as long as it takes to achieve this.

- **We expect oil demand to bounce back to growth of over 1m b/day (vs 0.6m b/day in 2014).** Not only will there be a demand response to lower oil prices, but the negatives (Europe and Japan weakness) are not expected to persist and global GDP growth is expected to be stronger. The IEA is forecasting oil demand growth recovering to 0.9m b/day in 2015 (from 0.6m b/day in 2014). We won't be surprised if oil demand is substantially more robust than this, both near and long-term.

- **The most relevant precedent for comparison with current oil markets is probably 1985-87.** This was an oil price fall caused by supply/demand imbalance as opposed to one related to an external demand shock like we saw in 2000/01 and 2008/09. In late 1985, Saudi did much as now, announcing that they would no longer support the oil price. The price fell by 65% before doubling over the following 12 months. If history were to repeat itself, we would see the oil price bottoming at $35-40/bbl, before recovering to $70-80/bbl.

- **The political backdrop to OPEC's actions remains as complicated as it ever has been.** At time of writing, we have force majeure announced in Libya as heavy fighting continues close to the two oil export ports of Es Sider and Ras Lanuf (which have a combined export capacity of 0.6m b/day). Islamic State (IS) in Iraq is regrouping. North-south tensions are very high in Nigeria. Saudi's King Abdullah is 91 and may be terminally ill.

- **Energy equities have now underperformed the broad market for longer than they did after the price declines in 1986,** and indeed for longer than after any of the large price declines since 1970. If you believe, as we do, that a recovery in the oil price to $75-80/bbl is very likely (and to $100/bbl over a slightly longer timeframe), the case for accumulating energy equities at this level looks strong.

- Our analysis shows that, at the equivalent point to today in the oil price declines of 1985-87 and 1996-98, an investment in the energy sector outperformed the S&P500 over the following 1 year, 3 years and 5 years.

Steel yourselves to be ready to buy the sector when other investors are most fearful.

4. Performance – Guinness Atkinson Global Energy Fund

The main index of oil and gas equities, the MSCI World Energy Index, was down by 14.1% in the fourth quarter of 2014. The S&P 500 Index was up by 4.9% over the same period. The Fund was down by 23.8% over this period, underperforming the MSCI World Energy Index by 9.7% (all in US dollar terms).

Within the Fund, the fourth quarter's stronger performers were Valero, Exxon, Devon, BP and Royal Dutch Shell. Poorer performers were Enquest, Stone Energy, Bankers Petroleum, Unit Corporation and Halliburton.

Performance as of December 31, 2014

Inception date 6/30/04	Full Year 2009	Full Year 2010	Full Year 2011	Full Year 2012	Full Year 2013	1 Year / YTD	Last 5 years (annualized)	Since Inception (annualized)
Global Energy Fund	63.27%	16.63%	-13.16%	3.45%	24.58%	-19.63%	8.09%	9.75%
MSCI World Energy Index	26.98%	12.73%	0.71%	2.54%	18.98%	-10.93%	8.75%	8.26%
S&P 500 Index	26.47%	15.06%	2.09%	15.99%	32.36%	13.66%	15.67%	7.99%

Source: Bloomberg
Gross expense ratio: 1.35%

Performance data quoted represent past performance and 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. For most recent month-end and quarter-end performance, visit www.gafunds.com or call (800) 915-6566.

4. Portfolio - Guinness Atkinson Global Energy Fund

Buys/Sells

In December, we sold positions in Bill Barrett Corp, California Resources Corp and Seventy Seven Energy Inc. There were no purchases in the portfolio in December.

In aggregate, the three holdings represented less than 100 basis points (bps) of the fund at the end of November 2014. Both Seventy Seven Energy and California Resources Corp were spin-offs from other companies held in the fund (from Chesapeake and Occidental respectively) while Bill Barrett was sold due to increased concerns over balance sheet strength and the company's ability to weather a longer period of lower oil prices.

Sector Breakdown

The following table shows the asset allocation of the Fund at **December 31, 2014**.

(%)	31 Dec 2007	31 Dec 2008	31 Dec 2009	31 Dec 2010	31 Dec 2011	31 Dec 2012	31 Dec 2013	31 Dec 2014	*Change YTD*
Oil & Gas	**103.5**	**96.4**	**96.1**	**93.2**	**98.5**	**98.6**	**95.6**	**95.3**	***-0.3***
Integrated	66.2	53.7	47.2	41.2	39.6	39.1	39.6	37.5	*-2.1*
Exploration and production	25.8	28.7	32.0	36.9	41.5	41.6	36.8	38.1	*1.3*
Drilling	8.1	5.2	8.4	6.3	6.0	7.4	6.8	3.1	*-3.7*
Equipment and services	3.4	6.4	5.4	5.3	6.6	7.1	9.0	13.1	*4.1*
Refining and marketing	0.0	2.4	3.1	3.5	4.8	3.4	3.4	3.5	*0.1*
Coal and consumables	**2.5**	**2.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Solar	**0.0**	**0.0**	**0.0**	**3.2**	**1.2**	**1.2**	**2.8**	**3.5**	**0.7**
Construction and engineering	**0.0**	**0.4**	**0.4**	**0.4**	**0.4**	**0.6**	**0.9**	**0.0**	**-0.9**
Cash	**-6.0**	**0.9**	**3.5**	**3.2**	**-0.1**	**-0.4**	**0.7**	**1.2**	**0.5**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**0.0**

Source: Guinness Atkinson Asset Management
Basis: Global Industry Classification Standard (GICS)

Guinness Atkinson Global Energy Fund Portfolio

The Fund at December 31, 2014 was on an average price to earnings ratio (P/E) of 9.9x versus the S&P 500 Index at 2,058.9 as set out in the table. (Based on S&P 500 'operating' earnings per share estimates of $56.9 for 2009, $83.8 for 2010, $96.4 for 2011, $96.8 for 2012, $107.3 for 2013 and $117.1 for 2014). This is shown in the following table:

	2009	2010	2011	2012	2013	2014
Guinness Atkinson Global Energy Fund P/E	14.4	9.3	*9.1*	*9.9*	10.3	9.9
S&P 500 P/E	36.4	24.7	21.4	21.4	19.3	17.6
Premium (+) / Discount (-	*-60%*	*-62%*	*-57%*	*-54%*	*-47%*	*-44%*
Average oli price (WTI $)	$61.9/bbl	$79.5/bbl	$95/bbl	$94/bbl	$98/bbl	$93/bbl

Source: Standard and Poor's; Guinness Atkinson Asset Management

Portfolio Holdings

Our integrated and similar stock exposure (c.41%) is comprised of a mix of mid cap, mid/large cap and large cap stocks. Our four large caps are Exxon, BP, Royal Dutch Shell and Total. Mid/large and mid-caps are ENI, Statoil, Hess and OMV. At December 31 2014 the median P/E ratio of this group was 9.6x 2014 earnings. We have one Canadian integrated holding, Suncor. The company has significant exposure to oil sands and stands on an attractive P/E of 10.8x 2014 earnings given the company's good growth prospects.

Our exploration and production holdings (c.33%) give us exposure most directly to rising oil and natural gas prices. We include in this category non-integrated oil sands companies, as this is the GICS approach. The stock here with oil sands exposure is Canadian Natural Resources. The pure E&P stocks are all largely in the US (Newfield, Devon, Chesapeake, Carrizo, Stone, Ultra and QEP Resources), with three more US names (Apache, Occidental and Noble) which have significant international production and two (Enquest and Bank-ers Petroleum) which are European and North Sea focused. One of the key metrics behind a number of the E&P stocks held is low enterprise value / proven reserves. Almost all of the exploration and production (E&P)

stocks held also provide exposure to North American natural gas and include two of the industry leaders (Devon and Chesapeake). In P/E terms, the group divides roughly into two: (i) Apache, Occidental, Chesapeake, Devon, Ultra, Stone, Bankers and Enquest all with quite low P/Es (6x – 12x 2014 earnings); and (ii) Noble, Newfield, Carrizo and QEP with higher P/E ratios. However, all look reasonably attractive on EV/EBITDA multiples.

We have exposure to four (pure) emerging market stocks in the main portfolio, though two are half-positions. Two are classified as integrateds by the GICS (Gazprom and PetroChina) and two as E&P companies (Dragon Oil and SOCO International). Gazprom is the Russian national oil and gas company which produces approximately a quarter of the European Union gas demand and trades on 2.8x 2014 earnings. PetroChina is one of the world's largest integrated oil and gas companies and has significant growth potential and advantages as a Chinese national champion. Dragon Oil is an oil and gas E&P company focused on offshore Turkmenistan in the Caspian Sea and trades on 6.8x 2014 earnings. SOCO International is an E&P company with production in Vietnam and exploration interests across East Africa in Angola, Democratic Republic of Congo and the Republic of Congo.

We have useful exposure to oil service stocks, which comprise around 17% of the portfolio. The stocks we own are split between those which focus their activities in North America (land driller Unit Corp) and those which operate in the US and internationally (Helix, Halliburton, Wood Group and Shawcor).
Our independent refining exposure is currently in the US in Valero, the largest of the US refiners. Valero has a reasonably large presence on the US Gulf Coast and is benefitting from the rise in US exports of refined products seen in recent times.

Our alternative energy exposure is currently a single unit split equally between two companies: JA Solar and Trina Solar. Both companies are Chinese solar cell and module manufacturers. They were loss making in 2012 and 2013 due to sharp falls in solar prices during the year but have returned to profitability during 2014.

Portfolio at December 31, 2014

Guinness Atkinson Global Energy Fund 31 December 2014

Stock	ID_ISIN	Curr.	Country	% of NAV	2006 B'berg mean PER	2007 B'berg mean PER	2008 B'berg mean PER	2009 B'berg mean PER	2010 B'berg mean PER	2011 B'berg mean PER	2012 B'berg mean PER	2013 B'berg mean PER	2014 B'berg mean PER
Integrated Oil & Gas													
Exxon Mobil Corp	US30231G1022	USD	US	3.58	14.11	12.7	10.9	23.8	15.5	11.0	11.8	12.5	12.7
Royal Dutch Shell PLC	GB00B03MLX29	EUR	NL	3.59	8.3	6.6	7.6	15.1	10.7	7.9	7.9	10.4	9.0
BP PLC	GB0007980591	GBP	GB	3.40	5.6	5.7	4.6	7.9	5.5	5.5	6.8	8.4	9.3
Total SA	FR0000120271	EUR	FR	3.35	6.2	5.7	4.6	11.9	9.3	8.3	7.9	8.8	9.3
ENI SpA	IT0003132476	EUR	IT	3.29	5.1	5.6	5.1	10.1	7.7	7.3	7.2	11.5	12.8
Statoil ASA	NO0010096985	NOK	NO	3.33	6.9	9.5	7.1	13.0	9.7	8.4	7.9	8.7	9.7
Hess Corp	US42809H1077	USD	US	3.53	13.4	12.4	10.1	38.5	14.3	12.3	12.5	12.9	15.9
OMV AG	AT0000743059	EUR	AT	3.48	4.3	4.2	3.4	8.8	5.5	6.9	4.8	5.9	7.4
				27.56									
Integrated Oil & Gas - Canada													
Suncor Energy Inc	CA8672241079	CAD	CA	3.53	15.0	15.5	11.6	34.9	23.3	10.3	11.5	11.6	10.8
Canadian Natural Resources Ltd	CA1363851017	CAD	CA	3.25	24.6	17.0	11.0	14.9	14.8	15.5	22.6	16.0	10.5
				6.78									
Integrated Oil & Gas - Emerging market													
PetroChina Co Ltd	CNE1000003W8	HKD	HK	3.44	8.8	8.5	11.0	11.6	9.4	9.2	10.6	11.8	10.2
Gazprom OAO	US3682872078	USD	RU	2.99	nm	nm	nm	5.0	4.0	2.7	2.8	2.6	2.8
				6.43									
Oil & Gas E&P													
Apache Corp	US0374111054	USD	US	3.52	8.6	7.2	5.6	11.3	6.8	5.3	6.5	7.7	10.9
Occidental Petroleum Corp	US6745991058	USD	US	3.61	15.7	15.4	9.0	21.7	14.3	9.7	11.6	11.6	13.3
QEP Resources Inc	US74733V1008	USD	US	1.19	nm	nm	nm	nm	14.6	12.4	16.3	14.5	14.5
Ultra Petroleum Corp	CA9039141093	USD	US	1.01	9.2	11.5	5.0	7.3	5.9	5.1	7.1	8.2	5.3
Devon Energy Corp	US25179M1036	USD	US	3.66	9.7	8.8	6.2	16.9	10.3	10.1	19.0	14.4	11.8
Chesapeake Energy Corp	US1651671075	USD	US	3.87	5.4	6.1	5.5	7.9	6.7	7.0	40.4	11.9	12.0
Noble Energy Inc	US6550441058	USD	US	3.52	25.0	17.4	13.5	28.0	22.9	18.0	20.7	15.4	19.0
Newfield Exploration Co	US6512901082	USD	US	3.65	7.7	8.4	8.6	5.3	5.9	6.7	11.2	15.1	14.6
Stone Energy Corp	US8616421066	USD	US	1.39	6.1	3.3	3.0	7.3	8.3	4.4	6.1	6.0	31.9
Carrizo Oil & Gas Inc	US1445771033	USD	US	1.99	58.6	59.4	23.1	28.2	32.7	40.5	28.6	18.8	16.8
				27.41									
International E&P													
Bankers Petroleum Ltd	CA0662863038	CAD	CA	1.44	nm	nm	nm	922.1	40.7	14.6	14.0	9.7	8.0
Dragon Oil PLC	IE0000590798	GBP	GB	1.75	23.0	13.6	11.3	16.4	11.9	6.4	6.5	7.4	6.7
EnQuest PLC	GB00B635TG28	GBP	GB	0.86	nm	nm	nm	nm	5.6	6.4	1.9	2.1	4.3
Soco International PLC	GB00B572ZV91	GBP	GB	1.85	43.4	39.9	42.9	26.7	36.9	23.8	6.6	7.0	9.4
				5.90									
Drilling													
Unit Corp	US9092181091	USD	US	3.08	5.1	6.0	5.0	13.0	11.2	8.3	8.2	9.2	7.7
				3.08									
Equipment & Services													
Halliburton Co	US4062161017	USD	US	3.17	18.0	15.5	18.1	30.0	19.6	11.8	13.2	12.7	9.9
Helix Energy Solutions Group Inc	US42330P1075	USD	US	3.13	7.6	6.5	8.9	37.4	41.1	14.4	11.7	20.2	11.2
ShawCor Ltd	CA8204391079	CAD	CA	3.32	33.9	26.5	21.9	23.2	34.0	58.1	19.0	11.6	17.3
John Wood Group PLC	GB00B5N0P849	GBP	GB	3.39	35.4	23.5	16.7	22.3	23.2	15.3	10.6	9.1	9.0
				13.02									
Solar													
Trina Solar Ltd	US89628E1047	USD	US	1.78	nm	12.8	7.7	5.7	2.8	343.0	nm	nm	10.9
JA Solar Holdings Co Ltd	US4660902069	USD	US	1.72	9.5	25.4	37.7	nm	1.1	nm	nm	nm	8.7
				3.51									
Oil & Gas Refining & Marketing													
Valero Energy Corp	US91913Y1001	USD	US	3.52	6.0	6.4	9.1	nm	31.2	12.4	10.1	12.1	8.5
				3.52									
Construction & Engineering													
Cluff Natural Resources PLC	GB00B6SYKF01	GBP	GB	0.30	nm	nm	nm	nm	nm	nm	nm	nm	nm
JKX Oil & Gas PLC	GB0004697420	GBP	GB	0.17	0.4	0.3	0.4	0.4	0.4	0.5	0.7	1.3	7.3
Ophir Energy PLC	GB00B24CT194	GBP	GB	0.16	nm	nm	nm	nm	nm	nm	nm	nm	5.2
Shandong Molong Petroleum Machinery Co Ltd	CNE1000001N1	HKD	HK	0.11	11.3	7.9	5.2	14.5	5.7	7.9	nm	nm	nm
Sino Gas & Energy Holdings Ltd	AU000000SEH2	AUD	AU	0.46	nm	nm	nm	nm	nm	nm	188.0	nm	14.5
Triangle Petroleum Corp	US89600B2016	USD	US	0.19	nm	nm	nm	nm	nm	nm	nm	nm	8.3
Trinity Exploration & Production PLC	GB00B8JG4R91	GBP	GB	0.08	nm	nm	nm	nm	nm	nm	nm	0.8	nm
WesternZagros Resources Ltd	CA9600081009	CAD	CA	0.15	nm	nm	nm	nm	nm	nm	nm	nm	nm
				1.62									
			Cash	1.17									
			Total	100									
			PER		9.7	9.2	8.1	13.4	8.6	8.9	9.4	9.7	9.8
			Med. PER		9.2	9.1	8.8	14.7	10.5	9.2	10.6	10.9	10.1
			Ex-gas PER		10.0	9.5	8.7	14.9	8.8	9.4	8.9	9.4	9.3

Research holding

The Fund's portfolio may change significantly over a short period of time; no recommendation is made for the purchase or sale of any particular stock.

5. Outlook

i) Oil market

The table below illustrates the difference between the growth in world oil demand and non-OPEC supply over the last 11 years, together with the IEA forecasts for 2015 (note that 2014 is still estimated also).

	2004	2005	2006	2007	2008	*2009*	2010	2011	2012	2013	2014e	2015e
										IEA	*IEA*	*IEA*
World Demand	**82.5**	**84.0**	**85.2**	**87.0**	**86.5**	**85.5**	**88.5**	**89.5**	**90.5**	***91.8***	***92.4***	***93.3***
Non-OPEC supply (includes Angola and Ecuador for periods when each country was outside OPEC[1])	**50.3**	**50.4**	**51.3**	**50.5**	**49.6**	**51.4**	**52.7**	**52.8**	**53.3**	***54.6***	***56.5***	***57.8***
Angola supply adjustment[1]	-1.0	-1.2	-1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador supply adjustment[1]	-0.5	-0.5	-0.5	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Indonesia supply adjustment[2]	1.0	0.9	0.9	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-OPEC supply (ex. Angola/Ecuador and inc. Indonesia for all periods)	**49.8**	**49.6**	**50.3**	**51.0**	**50.6**	**51.4**	**52.7**	**52.8**	**53.3**	**54.6**	**56.5**	**57.8**
OPEC NGLs	4.2	4.3	4.3	4.3	4.5	5.1	5.5	5.9	6.2	*6.3*	*6.4*	*6.7*
Non-OPEC supply plus OPEC NGLs (ex. Angola/Ecuador and inc. Indonesia for all periods)	**54.0**	**53.9**	**54.6**	**55.3**	**55.1**	**56.5**	**58.2**	**58.7**	**59.5**	**60.9**	**62.9**	**64.5**
Call on OPEC-12[3]	28.5	30.1	30.6	31.7	31.4	29.0	30.3	30.8	31.0	30.9	29.5	28.8
Iraq supply adjustment[4]	-2.0	-1.8	-1.9	-2.1	-2.4	-2.4	-2.4	-2.7	-3.0	-3.1	-3.3	-3.3
Call on OPEC-11[5]	**26.5**	**28.3**	**28.7**	**29.6**	**29.0**	**26.6**	**27.9**	**28.1**	**28.1**	**27.8**	**26.2**	**25.5**

[1]Angola joined OPEC at the start of 2007, Ecuador rejoined OPEC at the end of 2007 (having previously been a member in the 1980s)

[2]Indonesia left OPEC as of the start of 2009
[3]Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi, U.A.E. Venezuela
[4]Iraq has no offical quota
[5]Algeria, Angola, Ecuador, Iran, Kuwait, Libya, Nigeria, Qatar, Saudi, U.A.E. Venezuela

Source: 2003 - 2008: IEA oil market reports; 2009 - 14: December 2014 Oil market Report

Global oil demand in 2014 was 5.4m b/day up on the pre-recession (2007) peak. This means the combined effect of the 2007/08 oil price spike and the 2008/09 recession was quite small and was shrugged off remarkably quickly. The IEA estimate that demand rose 0.6m b/day in 2014 and forecast a further rise of 0.9m b/day in 2015, which would take oil demand to an all-time high of 93.3m b/day.

OPEC

In December 2011, OPEC introduced a group-wide target of 30m b/day without specifying individual country quotas. The 30m b/day figure included 2.7m b/day for Iraq, so the target for OPEC-11 (excluding Iraq) was 27.3m b/day.

At the date of the announcement, and in the period since, OPEC's production has been complicated by numerous issues: notably (1) erratic production from Libya, affected by the ongoing civil war; (2) depressed production in Iran due to western sanctions over nuclear weapons development; (3) real difficulty in forecasting how Iraq might develop. In response to lower Libyan and Iranian production, and to cope with rising global oil demand, the three key swing producers within OPEC (Saudi, Kuwait and UAE) have each raised their production significantly, as the following table shows:

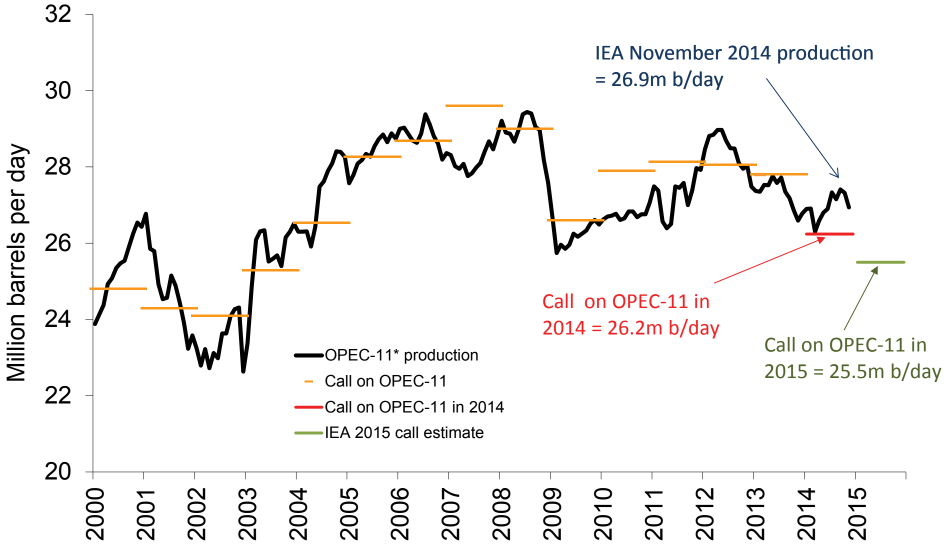
('000 b/day)	31-Dec-10	31-Dec-14	Change
Saudi	8,250	**9,500**	**1,250**
Iran	3,700	**2,770**	-930
UAE	2,310	**2,700**	390
Kuwait	2,300	**2,790**	490
Nigeria	2,220	**2,080**	-140
Venezuela	2,190	**2,468**	278
Angola	1,700	**1,620**	-80
Libya	1,585	**450**	-1,135
Algeria	1,260	**1,100**	-160
Qatar	820	**680**	-140
Ecuador	465	**561**	96
OPEC-11	**26,800**	**26,719**	**-81**
Iraq	2,385	3,520	1,135
OPEC-12	**29,185**	**30,239**	**1,054**

Source: Bloomberg

The effect has been OPEC-12 producing at around 30m b/day, plus or minus around 1m b/day, for the past three years, in an attempt to keep the global oil market in balance and the price stable.

In the last few months, we have moved into a period where the global oil balance has become looser, driven principally by surging non-OPEC supply (+1.9m b/day in 2014). The effect of $100+ oil, enjoyed for most of the 2011-2014 period, has emerged in the form of with an acceleration in US shale oil production and a slowdown in declines in other non-OPEC regions. And as a result, we estimate that the call on OPEC-11 for 2015 has been reduced to 25.5m b/day, around 1.4m b/day lower than November 2014 production of 26.9m b/day (according to the IEA). In the graph below we show how the call on OPEC-11 has evolved since 2000:

Figure 7: OPEC-11 apparent production vs call on OPEC 2000 – 2014



Source: IEA Oil Market Report (December 2014 and prior); Guinness Atkinson estimates

OPEC met on November 27 2014, with the perceived looseness in the physical market and falling oil price (in the mid $70s at the time of the meeting) prompting many to expect that OPEC would either reduce their overall quota or announce a firm commitment to comply with the 30m b/day target. In the event there was no quota cut, and a confirmation that the 30m b/day target would be maintained. OPEC's statement read as follows:

"Recording its concern over the rapid decline in oil prices in recent months, the Conference concurred that stable oil prices – at a level which did not affect global economic growth but which, at the same time, allowed producers to receive a decent income and to invest to meet future demand – were vital for world economic wellbeing. Accordingly, in the interest of restoring market equilibrium, the Conference decided to maintain the production level of 30.0m b/day, as was agreed in December 2011. As always, in taking this decision, Member Countries confirmed their readiness to respond to developments which could have an adverse impact on the maintenance of an orderly and balanced oil market."

In choosing not to reduce their production for the time being, we consider that Saudi and other OPEC members are acting rationally here. OPEC's decision seems borne out of a realization that the falling price is principally a function of non-OPEC over-supply, making 'emergency' quota cuts a fools' errand as they would simply encourage more non-OPEC growth. We sense that Saudi are eyeing US shale oil growth and would prefer a shallower oil price recovery for the time being rather than a 'V' shaped recovery that restores it to $100/bbl, i.e. one that doesn't allow US oil growth to accelerate unabated. If we are right, it is logical for Saudi & co to tolerate a lower oil price for as long as it takes to achieve this.

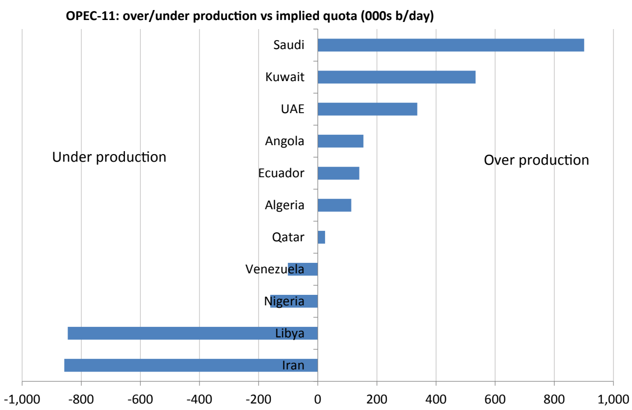
Saudi went through a similar experience in the first half of the 1980s, trying to maintain price at the expense of volume, causing them to reduce their production from 9.6m b/day in 1979 to 3.4m b/day in 1985. Eventually the strategy failed and Saudi shifted to an alternative plan of allowing oil prices to fall, slowing non-OPEC supply growth and invigorating demand.

Overall, we reiterate two important criteria for Saudi:

1. Saudi is interested in the average price of oil that they get, they have a longer investment horizon than most other market participants

2. Saudi wants to maintain a balance between global oil supply and demand to maintain a price that is acceptable to both producers and consumers
Saudi's decision not to shoulder an OPEC production cut for the time being is consistent with both of those objectives.

As an important aside, we also point to the complicated production picture within OPEC, illustrated here by an estimation of the amount of over/under production versus each country's implied quota:



Source: IEA; Guinness Atkinson estimates

Saudi, Kuwait and UAE are over-producing versus their implied quota by around than 2m b/day, while Iran and Libya, but also Nigeria and Venezuela, are under-producing. Unified action by OPEC has been made difficult by the current position, with the under-producing nations perhaps reluctant to contribute.

All of that said, nothing in the market has changed our view that OPEC have the ability to put a floor under the price – as they did in 2008, 2006, 2001 and 1998 – should they choose.

Supply looking forward

The non-OPEC world has, since the 2008 financial crisis, grown its production more meaningfully than in the six years before 2008. The growth was 0.2% p.a. from 2002-2008, increasing to 2.2% p.a. from 2008-2014.

Non-OPEC production growth in 2014 (1.9m b/day) was the strongest since 1978 and the fourth strongest ever. Growth in the non-OPEC region over the last 3 years has been dominated by the successful development of shale oil and oil sands in North America (+4.7m b/day since 2010), implying that the rest of non-OPEC region has declined by 0.9m b/day over the period, despite the sustained high oil price until recently.

The IEA estimates approximately 1.9m b/day of growth in 2014. The expected supply is dominated by North America (+1.6 m b/day) with the rest of non-OPEC supported by growth from Brazil (+0.2m b/day). As mentioned earlier, with non-OPEC supply growing this strongly in 2014, it is having a loosening effect on the global oil balance. 2015 looks in better balance, with non-OPEC supply rising by a similar amount to global demand.

Looking further ahead to how global oil supply may evolve, we must consider in particular increases in supply from two regions: Iraq and North America. Starting with Iraq, the questions of how big an increase is likely, in what timescale, and how other OPEC members react are all important issues. Our conclusion is that while an increase in Iraqi production may be technically possible (say, 2m b/day over the next 5 years), if it occurs it will be surprisingly easily absorbed by a combination of OPEC adjustment and continuing growth in demand from developing countries of c.10-15m b/day over the next 10 years. Iraqi production was running at 3.5m b/day in December 2014 (according to Bloomberg), just below the high of 3.6m b/day in mid-2000. Despite this potential, the recent unrest in the country and a likely slowdown in investment from foreign partners does not fill us with confidence that significant growth can easily be achieved.

The growth in US shale oil production, in particular from the Bakken, Permian and Eagleford basins, raises the question of how much more there is to come. So far, new oil production from these sources amounts to around 3.5m b/day. Our assessment is that US shale oil is a high cost source of oil but one that is viable at $70-80 oil prices. In total, it could be comparable in size to the UK North Sea, i.e. it could grow by around a further 3m b/day over the next five years. We observe that since the discovery of the Bakken, Eagleford and Permian, the US has struggled to find another large shale resource, despite 3 years of trying, but that there is now the opportunity to fully exploit those three discoveries. We note that while US shale oil may be viable with prices around $70-$80, the rate of development is heavily dependent on the cash flow available to producing companies, which tends to be recycled immediately into new wells. Naturally, cash flows available for reinvestment in a sub $60 world are far lower than in a $100+ world, so would slow the growth rate.

Other opportunities to exploit unconventional oil likely exist internationally, notably in Argentina (Vaca Muerta), Russia (Bazhenov), China (Tarim and Sichuan) and Australia (Cooper). However, the US is far better understood geologically; the infrastructure in the US is already in place; service capacity in the US is high; and the interests of the landowner are aligned in the US with the E&P company. In most of the rest of the world, the reverse of each of these points is true, and as a result we see international shale being 5-10 years behind North America.

Demand looking forward

The IEA are forecasting growth in oil demand in 2014 of around 0.6m b/day, comprising an increase in non-OECD demand of around 1.1m b/day and a decrease in OECD demand of 0.5m b/day. The components of this non-OECD demand growth can be summarized as follows:

Figure 8: Non-OECD oil demand

m b/d	Demand							Growth					
	2009	**2010**	**2011**	**2012**	**2013**	**2014e**	**2015e**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Asia	18.25	19.70	20.35	21.40	21.95	22.48	23.14	1.45	0.65	1.05	0.55	0.53	0.66
M. East	7.10	7.32	7.43	7.75	7.90	8.10	8.32	0.22	0.11	0.32	0.15	0.20	0.22
Lat. Am.	5.70	6.03	6.17	6.42	6.62	6.79	6.91	0.33	0.14	0.25	0.20	0.17	0.12
FSU	4.00	4.15	4.39	4.61	4.73	4.84	4.64	0.15	0.24	0.22	0.12	0.11	-0.20
Africa	3.37	3.48	3.48	3.78	3.84	3.92	3.92	0.11	0.00	0.30	0.06	0.08	0.00
Europe	0.70	0.68	0.66	0.65	0.65	0.67	0.67	-0.02	-0.02	-0.01	0.00	0.02	0.00
	39.12	**41.36**	**42.48**	**44.61**	**45.69**	**46.80**	**47.60**	**2.24**	**1.12**	**2.13**	**1.08**	**1.11**	**0.80**

Source: IEA Oil Market Report (December 2014)

As can be seen, Asia has settled down into a steady pattern of growth since 2010. Collective growth in the Middle East, Latin America, FSU and Africa in 2014 almost exactly matches that in Asia. These other non-OECD regions are all central to the developing world industrialization and urbanization thesis: it is much more than just a China story. Looking into 2015, non-OECD oil demand is expected to slow a little, yielding 0.8m b/day of growth as an acceleration in Asian demand growth is dampened by falling demand in Russia.

For OECD demand in 2014, the IEA estimates that demand declined by 0.5 million barrels per day, made up of North American demand essentially flat and declines from Europe and Asia Pacific. We believe that the decline in the Pacific region reflects the gradual switching away from the temporary move to oil by Japan post Fukushima. OECD demand in 2014 is forecast to be down by 0.3m b/day, with North America flat and Europe and Pacific down.

Global oil demand over the next few years is likely to follow a similar pattern, with a flat to shallow decline picture in the OECD overshadowed by strong growth in the non-OECD area. The small decline in the OECD reflects improving oil efficiency over time, though this effect will be dampened by economic, population and vehicle growth. Within the non-OECD, population growth and rising oil use per capita will both play a significant part. Price and the trajectory of global GDP will have an effect at any point in the short term, but overall we would not be surprised to see average annual non-OECD demand growth of around 1.5m b/day to the end of the decade. This would represent a growth rate of 3% p.a., no greater than the growth rate over the last 15 years (3.2% p.a.).

Conclusions about oil

The table below summarizes our view by showing our oil price forecasts for WTI and Brent in 2014 against their historic levels, and rises in percentage terms that we have seen in the period from 2002 to 2013.

Figure 9: Average WTI & Brent yearly prices, and changes

Oil price (inflation adjusted)															*Est*
12 month MAV	1986-2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
WTI	30	33	38	49	66	75	82	104	68	84	99	94	98	93	65
Brent	30	32	35	46	64	75	82	103	67	84	115	112	108	99	70
Brent/WTI (12m MAV)	**30**	**33**	**37**	**48**	**65**	**75**	**82**	**104**	**68**	**84**	**107**	**103**	**103**	**96**	**68**
Brent/WTI y-on-y change (%)		8%	12%	30%	37%	15%	9%	26%	-35%	24%	27%	-4%	0%	-7%	-30%
Brent/WTI (5yr MAV)	30	25	32	37	42	51	61	75	79	82	89	93	93	99	95

We expect oil to trade in a $60-80 range in the near term. This is an unsupported level which may fluctuate significantly. If this price range persists, we expect North American unconventional supply growth to slow rapidly. This points to a rise in oil prices in the second half of 2015/ first half of 2016.

In 2016/17 the likelihood is that the price will fluctuate quite widely but move on an upwards trajectory as accelerating emerging country demand growth and US shale oil growth flattening slowly tightens the global oil supply/ demand balance. The world oil bill at $80 per barrel would represent 3.2% of 2016 Global GDP, 10% under the average of the 1970 – 2014 period (3.5%).

Longer term we think oil recovers back towards $100/bbl, then inflates with the world economy, growing at 3% in real terms.

We believe that Saudi's long-term objective remains to maintain a 'good' oil price (Brent at $90-110).

Natural gas market

US supply & demand: recent past

On the demand side, industrial gas demand and electricity gas demand, each about a third of total US gas demand, are key. Commercial and residential demand, which make up the final third, have been fairly constant on average over the last decade – although yearly fluctuations due to the coldness of winter weather can be marked.

Industrial demand (of which around 35% comes from petrochemicals) tends to trend up and down depending on the strength of the economy, the level of the US dollar and the differential between US and international gas prices. Between 2000 and 2009 industrial demand was in steady decline, falling from 22.2 Bcf/day to 16.9 Bcf/day. Since 2009 the lower gas price (particularly when compared to other global gas prices) and recovery from recession has seen demand rebound, up in 2013 to around 20.2 Bcf/day.

Electricity gas demand (i.e. power generation) is affected by weather, in particular warm summers which drive demand for air conditioning, but the underlying trend depends on GDP growth and the proportion of incremental new power generation each year that goes to natural gas versus the alternatives of coal, nuclear and renewables. Gas has been taking market share in this sector: in 2013, 27.2% of electricity generation is estimated to have been powered by gas, up from 21.6% in 2007. The big loser here is coal which has consistently given up market share over the past 10 years.

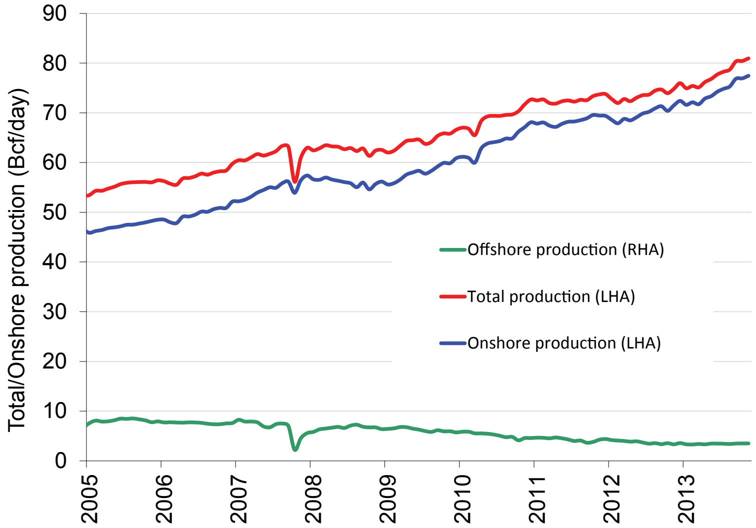
Total gas demand in 2013 (including Canadian and Mexican exports) is estimated to have been 75.7 Bcf/day, up by 1.4 Bcf/day (1.9%) vs 2012 and up 6.5 Bcf/day (9%) vs the 5 year average. The biggest change in 2013 vs 2012 was in power generation (-2.6 Bcf/day), as much of the coal to gas switching seen in 2012 unwound as the gas price recovered. This, however, was more than offset by a rise in commercial demand (+2.4 Bcf/day), driven by a cold finish to the 2012/13 winter, and a rise in industrial demand (+0.7 Bcf/day).

Overall, while gas demand in the US has been reasonably strong over the past four years, it has been trumped over this period by a rise in onshore supply, pulling the gas price lower.

The supply side fundamentals for natural gas in the US are driven by 5 main moving parts: onshore and offshore domestic production, net imports of gas from Canada, exports of gas to Mexico and imports of liquefied natural gas (LNG). Of these, onshore supply is the biggest component, making up over 80% of total supply.
Since the middle of 2008 the weaker gas price in the US reflects growing onshore US production driven by rising gas shale and associated gas production (coming from growing onshore US oil production). Interestingly, the overall rise in onshore production has come despite a collapse in the number of rigs drilling for gas, which has dropped from a 1,606 peak in September 2008 to 340 at the end of December 2014. However, offsetting

the fall, the average productivity per rig has risen dramatically as producers focus their attention on the most prolific shale basins. Onshore gas supply (gross) is now at 77.5 Bcf/day, around 20 Bcf/day (35%) above the 57.4 Bcf/day peak in 2009 before the rig count collapsed.

Figure 10: US natural gas production 2005 – 2014 (Lower 48 States)



Source: EIA 914 data (October 2014 published in January 2015)

The trends in US onshore production were initially were mitigated by declining offshore production and falling net Canada and LNG imports and rising exports to Mexico. More recently, from about September 2011, the mitigating factors became exhausted and a net imbalance developed between supply and demand.

Supply outlook

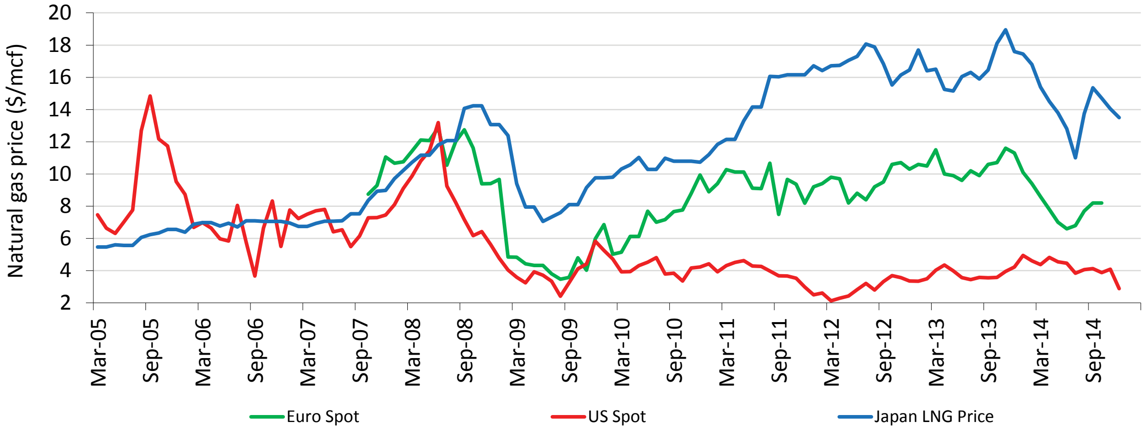
The outlook for gas production in the US depends on three key factors: the rise of associated gas (gas produced from wells classified as oil wells); expansion of the newer shale basins, principally the Marcellus, and the decline profile of legacy gas fields. If US onshore oil production grows by a further 2-3m b/day between now and 2017, we expect associated gas to grow by around 5-8 Bcf/day. The Marcellus region, which includes the largest producing gas field in the US and the surrounding region, currently accounts for around 15 Bcf/day of supply. Further growth of 4-5 Bcf/day is likely over the next few years. Balanced against these increases is an expected decline in legacy gas fields, particularly if the gas drilling rig count stays low. We estimate that 'other gas' (onshore production ex associated and Marcellus) declined by around 4.5 Bcf/day in 2013. Declines in 2014 and beyond from 'other gas' may though moderate as declines from legacy fields flatten (a result of moving along the decline curve). Considering these factors together, we expect production gains to continue (c.1-3 Bcf/day per annum for the next two or three years), but with an inflection point in demand coming (see discussion below), higher production than may well be needed.

	2009	2010	2011	2012	2013	2014(est)
Onshore production - average (Bcf/day)	55.9	58.6	64.6	68.4	70.1	75.1
Change (Bcf/day)	0.9	2.7	5.9	3.9	1.6	5.0
Change (%)	*1.7%*	*4.8%*	*10.1%*	*6.0%*	*2.4%*	*7.1%*

Source: EIA; Guinness Atkinson estimates

Liquid natural gas (LNG) arbitrage

The UK national balancing point (NBP) gas price – which serves as a proxy to the European traded gas price – has recovered from the mid summer lows caused by the warm European winter and spring and the relatively high levels of gas in inventory. We note that it still remains at a premium to the US gas price (c.$7.0 versus c.$3.0), albeit reduced from 12 months ago. Asian LNG prices have rebounded strongly from their mid 2014 lows (caused by weather patterns, the restart of South Korean nuclear generating capacity and slightly lower Japanese LNG demand) and are now back at around $14/mcf. While $14/mcf is still much higher than European and US natural gas prices, it is sharply down from around $18/mcf at the start of the year. We expect Asian LNG prices to gradually fall in line with recent oil price weakness.



Canadian imports into the US

Net Canadian imports of gas into the US dropped from 9.1 Bcf/day in 2007 to 5.0 Bcf/day in 2013. The fall was initially driven by falling rig counts and a less attractive royalty regime enacted in 2007 and has accelerated due to increased domestic demand from Canadian oil sands development and the depressed US price. We expect net imports in 2014 to remain around 5 Bcf/day.

Demand outlook

We expect US total demand in 2014 (including exports to Canada and Mexico) to be just over 76 Bcf/day, around 1 Bcf/day higher than 2013. The very cold start to 2014 accounts for around 1 Bcf/day of this growth, so adjusting for weather, we expect to see underlying demand flat versus 2013. Demand from power generation is expected to decline slightly, although recent weaker gas prices have tempered the switching from natural gas to coal that we witnessed earlier in 2014. Residential and commercial gas demand is, as ever, weather dependent but should be about unchanged from 2013. And we expect industrial consumption about 0.9 Bcf/day above 2013.

Looking out further, the low US gas price has stimulated various initiatives that are likely have a material impact on demand from 2016 onwards. The most significant is the group of LNG export terminals in the US and Canada which are in the planning/early construction stages. There are over 26 Bcf/day of LNG export projects proposed in the US today, plus a further 27 Bcf/day in Canada, as shown below:

Proposed NAM LNG export terminals

	Number of terminals	Non-FTA approval (bcf/day)
US – Export approved	7	9.3
US – FERC review	2	3.1
US – Proposed	7	12.9
US - Total	**16**	**26.4**
Canada – NEB export approved	7	15.2
Canada – Proposed	3	12.2
Canada - Total	**10**	**27.4**
North America - Total	**26**	**53.8**

Location of proposed terminals

Not all the proposed facilities will be built but we think that exports of between 4-8 Bcf/day from the US by 2020, or around 5-10% of new demand, are likely. Additional LNG exports from Canada will contribute a few extra Bcf, tightening the natural gas balance across North America. Importantly, a Department of Energy (DoE)-sponsored report concluded that LNG exports will have a net benefit to the US economy and that benefits are likely to increase as LNG exports rise.

Industrial demand will also grow thanks to the increased use of gas in the oil refining process and the construction of new petrochemical plants: Dow Chemical and Chevron Phillips have large new Gulf Coast facilities planned for 2017, the first new crackers to be built in the US since 2001.

We also believe that gas will continue to take the majority of incremental power generation growth in the US and continue to take market share from coal. Coal fired power generation closures will be a feature of 2014 and 2015 as MACT standards come into force in an effort to reduce mercury and acid gases emissions, which likely accelerates the switch to gas. Our working assumption is for gas fired power generation to grow 0.8-1.5 Bcf/day per year.

Increased demand from natural gas vehicles (compressed natural gas typically for shorter haul and liquefied natural gas for longer haul journeys) is coming, but starts from such a small base that it is unlikely to contribute meaningfully to the overall demand picture in the next 5 years.

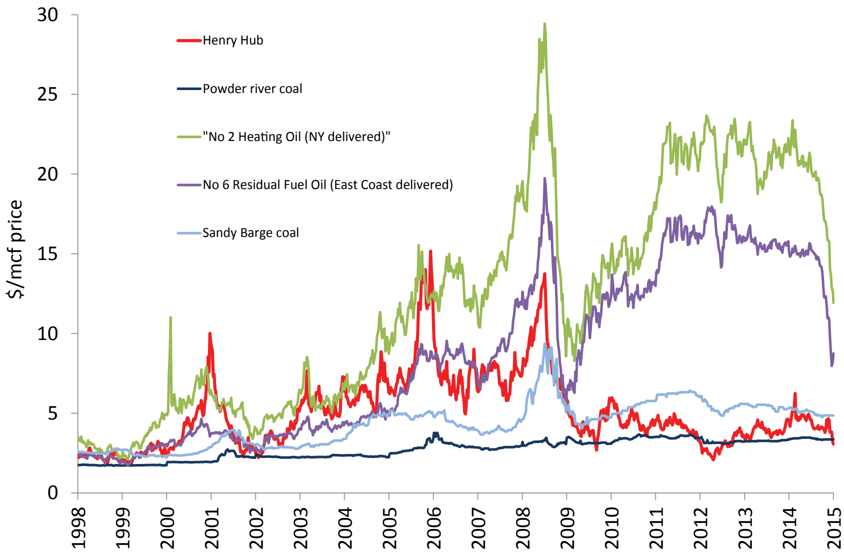
Other

The oil/gas price ratio ($ per bbl WTI/$ per mcf Henry Hub) of 17.6x at the end of December continues well outside the more normal ratio of 6-9x. Recent weakness in both oil and natural gas prices has continued to keep the ratio elevated but, longer term, we expect the 6-9x range to be achieved again. At $95 oil, this would imply the gas price increasing back to above $10 once the gas market has returned to balance. This is quite a thought and a long way away from current market sentiment.

The following chart of the front month US natural gas price against heating oil (No 2), residual fuel oil (No 6) and coal (Sandy Barge adjusted for transport and environmental costs) seeks to illustrate how coal and residual fuel oil switching provide a floor and heating oil a ceiling to the natural gas price. With the gas price trading below the coal price support level for the first 8 months of 2012, resulting coal to gas switching for power generation was significant. Much of this short-term switching unwound as gas prices strengthened and the increase in natural gas prices to over $4.50/mcf in early 2014 was met with some switching to coal. Any move in the gas price below $4 will see switching back to natural gas, in our opinion.

Figure 11: Natural gas versus substitutes (fuel oil and coal)

Henry Hub vs residual fuel oil, heating oil, Sandy Barge (adjusted) and Powder River coal (adjusted)



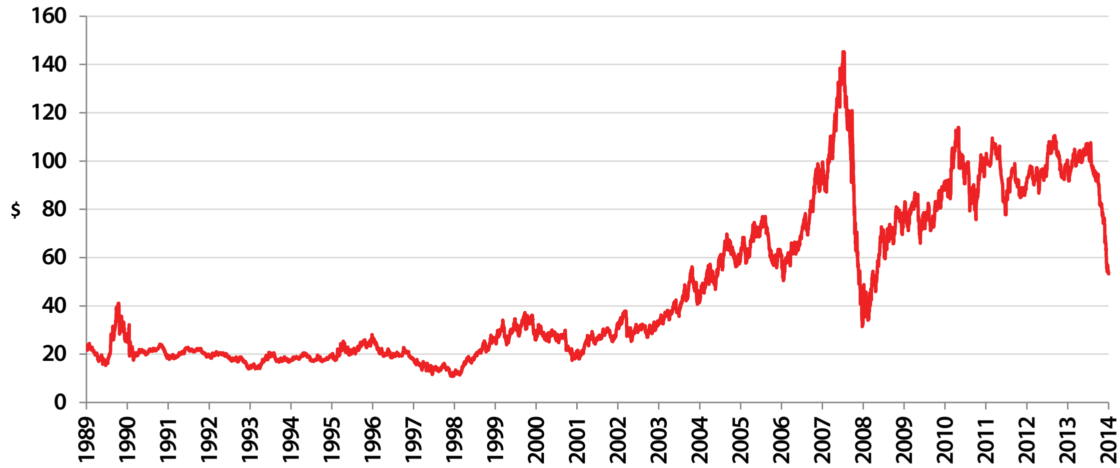
Source: Bloomberg LP (December 2014)

Conclusions about natural gas

The US natural gas price bottomed in 2012 and the recovery is underway, although strength in gas supply is keeping a lid on prices near term. Average 2014 natural gas prices (at around $4.40) are more than double the April 2012 low and are now around the (full cycle) marginal cost of supply. We do not believe the excess in production over demand can continue indefinitely with natural gas trading at this level: a combination of reduced capital spending by the producing companies and growing natural gas demand stimulated by the low gas price will create a new market equilibrium. As this all happens we expect the price to stabilise in the $4-5 range. It may be held at this level for a period until demand grows further (2016 and beyond), and longer term we expect the price to normalize to $6-8.

6. Appendix

Figure 12: Oil price (WTI $) last 24 years.



Source: Bloomberg LP

For the oil market, the period since the Iraq Kuwait war (1990/91) can be divided into two distinct periods: the first 9-year period was broadly characterized by decline. The oil price steadily weakened 1991 - 1993, rallied between 1994 –1996, and then sold off sharply, to test 20 year lows in late 1998. This latter decline was partly induced by a sharp contraction in demand growth from Asia, associated with the Asian crisis, partly by a rapid recovery in Iraq exports after the UN Oil for food deal, and partly by a perceived lack of discipline at OPEC in coping with these developments.

The last 13 years, by contrast, have seen a much stronger price and upward trend. There was a very strong rally between 1999 and 2000 as OPEC implemented 4m b/day of production cuts. It was followed by a period of weakness caused by the rollback of these cuts, coinciding with the world economic slowdown, which reduced demand growth and a recovery in Russian exports from depressed levels in the mid 90's that increased supply. OPEC responded rapidly to this during 2001 and reintroduced production cuts that stabilized the market relatively quickly by the end of 2001.

Then, in late 2002 early 2003, war in Iraq and a general strike in Venezuela caused the price to spike upward. This was quickly followed by a sharp sell-off due to the swift capture of Iraq's Southern oil fields by Allied Forces and expectation that they would win easily. Then higher prices were generated when the anticipated recovery in Iraq production was slow to materialize. This was in mid to end 2003 followed by a much more normal phase with positive factors (China demand; Venezuelan production difficulties; strong world economy) balanced against negative ones (Iraq back to 2.5 m b/day; 2Q seasonal demand weakness) with stock levels and speculative activity needing to be monitored closely. OPEC's management skills appeared likely to be the critical determinant in this environment.

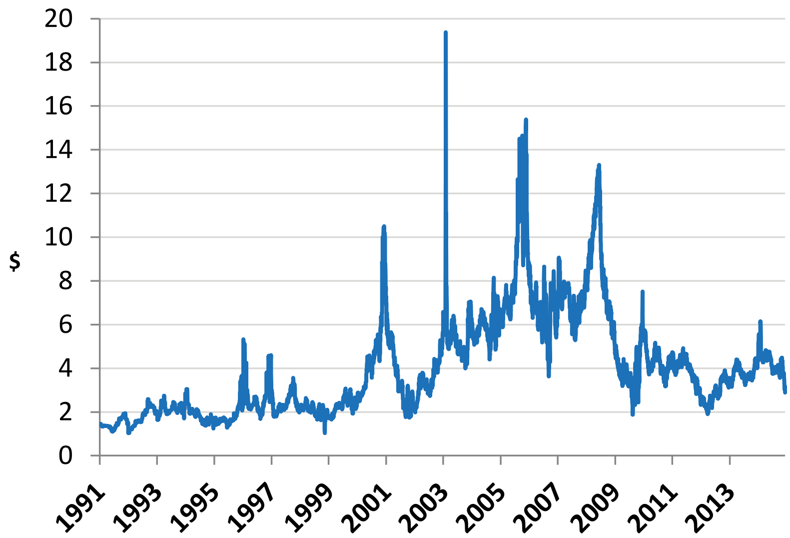
By mid-2004 the market had become unsettled by the deteriorating security situation in Iraq and Saudi Arabia and increasingly impressed by the regular upgrades in IEA forecasts of near record world oil demand growth in 2004 caused by a triple demand shock from strong demand simultaneously from China; the developed world (esp. USA) and Asia ex China. Higher production by OPEC has been one response and there was for a period some worry that this, if not curbed, together with demand and supply responses to higher prices, would cause an oil price sell off. Offsetting this has been an opposite worry that non OPEC production could be within a decade of peaking; a growing view that OPEC would defend $50 oil vigorously; upwards pressure on inventory levels from a move from JIT (just in time) to JIC (just in case); and pressure on futures markets from commodity fund investors.

After 2005 we saw a further strong run-up in the oil price. Hurricanes Katrina and Rita, which devastated New Orleans, caused oil to spike up to $70 in August 2005, and it spiked up again in July 2006 to $78 after a three week conflict between Israel and Lebanon threatened supply from the Middle East. OPEC implemented cuts in late 2006 and early 2007 of 1.7 million barrels per day to defend $50 oil and with non-OPEC supply growth at best anaemic demonstrated that it could to act a price-setter in the market at least so far as putting a floor under it.

Continued expectations of a supply crunch by the end of the decade, coupled with increased speculative activity in oil markets, contributed to the oil price surging past $90 in the final months of 2007 and as high as $147 by the middle of 2008. This spike was brought to an abrupt end by the collapse of Lehman Brothers and the financial crisis and recession that followed, all of which contributed to the oil price falling back by early 2009 to just above $30. OPEC's responded decisively and reduced output, helping the price to recover in 2009 and stabilize in the $70-95 range where it remained for two years. Since 2011 we have seen a disconnect between the WTI and Brent oil benchmarks due to US domestic oversupply affecting WTI. The WTI price has generally moved up and into a wider range of $80-$110, while Brent's trading range over the same period has been higher, at $90-$125, with the pressures of non-OECD demand outstripping non-OPEC supply and supply tensions in the Middle East/North Africa prevailing. Most recently, Brent and WTI have dropped well below these trading ranges, as non-OPEC supply (especially US) has accelerated.

With regard to the US natural gas market, the price traded between $1.50 and $3/Mcf for the period 1991 - 1999. The 2000s were a more volatile period for the gas price, with several spikes over $8/mcf, but each lasting less than 12 months. On each occasion, the price spike induced a spurt of drilling which brought the price back down. Excepting these spikes, from 2004 to 2008, the price generally traded in the $5-8 range. Since 2008, the price has averaged below $4 as progress achieved in 2007-8 in developing shale plays boosted supply while the 2008-09 recession cut demand. Demand has been recovering since 2009 but this has been outpaced by continued growth in onshore production.

Figure 13: North American gas price last 22 years (Henry Hub $/Mcf)



Source: Bloomberg LP

North American gas prices are important to many E&P companies. In the short-term, they do not necessarily move in line with the oil price, as the gas market is essentially a local one. (In theory 6 Mcf of gas is equivalent to 1 barrel of oil so $60 per barrel equals $10/Mcf gas.) It remains a regional market more than a global market because the infrastructure to export LNG from North America is not yet in place.

For more information on the factors affecting the global energy market read our Global Energy Outlook.

Commentary for our views on Dividends, Alternative Energy and Asia markets is available on our website. Please click here to view.

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MSCI World Energy Index is the energy sector of the MSCI World Index (an unmanaged index composed of more than 1400 stocks listed in the US, Europe, Canada, Australia, New Zealand, and the Far East) and as such can be used as a broad measurement of the performance of energy stocks.

The S&P 500 Index is a broad based unmanaged index of 500 stocks, which is widely recognized as representative of the equity market in general.

MSCI World Index is a capitalization weighted index that monitors the performance of stocks from around the world.

One cannot invest directly in an index.

Price to earnings (P/E) ratio (PER) reflects the multiple of earnings at which a stock sells and is calculated by dividing current price of the stock by the company's trailing 12 months' earnings per share.

Earnings per share (EPS) is calculated by taking the total earnings divided by the number of shares outstanding.

EV/EBITDA is EV divided by "Earnings Before Interest, Taxes, Depreciation and Amortization" (EBITDA)

Price to discounted cash flow is a valuation method used to estimate the attractiveness of an investment opportunity.

Free cash flow (FCF) represents the cash that a company is able to generate after laying out the money required to maintain or expand its asset base.

Basis Point (BSP) is a unit that is equal to 1/100th of 1%, and is used to denote the change in a financial instrument.

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