Guinness Atkinson
Energy Brief
July 2018

REPORT HIGHLIGHTS

OIL

Brent and WTI stronger as market outlook looks increasingly tighter for the rest of 2018

Oil prices, a key driver of the sector, rose over the quarter. The West Texas Intermediate (WTI) oil price started April at $64/bl and quickly strengthened to over $72/bl by mid quarter. The price retrenched to below $66/bl and then rebounded sharply to close the quarter at $74/bl, averaging $68/bl over the quarter. Brent oil prices averaged $75/bl over the quarter, closing the period at just over $79/bl.

NATURAL GAS

US gas price weakens despite cold weather as domestic production growth remains robust

The US natural gas price traded steadily stronger over the quarter, starting April at just under $2.70/mcf and closing June at $2.92/mcf. Henry Hub averaged $2.83/mcf for the quarter. Despite record annualized onshore gas production growth, natural gas inventories remain at seasonally low levels. Towards the end of the quarter, the market has moved back into a seasonally adjusted oversupplied state.

EQUITIES

Energy underperforms the broad market

The main index of oil and gas equities, the MSCI World Energy Index, was up 12.98% in the second quarter of 2018. The S&P 500 Index was up by 3.43% over the same period. The Guinness Atkinson fund was up by 15.92% over this period (all in US dollar terms).

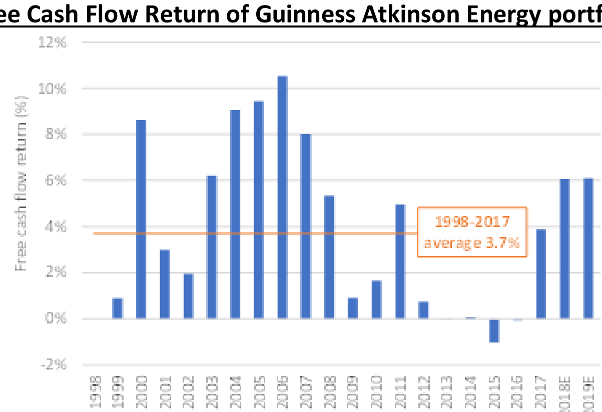
Performance data quoted represent past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted. For most recent month-end and quarter-end performance, visit https://www.gafunds.com/our-funds/ - fund_performance or call (800) 915-6566.

CHART OF THE QUARTER

Free Cash Flow Return for energy equities exceeds 2008 levels (FCF Yield as of June 30, 2018: 6.1%)

Control of capital expenditure coupled with sharply lower operating costs and a supportive oil price environment means that the Free Cash Flow Return of the Guinness Atkinson Energy portfolio should reach 6% in 2018. This is the highest level for 10 years and higher than the FCF Return levels delivered when the oil price was $100/bl.

Free Cash Flow Return of Guinness Atkinson Energy portfolio



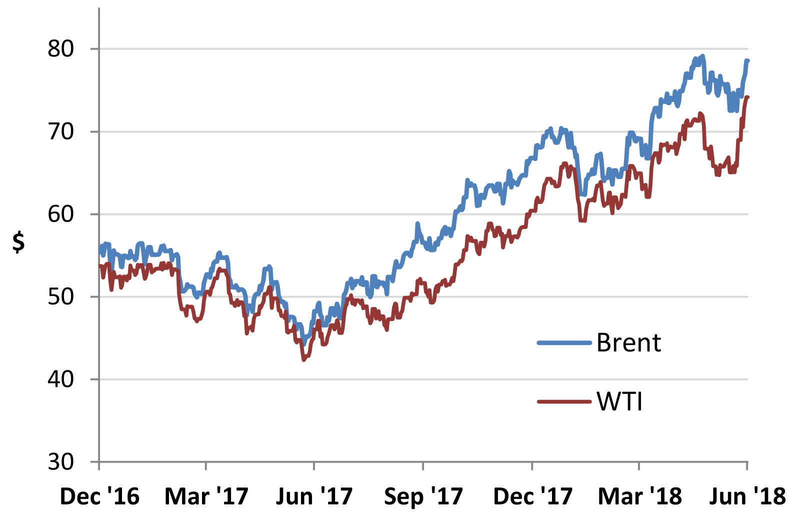
Source: Bloomberg, Company Data and includes analysis of all 'full position' holdings (for which 1998-2017 data is available) in the Guinness Atkinson Energy fund as of December 31, 2017. FCF Return is operating cash flow less capex divided by Capital Employed. Data as of June 2018, $65/bl in 2018 and $60/bl in 2019

Second Quarter 2018 in Review
Manager's Comments
Performance: Guinness Atkinson Global Energy Fund
Portfolio: Guinness Atkinson Global Energy Fund

Second Quarter 2018 in Review

i) Oil market

Figure 1: Oil price (WTI and Brent $/barrel) 18 months December 31, 2016 to June 30, 2018



Source: Bloomberg LP

The West Texas Intermediate (WTI) oil price started April at $64/bl and quickly strengthened to over $72/bl by mid quarter. The price retrenched to below $66/bl and then rebounded sharply to close the quarter at $74/bl, averaging $68/bl over the quarter. WTI averaged $50.9/bl in 2017, having averaged $43.4 in 2016, $48.7 in 2015 and $93.1 in 2014. Brent oil prices averaged $75/bl over the quarter, closing the period at just over $79/bl. Brent averaged $54.8/bl in 2017.

Factors which strengthened WTI and Brent oil prices in the quarter:

- **OPEC meeting brought volatility in oil prices but highlighted an increasingly tight market**
  OPEC concluded their formal meeting on Friday, June 22, 2018 with an agreement, in practice, to raise production by around 0.6m b/day. Non-OPEC partners will add a smaller amount of production, albeit undefined. This outcome, which was generally in line with market expectations, was brokered by Saudi to start to address potential extreme tightness in the oil market in the second half of 2018. We see this as another

logical step from OPEC towards rebalancing the market and sustaining an oil price that satisfies their own economics needs as well as balancing the supply and demand outlook.

- **Increasing likely impact of Iranian sanctions**
  US sanctions were reimposed on Iran in May and it increasingly looks like they will have a broader impact on oil exports than initially expected. During June, we learnt that the US requested that Japanese refiners do not buy Iranian crude and at least one Indian refiner (definitely Reliance) has announced that it will not accept Iranian crude oil. On top of this, all European refiners have announced their intention to boycott Iranian crude oil. We initially expected the sanction impact to be 300-500k b/d but it now looks more likely to be an impact of over 1mn b/d. Even the Tehran Chamber of Commerce, Industries, Mines & Agriculture recently reported that the sanctions might impact Iran by 700-800kb/d.

- **Venezuelan production continues to decline**
  There have been no improvements yet in the outlook for Venezuelan oil production. Latest monthly data for June pegged production at 1.38m b/day versus 1.44m b/day in May 2018 and 1.7m b/day in December 2017. While upstream production has been poor as a result of low reinvestment (the country's rig count has dropped to 25 rigs, down 8 rigs in May, down 20 rigs ytd and down 52 rigs from the peak of 77 rigs in August 2014) there are also increased issues revolving around the inability to export crude oil. There are massive queues at ports and therefore there is the threat that Venezuela announces force majeure on its contracts.

- **Libya disruptions pick up in June**
  Towards the end of June there was an uptick in supply disruptions from Libya. Civil unrest caused the closure of the Es Sider, Ras Lanuf, Hariga & Zueitina ports thus reducing production by around 800k b/d. Libya's production was only 0.69m b/day in June, down from 0.99m b/day in May. While the production loss is significant, we currently only expect these disruptions to be temporary

Factors which weakened WTI and Brent oil prices in the quarter:

- **Increased US onshore oil supply**
  At the start of July, the EIA reported that US onshore production increased by 112k b/day during April 2018, having increased by 242k b/day In March and 179k b/day in February. This puts year over year growth for the US onshore system at around 1.47m b/day. Using production guidance data provided by the larger shale producers, we expect the US onshore oil system to maintain a similar pace of growth for the rest of the year.

- **Concerns over higher oil and oil product prices affecting demand growth**
  Higher oil prices in the second quarter started to raise questions about the sustainability of the current strong levels of global oil demand growth. Compounding the matter is the recent strength in the USD which means that locally priced oil products in many emerging market countries have risen sharply this year. The US has not been immune to these fears and we note the 'tweets' from Donald Trump in June highlighting his view that oil prices are too high and requesting that Saudi Arabia adds more production to the market.

- **Rise in US onshore drilling rig count**

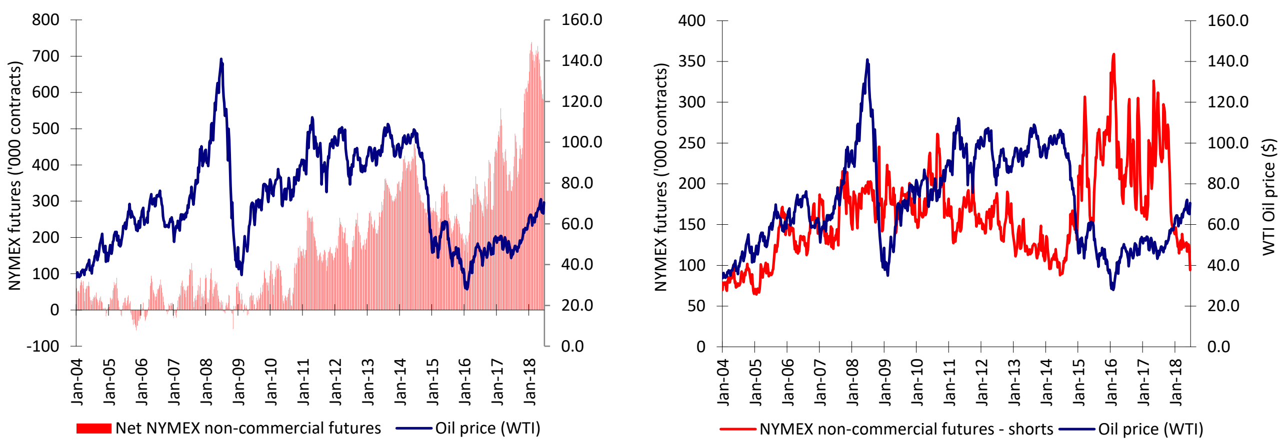
The US oil directed drilling rig count rose by 61 rigs over the quarter, up to 858 rigs. This compares to a low in the middle of 2016 of 316 rigs, and an average rig count in 2017 of 703 rigs. In the last few weeks of the quarter, the oil directed rig count started to flatten, ostensibly as a result of weaker US regional oil prices.

- **Infrastructure constraints in the US onshore causing depressed US regional oil prices**
  US infrastructure bottlenecks have become a greater concern in recent weeks. As oil production grows we will see further labor, pipeline and general infrastructure issues resulting in (among other things) oil being 'trucked' out of the Permian Basin to the US Gulf Coast in order to access export markets. Local oil prices have fallen to reflect the higher cost of trucking. We expect production efficiencies to fall and costs to inflate in this environment, somewhat capping the ability for the US system to grow. Some of the larger E&P companies (including Anadarko and ConocoPhillips) have publicly announced interest in diverting some of their capital away from the Permian basin.

Speculative and investment flows

The New York Mercantile Exchange (NYMEX) net non-commercial crude oil futures open position (WTI) decreased over the quarter, ending at 625,000 contracts long versus 716,000 contracts long at the end of March. Typically, there is a positive correlation between the movement in net position and movement in the oil price. The gross short position reduced from 138,000 contracts to 94,000 contracts. This short position is now at relatively low level versus those seen in the last couple of years.

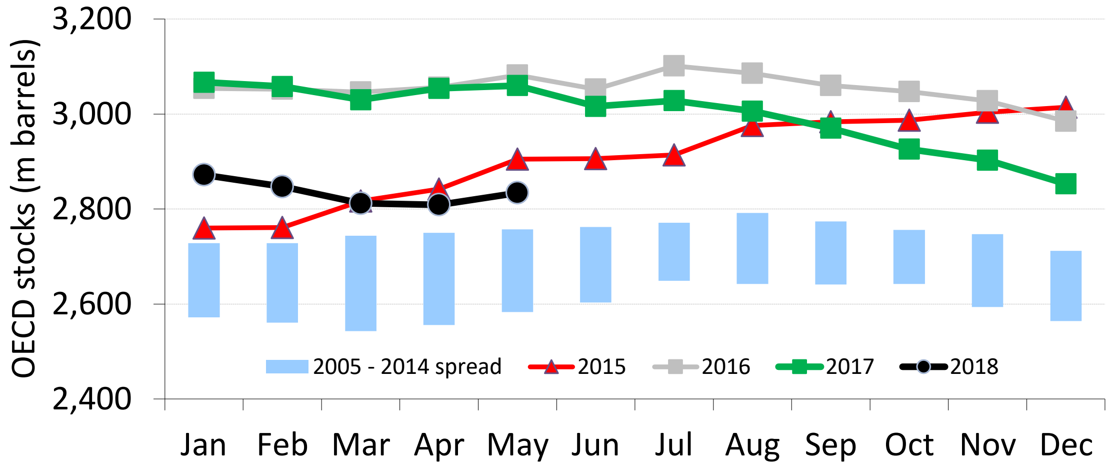
Figure 2: NYMEX Non-commercial net and short futures contracts: WTI January 2004 – June 2018



Source: Bloomberg LP/NYMEX/ICE (2018)

OECD stocks
OECD total product and crude inventories at the end of May (the latest data point available) were estimated by the IEA to be 2,834m barrels, down 13 mbls versus the level reported for February. This compares to a 10-year average build for the same period of 41m barrels. Inventories have been tightening since the middle of 2017 and remain around 60m barrels above the 'normalized' (pre-2015) range. We expect them to continue to tighten over 2018.

Figure 3: OECD total product and crude inventories, monthly, 2004 to 2018



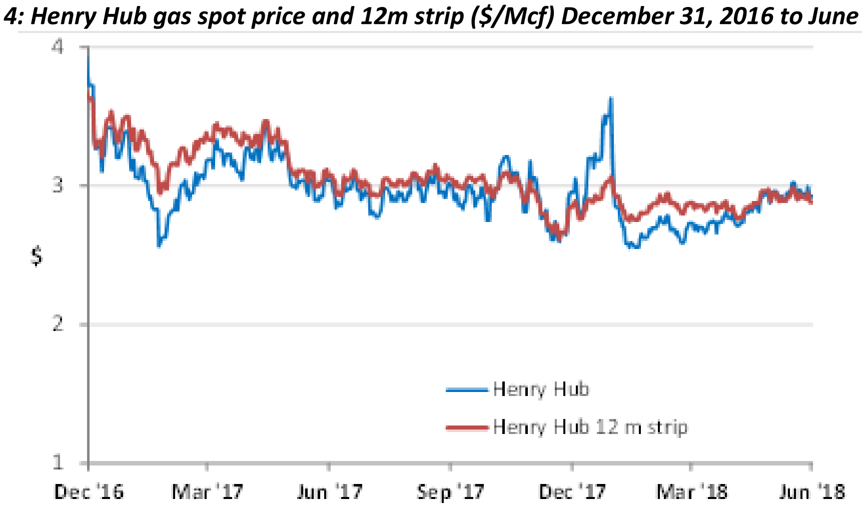
Source: IEA Oil Market Reports (June 2018 and older)

ii) Natural gas market

The US natural gas price (Henry Hub front month) strengthened over the quarter, opening at just under $2.70/mcf (1,000 cubic feet) and closing at $2.92/mcf, averaging $2.83/mcf over the quarter. The spot gas price averaged $3.00/mcf in 2017, which compares to an average gas price of $2.55/mcf in 2016, $2.61/mcf in 2015 and $4.26/mcf in 2014 (assisted by a very cold 2013/14 US winter). The price averaged $3.72/mcf over the preceding four years (2010-2013).

The 12-month gas strip price (a simple average of settlement prices for the next 12 months' futures prices) also strengthened slightly over the quarter, opening at $2.84/mcf and closing at $2.88/mcf. The strip price averaged $3.12 in 2017 having averaged $2.84 in 2016, $2.86 in 2015, $4.18 in 2014 and $3.92 in 2013.

Figure 4: Henry Hub gas spot price and 12m strip ($/Mcf) December 31, 2016 to June 30, 2018



Source: Bloomberg LP

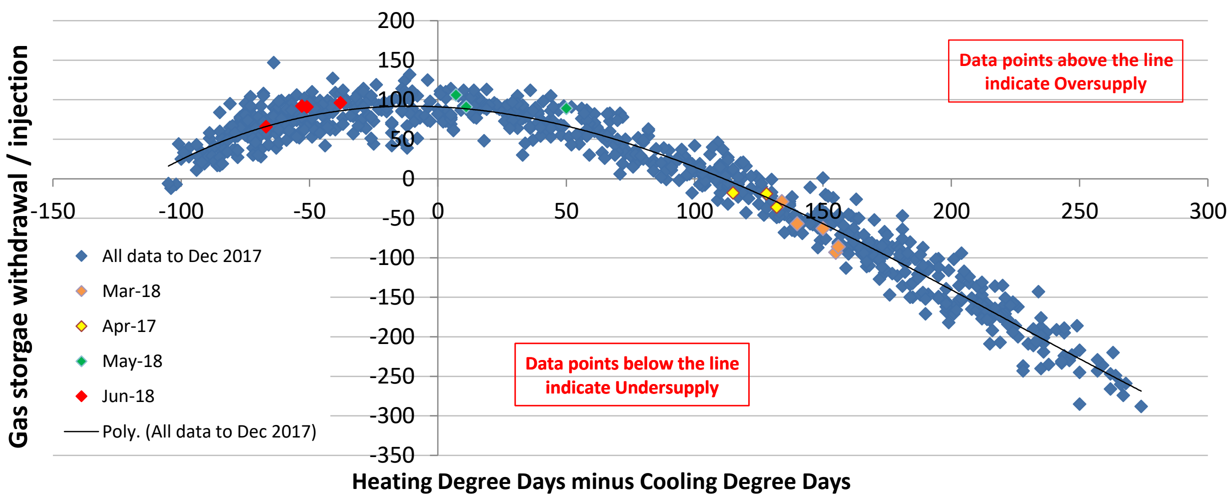
Factors which strengthened the US gas price in the quarter included:

- **Depressed gas inventories**
  US natural gas inventories were estimated to be around 2.074 Tcf at the end of June, 0.48 Tcf lower than the 10-year average, and very close to the 10 year low. In order for inventories to reach 'full' at the end of November, it would require an oversupply for the remainder of the year to be around 3-4 Bcf/day.

- **Constraints to associated gas supply**
  Whilst the supply of associated gas in the US (i.e. gas produced as a by-product of shale oil) is growing well this year, infrastructure and service capacity constraints in Texas have lowered expectations for associated gas supply growth over the coming 12-18 months. This has served to boost both the Henry Hub spot price and twelve-month pricing strip in recent weeks.

- **A structurally undersupplied market that has moved into oversupply**
  Adjusting for the impact of weather over the quarter, the injections of gas into storage suggest the market was, on average, around 3-4 bcf/day undersupplied at the start of the quarter and became increasingly well supplied as the quarter progressed. At the end of the quarter, it appeared to be around 1 bcf/day undersupplied (as indicated by the yellow dots on the graph below), averaging an under supply of around 1 bcf/day over the quarter.

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



Source: Bloomberg LP; Guinness Atkinson Asset Management

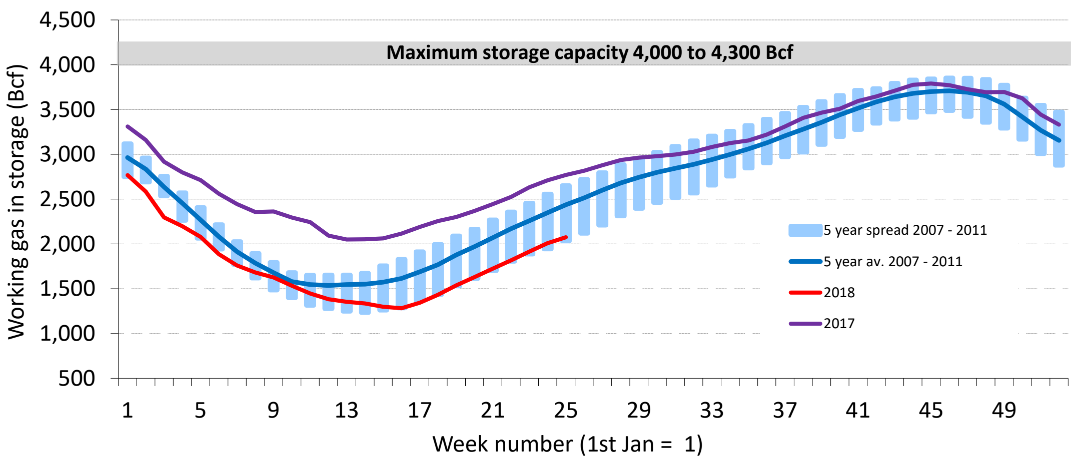
Factors which weakened the US gas price in the quarter included:

- **Strong US onshore natural gas production**
  Onshore US natural gas production averaged 86.6 Bcf/day in April 2018 (the latest available data point), up by 0.4 Bcf/day on the level reported for March. Onshore production has risen by 9.8 bcf/day versus the level reported twelve months before, the highest year-on-year growth recorded. Rising associated gas supply from shale oil, and a pickup of activity in the Marcellus basin, are the key reasons for the rise in production: both look set to continue for the rest of 2018.

- **Structurally oversupplied market**
  Adjusting for the impact of weather in June, the most recent injections of gas into storage suggest the market is, on average, around 1 bcf/day oversupplied (as indicated by the red dots on the graph below).

Swings in the balance for US natural gas should, in theory, show up in movements in gas storage data. Natural gas inventories at the end of June were reported by the EIA to be 2.074 Tcf. The withdrawal season started with inventories peaking at 3.8 Tcf in mid-November, the lowest starting point of the winter season for US gas inventories since November 2014. Exceptionally cold weather and, until recently, an undersupplied market has brought inventories back from being at the top of the ten-year range (in November and December) to being below seasonal norms during June.

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



Source: Bloomberg; EIA (May 2018)

Manager's Comments

OPEC respond rationally to a tightening oil market

OPEC concluded their formal meeting on Friday, June 22nd, 2018 with an agreement, in practice, to raise production by around 0.6m b/day. Non-OPEC partners will add a smaller amount of production, albeit undefined. This outcome, which was generally in line with market expectations, was brokered by Saudi to start to address potential extreme tightness in the oil market in the second half of 2018. We see this as another logical step from OPEC towards rebalancing the market and sustaining an oil price that satisfies their own economics needs as well as balancing the supply and demand outlook.

Key Points

- Agreement will add around 0.6m b/day of production from OPEC to the market. While not allocated by country, we think it most likely comes from Saudi, Kuwait, Iraq, & the UAE.
- Some non-OPEC members, led by Russia, will also increase production, taking the potential increase in overall OPEC and non-OPEC volumes potentially as high as 1m b/day.
- There are significant OPEC supply risks in the second half of 2018 with further supply distributions from Venezuela, Iran, & Libya each capable of offsetting OPEC's production increase.
- OPEC remain committed to delivering a reasonable oil price to satisfy their own economies but also to incentivize investment in long-term projects.
- If OPEC are successful and equity markets were to price in a long-term oil price of $70/bl, we believe that there would be over 50% upside in the Guinness Atkinson Global Energy portfolio.

What has been announced?

At the conclusion of their meeting on June 22nd, 2018 in Vienna, OPEC's headline announcement was "to strive to adhere to the overall conformity level of OPEC-12, down to 100% as of July 1, 2018". OPEC had reached "152% conformity" with their 2017 production cuts, and a move to 100% conformity implies an increase in production of around 0.6m b/day. The quota controls in total, as they stand before today's announcement, can be seen in the table below.

OPEC-12 Quotas, Production, & Current Compliance

	Oct 2016	Jan 2017 quota	May 2018		
(m b/day)	mn b/d	mn b/d	mn b/d	vs quota	Compliance
Saudi	10.54	10.05	10.01	-0.04	108%
Iran	3.70	3.79	3.81	0.02	122%
Iraq	4.56	4.35	4.48	0.13	38%
UAE	3.01	2.87	2.87	0.00	100%
Kuwait	2.84	2.71	2.71	0.00	100%
Venezuela	2.07	1.97	1.44	-0.53	630%
Angola	1.75	1.66	1.53	-0.13	244%
Algeria	1.09	1.04	1.02	-0.02	140%
Qatar	0.65	0.62	0.60	-0.02	167%
Gabon	0.20	0.19	0.20	0.01	0%
Ecuador	0.55	0.52	0.52	0.00	100%
OPEC-12	**31.0**	**29.8**	**29.2**	**-0.58**	**149%**

Source: Bloomberg, Guinness Atkinson Asset Management estimates

Today's announcement is straightforward in one sense, recommending a return to 100% compliance, but it does not attempt to allocate future production increases across member countries. We believe that only Saudi Arabia, Kuwait, the UAE and Iraq hold individual spare capacity of more than 100k b/day, therefore these countries will be the ones to increase production. While this can be delivered in the near term, it does use up available spare capacity.

A group of non-OPEC countries also promised production cuts at the start of 2017, totaling just under 0.6m b/day. After OPEC's announcement, the 4th OPEC and non-OPEC Ministerial Meeting was held and concluded with a commitment to "strive to adhere to overall conformity". We believe that this means that Russia will increase production in the second half of 2018 although no official figures were presented. Overall, we believe that a reasonable share of the original cuts has been achieved via natural production decline rather than voluntary reduction and we note that, as a group, these countries delivered only 75% compliance on their quota cuts in May 2018.

Non-OPEC Quotas, Production, & Current Compliance

	Oct 2016	Jan 2017 quota	May 2018		
(m b/day)	mn b/d	mn b/d	mn b/d	vs quota	Compliance
Russia	11.23	10.93	10.97	0.04	87%
Mexico	2.14	2.04	1.90	-0.14	235%
Azerbaijan	0.76	0.72	0.69	-0.04	200%
Khazakhstan	1.65	1.63	1.84	0.21	-940%
Oman	1.01	0.97	1.01	0.03	18%
Others *	1.00	0.95	0.98	0.03	45%
Non-OPEC	**17.8**	**17.2**	**17.4**	**0.14**	**75%**

*Bahrain, Brunei, Malaysia, Sudan, & South Sudan

Source: Bloomberg, Guinness Atkinson Asset Management estimates

OPEC's current stance towards the global oil market

OPEC's current stance towards the oil market was best characterized by OPEC President Suhail Mohamed Al Mazrouei's introductory remarks. In them, he re-iterated OPEC's commitment to a balanced market, but also to keep the oil price sufficiently high to incentivize longer term investments. Below is a selection of his comments, with our highlighting:

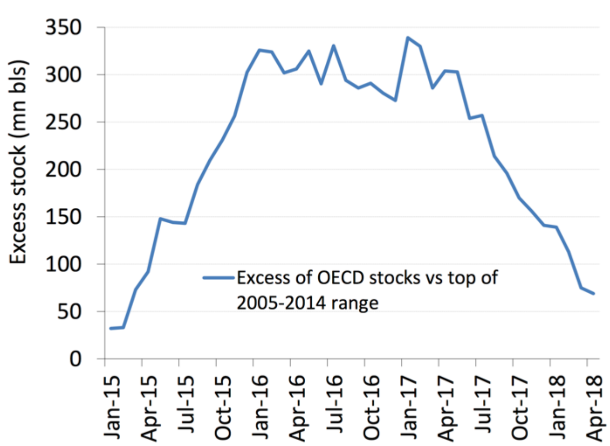
- **On the oil market recovery** *"Since the last Meeting of the Conference in late November 2017, the oil market situation has further improved. The global economy is strong, oil demand remains robust, the market is evidently rebalancing, and the return of more stability has been welcomed by all stakeholders."*

- **On providing stability and guardianship** *"Our focus today is on reviewing all the market fundamentals to help better understand the market balance and stability we all desire, in the interests of producers, consumers and the global economy. We fully appreciate and take on board the viewpoints and concerns of all industry stakeholders. We are watchful, responsive and fully committed to market stability and global energy security…. we need to continue to tread carefully; none of us want to see the return of the kind of volatility that allows pessimism to return to the markets"*
- **On future investments to ensure a balanced market** *"So far in 2018, the pace of investment has gradually picked up, but we are still not seeing enough robust investment in long-cycle projects. To put this into some perspective, in the period to 2040, the required global oil sector investment in OPEC's World Oil Outlook is estimated to be $10.5 trillion, with oil demand set to surpass 111 million barrels a day by 2040… It is also important to remember that investments are not only about boosting new production. Oil producers also need to account for natural decline rates… Every effort should be made to avoid a potential supply gap that could present a future serious challenge."*

Why have OPEC raised production?

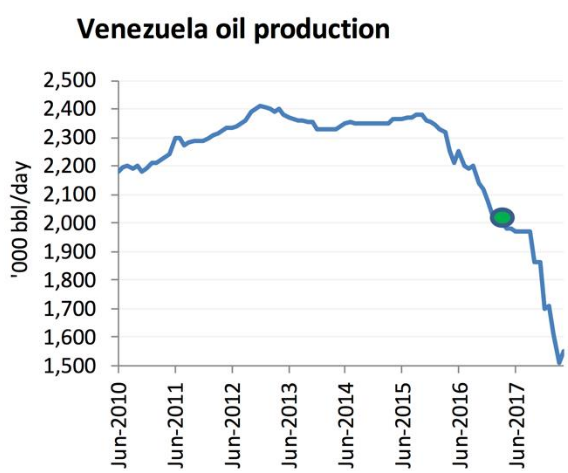
The production cuts put in place by OPEC at the start of 2017 were designed to tighten an oversupplied market and raise oil prices from depressed levels. The cuts took around six months to feed into the physical market, with market tightness emerging in the second half of 2017 and first half of 2018. OECD oil and product inventories, which were sitting around 300m barrels above normal (an excess of around 12%), have declined to around 60m barrels above normal. This coincided with the Brent oil price rallying from around $50/bl twelve months ago to around $80/bl at the end of May.

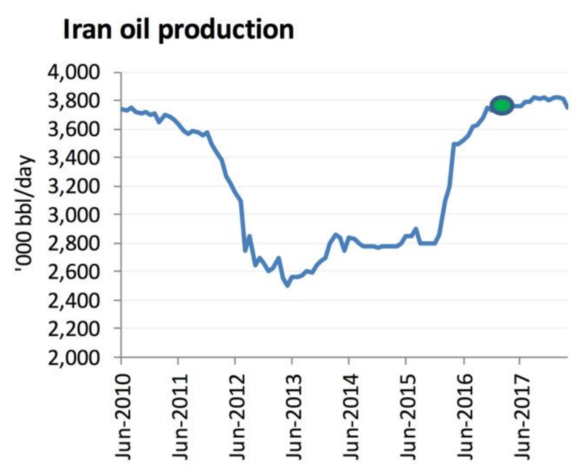
When the 2017 production framework was established, OPEC were relying on the discipline of their own members in adhering to the 1.2m b/day production cuts. That production discipline has been evident throughout, with members rationally embracing the trade-off of lower volumes for higher oil prices which has resulted in much stronger revenues. 0.6m b/day of cuts were promised by non-OPEC countries in support of OPEC's actions, and in practice, we saw around 0.4m b/day of these cuts come through, led by a Russian cut of 0.25m b/day. OPEC would also have been optimistic about oil demand in 2017 and 2018, and that optimism has been rewarded, with healthy demand growth of



Source: IEA, Guinness Atkinson Asset Management around 1.5m b/day expected in both years. Meanwhile, the US oil system is growing year-on-year by around 1.2m b/day, a level of growth anticipated by OPEC given where oil prices have been.

So far, so good. Since the start of 2018, however, we have seen two OPEC 'wildcards' muddy this picture, one being an actual reduction in supply from Venezuela, the other being the likelihood of lower supply from Iran. In Venezuela, production has fallen to an average of 1.5m b/day, nearly 0.5m b/day less than their quota of 1.97m b/day. Infrastructure issues, weak reservoir management, poor quality control and poor relations with foreign service partners have all contributed to the decline, and there seems little prospect of an improvement in the short-term. In Iran, President Trump's decision to remove sanction waivers in relation to the country's nuclear program, will effectively block Iranian exports to countries that do business with the US. The impact on Iranian oil exports remains unclear, but using previous sanctions as a guide, we expect a decline of at least 0.5m b/day (versus current exports of just over 2m b/day).





Green dot = OPEC quota cut, 01/01/2017

Source: Bloomberg, Guinness Atkinson Asset Management

From a supply perspective, the most recent news concerning both countries is not encouraging. In Venezuela, national oil company PDVSA notified eight international customers that it will not be able to meet its full supply commitments for June, falling well short of the 1.5m b/day PDVSA is obligated to supply. The export picture from Iran remains far from clear, but recent indications suggest that various Asian importers (e.g. India), who supported Iranian crude during the previous round of sanctions, are likely now to bow to US pressure to reduce consumption from Iran. We have also seen European refiners fully wind down their purchases of Iranian crude. This implies that the overall decline in Iranian oil exports may be worse than first anticipated.

Indeed, Saudi oil minister Al-Falih commented on the morning of the OPEC meeting that without any action, the world was facing an oil supply deficit of 1.8m b/day in the second half of 2018.

The Saudi/OPEC game plan

In the face of a much tighter oil market than expected at the start of 2018, OPEC are therefore starting the unwinding that was always promised, but previously signaled for 2019. Indeed, Saudi already indicated its commitment to supporting the stability of oil markets immediately after the U.S. decision in May to withdraw from the Iran nuclear deal, with Saudi's energy ministry making the following statement: "The kingdom will work with major producers and consumers within and outside OPEC to curb the effects of any supply shortages".

What to make of this? We continue to think that Saudi are managing the oil price in a rational fashion. On the one hand, the IMF still forecasting Saudi requiring oil price of $70+ /bl in 2018 in order to close their fiscal deficit to zero. An IPO or private sale of 5% of Saudi Aramco is also still planned: we estimate that the targeted $100bn proceeds can only be achieved at an assumed long-term oil price of $70. These factors underpin Saudi's efforts over the last twelve months to bring Brent back above $70/bl. However, Saudi are also well aware of the risks of over-stimulating non-OPEC supply (especially shorter cycle US shale oil), whilst also the dangers to oil demand growth posed by too sharp an oil price increase.

An increase in OPEC production is therefore logical, and we see it in the interests of energy investors, who we think are best served by a flattening of the oil curve: near-term oil prices stabilizing to ensure that there is no oil shock to the world economy, whilst longer dated oil prices firm up, in recognition of the supply challenges caused by chronic underinvestment in non-OPEC outside the US.

Overall, we believe that Saudi/OPEC's long-term objective remains to maintain a 'good' oil price, higher than the current oil futures curve is indicating, and managing the unwinding of OPEC's production quotas is another step on that journey.

Implications of OPEC's actions for oil prices and equities

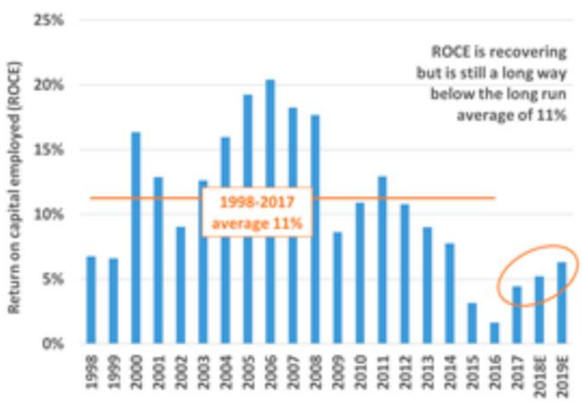
Consistent with OPEC's longer-term plan, we believe that long run oil prices will return to a $60-70/bl range. This is a price which is sufficient for world oil demand and US shale oil to grow while also providing acceptable economics for OPEC countries and sufficient profitability for investment in new oil projects around the world. This would be a 'reasonable' oil price level for all constituents of the global oil market, economic and political.

Today, assuming operating and capital costs are held constant, we calculate that our portfolio of energy equities currently offers fair value assuming a long-term Brent oil price in the mid to high $50s (i.e. about $5 or so below where long dated Brent oil prices currently are). Looking out two years, while we see downside risk of about 10% if energy equities were to factor in $50/bl long-term and we see around 30% upside at a $60 /bl and more like 60% upside at a $70/bl oil price.

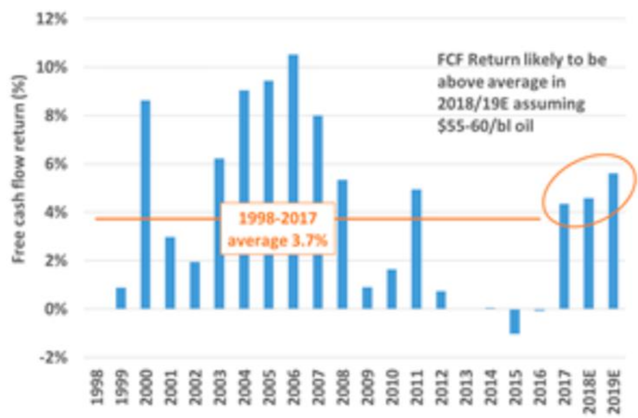
While forecasting oil prices is inherently difficult, we are comfortable that we are seeing positive results from energy companies' recent efforts to control operating and capital costs in order to improve profitability. Our preferred method for monitoring longer term profitability is Return on Capital Employed (ROCE) while we use Free Cash Flow Return on Capital Employed (FCF Return) as our preferred measure of near term profitability movements.

- ROCE is recovering from a low of 2% in 2016 to around 5% in 2018. The long run average for our portfolio is around 11% and we see good reason to believe that profitability will return to around the long run average level, just as it did after 1998 when oil prices last hit a bottom. It takes time for ROCE to improve but we have increasing confidence that this will happen.
- We are comfortable with this because the FCF return has rebounded sharply and is now at above average levels (based on only $55/bl crude oil prices). This is a pre-cursor for improving ROCE.

ROCE is recovering but still at a low level



FCF Return has recovered sharply



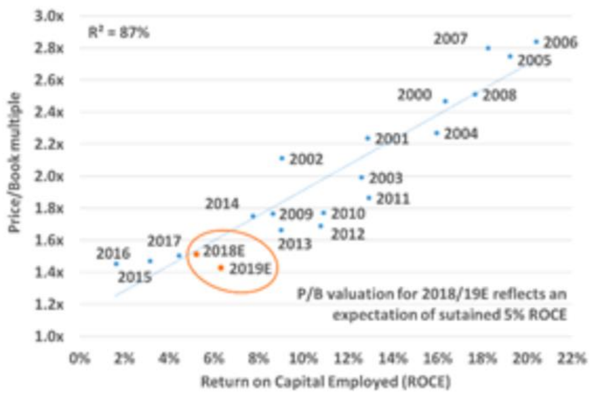
Forecasts are inherently limited and cannot be relied upon.

Source: Bloomberg, Guinness Atkinson Asset Management estimates

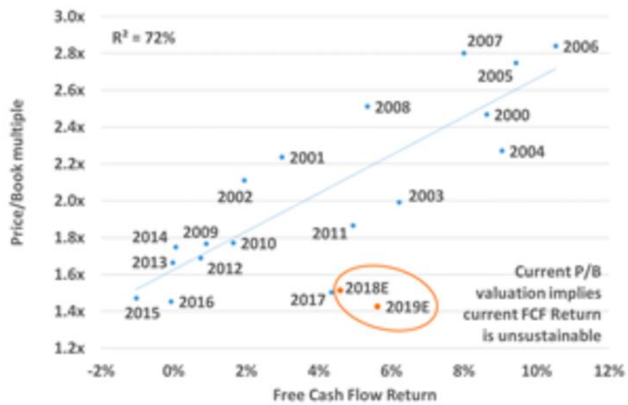
The stock market has historically valued energy companies based on their sustainable levels of profitability (generally a combination of both ROCE and FCF Return) whether it is delivered by self-help improvements or via increases in the long-term oil price.

- Current valuation implies that the ROCE of our companies will not improve from the current level. If ROCE improves to 11% and the market were to pay for it sustainably, it would imply an increase in the equity valuation of around 35%.
- Current valuation implies that the FCF Return of the portfolio will fall considerably from current levels. If FCF Return maintains these levels, and the market paid for it sustainably, it would imply an uplift in equity valuation of 40%. Currently, the market remains skeptical that the energy companies will sustain their capital discipline and free cash flow generation.

Energy equities are priced as if their ROCE stays at this low level forever



Energy equity valuation implies that current FCF Return will not be sustained



Forecasts are inherently limited and cannot be relied upon.

Source: Bloomberg, Guinness Atkinson Asset Management estimates

Ultimately, we see rising profitability for the Guinness Atkinson Global Energy portfolio stemming from a combination of higher long-dated oil prices and sustained capital discipline. After a long period of underperformance relative to the broad market, we see energy equities continuing to play catch up.

Conclusion

We see the June 22nd announcement from OPEC (and subsequent announcement from non-OPEC partners) as another logical step towards rebalancing the market and sustaining an oil price that satisfies OPEC's own economics needs as well as balancing the supply and demand outlook. Should OPEC be successful, we believe that it will be supportive of the free cash flow generation and profitability for the companies in the Guinness Atkinson Global Energy portfolio.

Performance – Guinness Atkinson Global Energy Fund

The main index of oil and gas equities, the MSCI World Energy Index, was up by 12.98% in the second quarter of 2018. The S&P 500 Index was up by 3.43% over the same period. The Guinness Atkinson fund was up by 15.92% over this period (all in US dollar terms).

At the positive end of the portfolio, the stronger performing stocks tended to be our North American E&Ps and our specialist US onshore service providers. Devon Energy, QEP Resources, Oasis Petroleum and Occidental were particularly strong. Weaker performers included some of our European integrated oils (TOTAL and ENI) as well as our global oil service companies (Schlumberger and Halliburton). In addition, Gazprom and OMV were weaker performers.

Performance as of June 30, 2018 (inception date is June 30, 2004)

Inception date 6/30/04	Full Year 2010	Full Year 2011	Full Year 2012	Full Year 2013	Full Year 2014	Full Year 2015	Full Year 2016	Full Year 2017	Ytd 2018	1 year (annualized)	Last 5 years (annualized)	Since Inception (annualized)
Global Energy Fund	16.63%	-13.16%	3.45%	24.58%	-19.62%	-26.99%	27.04%	-1.06%	11.27%	29.83%	-0.05%	7.39%
MSCI World Energy Index	12.73%	0.71%	2.54%	18.98%	-10.93%	-22.02%	26.96%	5.93%	7.07%	25.10%	2.93%	7.03%
S&P 500 Index	15.06%	2.09%	15.99%	32.36%	13.66%	1.38%	11.76%	21.82%	2.65%	14.41%	13.40%	8.63%

Source: Bloomberg
Expense ratio: 1.62% (gross), 1.45% (net)
FCF Yield (as of June 30, 2018): 6.1%

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 https://www.gafunds.com/our-funds/#fund_performance or call (800) 915-6566.

Portfolio – Guinness Atkinson Global Energy Fund

In May we sold our position in Hess Corporation and switched to a holding in Anadarko. Hess is a US listed exploration and production company with, today, focus on US unconventional oil production in the Bakken (North Dakota), and international oil developments offshore Guyana. The company has enjoyed strong share price performance over the last twelve months, thanks to a string of exploration discoveries in Guyanese waters, and high operational leverage to the rising oil price. However, we felt these factors became fully priced into the stock, prompting our decision to sell.

Anadarko is also a large diversified E&P company but one with a more attractive asset mix than Hess. In particular, the company has substantial exposure to the Delaware Basin in Texas, as well as midstream, Gulf of Mexico and East African interests. We believe that Anadarko can deliver handsome capital and efficient production growth over the next 3-4 years, which should drive the stock to outperform.

Sector Breakdown

The following table shows the asset allocation of the Fund as of **June 30, 2018**.

(%)	31 Dec 2010	31 Dec 2011	31 Dec 2012	31 Dec 2013	31 Dec 2014	31 Dec 2015	31 Dec 2016	31 Dec 2017	30 Jun 2018	*Change YTD*
Oil & Gas	**93.2**	**98.5**	**98.6**	**95.6**	**95.3**	**94.4**	**97.9**	**97.7**	**98.6**	***-0.2***
Integrated	41.2	39.6	39.1	39.6	37.5	40.5	45.8	41.8	42.3	*-4.0*
Exploration and production	36.9	41.5	41.6	36.8	38.1	37.0	37.3	38.0	37.9	*0.7*
Drilling	6.3	6.0	7.4	6.8	3.1	1.7	2.3	1.8	1.9	*-0.5*
Equipment and services	5.3	6.6	7.1	9.0	13.1	11.1	8.9	9.2	8.9	*0.3*
Storage & transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	4.0	*3.4*
Refining and marketing	3.5	4.8	3.4	3.4	3.5	4.1	3.6	3.5	3.4	*-0.1*
Coal and consumables	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Solar	**3.2**	**1.2**	**1.2**	**2.8**	**3.5**	**4.9**	**1.0**	**2.1**	**1.7**	**1.1**
Construction and engineering	**0.4**	**0.4**	**0.6**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Cash	**3.2**	**-0.1**	**-0.4**	**0.7**	**1.2**	**0.7**	**1.1**	**0.2**	**-0.3**	**-0.9**
Total	**100.0**	**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)
Holdings are subject to change at any time

Guinness Atkinson Global Energy Fund Portfolio

Based on the information shown previously, the table below shows the fund valuation in terms of historical and forward (analyst consensus estimates from Bloomberg) price/earnings (P/E) ratios versus the S&P500 Index.

	2011	2012	2013	2014	2015	2016	2017	2018E
Fund P/E	8.7	8.9	9.7	10.6	22.4	38.9	25.4	14.4
S&P 500 P/E	28.1	27.9	25.2	23.3	26.9	25.5	21.7	17.3
Premium (+) / Discount (-)	-69%	-68%	-61%	-55%	-17%	53%	17%	-17%
Average oil price (WTI $)	$95/bbl	$94/bbl	$98/bbl	$93/bbl	$48/bbl	$43/bbl	$51/bbl	$65/bbl

Source: S&P; Guinness Atkinson Asset Management Ltd

Forecasts are inherently limited and cannot be relied upon. Holdings are subject to change.

Portfolio Holdings

Our integrated and similar stock exposure (c.25%) is comprised of a mix of mid cap, mid/large cap and large cap stocks. Our four large caps are Chevron, BP, Royal Dutch Shell and Total. Mid/large and mid-caps are ENI, Equinor and OMV. As of June 30, 2018, the median P/E ratios of this group were 19.5x/13.9x 2017/2018 earnings. We also have two Canadian integrated holdings, Suncor and Imperial Oil. Both companies have significant exposure to oil sands in addition to downstream assets.

Our exploration and production holdings (c.34%) 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 have a bias towards the US (Newfield, Devon, Oasis and QEP Resources), with five other names (Apache, Anadarko, Occidental, ConocoPhillips, Noble) having a mix of US and international production and one (Tullow) which is African 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 US E&P stocks held also provide exposure to North American natural gas.

We have exposure to four (pure) emerging market stocks in the main portfolio, though one is a half-position, and in total represent 12% of the portfolio. Two are classified as integrateds (Gazprom and PetroChina) and two as E&P companies (CNOOC 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 3.0x 2018 earnings. PetroChina is one of the world's largest integrated oil and gas companies and has significant growth potential and, alongside CNOOC, enjoys advantages as a Chinese national champion. SOCO International is an E&P company with production in Vietnam.

The portfolio contains one midstream holding, Enbridge, North America's largest pipeline company. With the growth of onshore oil and gas production expected in the US and Canada over the next five years, we believe Enbridge is well placed to execute its pipeline expansion plans.

We have useful exposure to oil service stocks, which comprise around 10.7% 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 and Schlumberger).

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 split between two companies: JA Solar and Sunpower. JA Solar is a Chinese solar cell and module manufacturer whilst Sunpower is a more diversified US solar developer. We see them as well placed to benefit from the expansion in the solar market we expect to continue for a number of years.

GUINNESS ATKINSON FUNDS

Portfolio as of June 30, 2018

Guinness Atkinson Global Energy Fund 30 June 2018													
Stock	ID_ISIN	Curr.	Country	% of NAV	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	2015 B'berg mean PER	2016 B'berg mean PER	2017 B'berg mean PER	2018 B'berg mean PER
Integrated Oil & Gas													
Chevron	US1667641005	USD	US	3.56	13.6	9.4	10.3	11.4	13.2	34.8	91.2	30.5	16.0
Royal Dutch Shell PLC	GB00B03MLX29	EUR	NL	3.59	11.2	8.3	8.2	10.9	9.6	20.3	33.5	18.1	12.3
BP PLC	GB0007980591	GBP	GB	3.53	6.7	6.7	8.4	10.4	12.3	21.7	41.5	24.7	14.2
Total SA	FR0000120271	EUR	FR	3.55	11.4	10.2	9.7	10.9	11.0	14.1	16.7	15.6	11.8
ENI SpA	IT0003132476	EUR	IT	3.62	8.5	8.1	7.9	12.7	14.7	68.9	nm	27.8	13.9
Equinor ASA	NO0010096985	NOK	NO	3.53	11.5	9.9	8.9	10.9	15.1	36.9	187.4	19.5	14.0
OMV AG	AT0000743059	EUR	AT	3.42	12.2	15.2	10.6	13.1	16.1	14.4	14.7	9.9	9.2
				24.80									
Integrated Oil & Gas - Canada													
Suncor Energy Inc	CA8672241079	CAD	CA	3.58	33.7	15.0	16.6	16.8	16.7	47.5	nm	28.7	17.1
Canadian Natural Resources Ltd	CA1363851017	CAD	CA	3.87	19.5	20.5	29.8	21.1	13.8	341.4	nm	40.4	14.5
Imperial Oil	CA4530384086	CAD	CA	3.55	19.1	11.9	10.5	13.6	11.5	24.6	72.6	34.1	16.5
				10.99									
Integrated Oil & Gas - Emerging market													
PetroChina Co Ltd	CNE1000003W8	HKD	HK	3.39	6.9	6.8	7.8	8.6	8.5	26.4	103.5	40.3	15.9
Gazprom OAO	US3682872078	USD	RU	3.53	3.9	2.7	2.8	2.6	4.3	2.6	3.8	4.3	3.0
				6.93									
Oil & Gas E&P													
Apache Corp	US0374111054	USD	US	3.77	5.0	3.9	4.9	5.8	8.3	nm	nm	441.0	25.3
Anadarko Petroleum Corp	US0325111070	USD	US	3.65	42.3	23.2	21.9	17.6	16.0	nm	nm	nm	25.3
Occidental Petroleum Corp	US6745991058	USD	US	3.44	14.9	10.1	12.1	12.1	14.4	504.1	nm	93.2	17.7
ConocoPhillips	US20825C1045	USD	US	3.57	11.7	8.2	12.2	12.4	13.1	nm	nm	111.7	17.6
QEP Resources Inc	US74733V1008	USD	US	1.70	8.9	7.5	9.9	8.8	8.7	nm	nm	nm	nm
Devon Energy Corp	US25179M1036	USD	US	3.66	7.4	7.3	13.6	10.4	8.5	17.8	nm	24.0	28.3
Noble Energy Inc	US6550441058	USD	US	3.65	17.0	13.4	15.4	11.4	15.1	618.9	nm	2,205.0	30.7
Newfield Exploration Co	US6512901082	USD	US	3.62	6.6	7.4	12.5	16.8	16.4	41.7	28.1	14.1	8.9
Oasis Petroleum Inc	US6742151086	USD	US	1.84	101.4	20.6	11.5	6.2	7.0	21.4	nm	nm	42.9
				28.91									
International E&P													
CNOOC Ltd	HK0883013259	HKD	HK	3.57	9.8	7.4	7.9	8.1	9.7	28.9	nm	16.7	9.6
Tullow Oil PLC	GB0001500809	GBP	GB	1.69	24.0	5.5	4.9	37.0	nm	nm	nm	16.8	10.4
Soco International PLC	GB00B572ZV91	GBP	GB	1.00	10.2	6.6	1.8	1.9	3.0	nm	nm	nm	22.6
				6.27									
Midstream													
Enbridge Inc	CA29250N1050	USD	CA	3.96	45.8	41.3	38.0	35.0	32.1	29.0	26.9	32.6	24.7
				3.96									
Drilling													
Unit Corp	US9092181091	USD	US	1.94	8.4	6.2	6.2	6.9	6.0	nm	nm	48.1	29.2
				1.94									
Equipment & Services													
Halliburton Co	US4062161017	USD	US	3.39	22.4	13.5	15.2	14.5	11.4	30.5	nm	38.8	18.4
Helix Energy Solutions Group Inc	US42330P1075	USD	US	1.95	15.8	5.5	4.5	7.7	4.3	49.3	nm	nm	56.3
Schlumberger	AN8068571086	USD	US	3.44	24.3	18.5	16.0	14.1	12.1	20.0	58.0	45.8	34.4
				8.78									
Solar													
JA Solar Holdings Co Ltd	US4660902069	USD	US	1.11	1.0	nm	nm	nm	7.8	3.9	9.2	12.3	nm
SunPower Corp	US8676524064	USD	US	0.61	5.3	93.5	51.1	5.5	5.8	3.9	nm	nm	nm
				1.72									
Oil & Gas Refining & Marketing													
Valero Energy Corp	US91913Y1001	USD	US	3.36	69.8	27.9	22.7	27.0	18.2	12.6	30.1	22.7	15.8
				3.36									
Research portfolio													
Cluff Natural Resources PLC	GB00B6SYKF01	GBP	GB	0.37	nm	nm	nm	nm	nm	nm	nm	nm	nm
EnQuest PLC	GB00B635TG28	GBP	GB	0.72	5.3	6.0	1.8	2.0	3.7	35.7	2.4	nm	4.0
JKX Oil & Gas PLC	GB0004697420	GBP	GB	0.46	0.9	1.1	1.5	2.8	7.7	nm	nm	nm	38.7
Ophir Energy PLC	GB00B24CT194	GBP	GB	0.10	nm	nm	nm	nm	1.2	nm	nm	nm	11.6
Reabold Resources PLC	GB00B95L0551	GBP	GB	0.28	nm	nm	nm	nm	nm	nm	nm	nm	nm
Shandong Molong Petroleum Machinery Cc	CNE1000001N1	HKD	HK	0.10	2.6	3.6	nm	nm	nm	nm	nm	nm	nm
Sino Gas & Energy Holdings Ltd	AU000000SEH2	AUD	AU	0.60	nm	nm	164.7	nm	164.7	nm	nm	nm	nm
				2.62									
			Cash	-0.28									
			Total	100									
			PER		9.6	8.7	8.9	9.7	10.6	22.4	38.9	25.4	14.4
			Med. PER		11.4	8.3	10.4	10.9	11.4	27.7	30.1	28.2	16.2
			Ex-gas PER		10.2	9.2	8.9	10.0	10.8	20.9	35.0	24.3	13.8

Top fund holdings as of 6/30/18:

1. Enbridge Inc	3.96%
2. Canadian Natural Resources Ltd	3.87%
3. Apache Corp	3.77%
4. Devon Energy Corp	3.66%
5. Anadarko Petroleum Corp	3.65%
6. Noble Energy Inc	3.65%
7. Newfield Exploration Co	3.62%
8. Eni SpA	3.62%
9. Royal Dutch Shell PLC - A Shares	3.59%
10. Suncor Energy Inc	3.58%

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.

The Fund's holdings, industry sector weightings and geographic weightings may change at any time due to ongoing 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.

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 fund's holdings.

This material must be preceded or accompanied by a current prospectus. You can find a current prospectus here.

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.

MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets.

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.

One cannot invest directly in an index.

Free cash flow (FCF) yield is a financial ratio that standardizes the free cash flow per share a company is expected to earn against its market value per share. The ratio is calculated by taking the free cash flow per share divided by the share price.

The Henry Hub pipeline is the pricing point for natural gas futures on the New York Mercantile Exchange.

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

The New York Mercantile Exchange is the world's largest physical commodity futures exchange.

Enterprise Value, or EV for short, is a measure of a company's total value, often used as a more comprehensive alternative to equity market capitalization

Standard Deviation (SD) is applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

Debt/EBITDA is a measure of a company's ability to pay off its incurred debt. This ratio gives the investor the approximate amount of time that would be needed to pay off all debt, ignoring the factors of interest, taxes, depreciation and amortization.

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

Distributed by Foreside Fund Services, LLC