Guinness Alternative Energy Fund

A high conviction pureplay equity fund managed by Edward Guinness investing in quoted companies in the alternative energy sector.

INVESTMENT COMMENTARY – December 2016

Manager	**Edward Guinness** (from launch in December 2007)
Fund size	**$5.3m**
AUM under strategy	**$18.9m**

Aim

Guinness Alternative Energy Fund gives investors pureplay exposure to global alternative energy markets.

The Fund is managed for capital growth and invests in companies in the solar, wind, hydro, geothermal, biofuels, biomass and energy efficiency sectors.

Investment case

We believe that over the next twenty years the alternative energy sector will benefit from the combined effects of:

- Higher energy prices driven by population growth, developing world industrialisation and diminishing fossil fuel supplies
- Falling costs of alternative energy assets as the technology improves
- Energy security concerns
- Climate change and environmental issues

The Guinness Alternative Energy team has been managing alternative energy portfolios since 2007.

The Fund is a long-only equity portfolio of around 30 equally-weighted positions.

Normally the Fund is invested in companies with a market capitalisation over $100 million.

Quarterly review

The fourth quarter of 2015 saw a number of improvements in government support for the sector, and companies began to see improved visibility on future earnings.

The United States gave welcome support to the US renewable energy sector shortly before Christmas. Congress unexpectedly extended the investment tax credit (ITC) for solar power and the production tax credit (PTC) for wind on 18th December 2015, the final business day of the year on Capitol Hill. This provides a clear trajectory for the wind industry until 2020 and the solar industry until 2024; gradual reductions in the credits should be absorbable by the sector's cost reductions and should see the sector transition away from subsidies in the US. Equipment manufacturers and installers should benefit from the ITC and PTC extensions.

Global demand for solar power is forecast to have increased globally from 45GW in 2014 to 55GW in 2015. The Chinese demand for PV in the next five years is supported by China's ambitious renewable energy goals in its 13th Five-Year Plan (FYP). The drivers of this are health and environmental, in particular air quality in the major cities. These plans should be resilient to any weakness in the wider Chinese economy.

Renesola and Canadian Solar where the best performing stocks of the quarter after receiving 20-30% overnight boosts from the ITC decision in Congress, achieving a recovery of just under 75% each over the quarter. SunPower and SolarEdge in third and fourth place also rallied after the ITC decision, gaining 50% and 46% respectively.

In November 2015, the United Nations Framework Convention on Climate Change (UNFCCC) was able to reach a global agreement to limit the average

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global temperature increase to two degrees Celsius at the 21st Conference of the Parties (COP21) in Paris. Although a huge diplomatic feat, its impact on renewable energy equities was muted. Even with such an agreement, countries have decades to implement appropriate policies and incentivise schemes for renewable energy, and there is no binding action required by any of the signatories. It does, however, provide a broadly supportive backdrop for alternative energy equities.

Within the wind sector, Futuren and Boralex performed well over the quarter, but the Fund's Chinese wind utilities suffered from the uncertainty over payment timings of Chinese subsidies.

The Fund holds a diversified set of efficiency holdings that are all energy-related. Nibe (sustainable heating solutions) continued to perform well as demand for groundsource heatpumps grows. Centrotec (German heating) had a weak quarter, while Wasion (Chinese metering) remained stable.

The hydro investments disappointed in the fourth quarter. Cemig in Brazil was weak due to the fall in the Brazilian Real and the uncertainty of Brazil's rainfall. Iniziative Bresciane and Verbund both suffered losses in light of continually falling European spot power prices.

The Fund's geothermal holding, Ormat, performed relatively well, recovering from a weak third quarter. Cosan, the Fund's biofuels holding, held up well in the face of falling oil prices – most of its business is not directly linked to gasoline prices.

Outlook

Solar

The global photovoltaic (PV) market is expected to have grown from 37GW in 2013 and 44GW in 2014 to 55GW in 2015, with expectations of 64-68GW in 2016 and 70-73 GW in 2017. This would give a 19% compound annual growth rate between 2013 and 2017 (using the most optimistic forecast). Importantly, the global PV market continues its geographic fragmentation. Although China, Japan, and the United States are driving demand growth, almost all countries are now seeing solar growth. There is less reliance on specific subsidies in individual markets to support global demand (as we saw in Germany, Spain and Italy at various points over the last decade). This lowers the political risk in the stock prices.

The US Investment Tax Credit (ITC), which gives a 30% tax credit to solar power owners, will extend to 2020 instead of expiring at the end of 2016. It is then proposed to reduce in 2021 and reach 10% from 2022 onwards. Forecasting houses have given a range of estimates for US PV market growth that are beneficial for module manufacturers and installers. Bloomberg New Energy Finance believes that the ITC means 18GW more PV in the United States between 2016 and 2021 than without the extension. Greentech Media is more bullish and predicts an annual US PV market upwards of 20GW in 2020, compared to 10GW without the ITC. IHS believes that the ITC extension will avoid a decrease in annual global PV installations in 2017. The United States is set to contribute just over 7GW (13%) of global demand in 2015.

China's 13th FYP includes a 150GW PV target by 2020, implying an annual PV market of at least 20GW. China was the largest PV market in 2015, aiming to commission just under 18GW by year-end.

Japan continued its generous feed-in tariffs for PV and is likely to have installed upwards of 12GW (around 20% of the global PV market) in 2015. However, these generous feed-in tariffs have a short lifetime. The subsidies are expected to be cut in the near future as the country's Ministry of Economy, Trade and Industry (METI) is looking at auctions and more cost-effective measures. These measures may bring installation figures down in 2016 and 2017.

European PV demand continues to decline. Germany is expected to have installed c.1.5GW in 2015, down from a peak of 7.6GW in 2012. The UK market has been strong, but is expected to decline in 2016 on lower feed-in tariffs. We expect the Western European market to remain weak until PV

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system and battery costs are sufficiently low to support unsubsidised uptake for residential and commercial consumers. There are several private energy storage companies that could flourish in the sector in the next couple of years on the back of PV self-consumption and management of intermittent electricity production. Europe (due to lack of net metering and high retail electricity prices) and Australia will be the hotbeds of PV and storage systems.

The European Union minimum import price (MIP) for Chinese panels has been officially called into review, and will remain at its current rate for the duration of the review until March 2017. Due to Europe installing less PV as a proportion of the world market, the impact of the minimum import price is diminishing. Nevertheless, the MIP does dim demand for PV in Europe.

Latin America remains an area of growth, and Chile in particular, with high electricity prices, economic growth and high levels of sunshine making solar particularly attractive.

PV module prices remained essentially flat in Q4 2015 having fallen slightly further than expected over the year. Underpinning this is the fall in the solar-grade polysilicon price, which allows solar wafer, cell and module manufacturers to defend their margins. We do not expect the oversupply in the PV-grade polysilicon market to subside in the next three years absent exceptionally strong growth in PV demand.

Wind

As with solar, the big wind stories come from the United States and China. The extension of the Production Tax Credit (PTC) in the US is likely to mean an additional 20GW of installed capacity over the next five years (according to Bloomberg New Energy Finance). However, this pales in comparison to China's wind target of 200GW by 2020 in its 13th FYP. By the end of 2014 China had already installed 115GW of wind power, leaving 85GW to be installed between 2015 and 2020. This would require an average installation rate of 15GW per annum, which is in line with installations over the last three years, although volumes may be skewed towards earlier years to attain higher subsidies. We expect that the Chinese wind installation targets will be exceeded and revised upwards, provided that the required grid capacity expansion plans are executed.

Many of the main European countries are slowing down the pace of wind installations, meaning that across the whole of Europe demand is expected to remain flat (notwithstanding high growth at the periphery). Growth may come from offshore wind projects, although the direct investment opportunities into offshore wind projects are limited and we haven't seen the same fall in costs witnessed in onshore wind (and solar).

Other technologies

Companies with technologies outside the wind and solar space are typically interesting individual company stories instead of experiencing a sector-wide boom. With most European countries looking to increase energy efficiency, we anticipate growth in efficient lighting, heating technologies, grid technologies, metering and insulation.

Long-term outlook

Over 2015, alternative energy has received several supports for its long-term future. The Obama climate plan, the COP21 climate change talks and the successful inter-governmental, global agreement mean that there will be a continued impetus to develop alternative energy sources. The costs of alternative energy continue to fall to compete with conventional power sources, while energy storage companies are starting to enter the market to complement the intermittency endemic to alternative energy. All of these factors support a long-term transition away from fossil fuels.

Portfolio changes

We bought SolarEdge and FirstSolar to increase our exposure to innovative inverter technology companies (complementing our holding in Enphase) and the US PV market overall.

We sold Yingli Green Energy as we saw little prospect for price recovery. We also sold Enel Green Power due to the stock's strong performance over the last year and its upcoming acquisition by its parent company, Enel.

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Fund Performance (Q4 2015)

The Guinness Alternative Energy Fund was up 9.1% over the fourth quarter of 2015. This compared to a rise in the Wilderhill New Energy Global Innovation Index in the fourth quarter of 9.3%, a rise in in the Wilderhill Clean Energy Index of 16.1% and a rise in the MSCI World Index of 5.6%.

The top five performers over the quarter were Renesola (+74.9%), Canadian Solar (+74.3%), SunPower (+49.8%), SolarEdge (+46.0%), and JinkoSolar (+26.1%).

The bottom five performers over the quarter were Northern Power Systems (-35.7%), China Longyuan Power Group (-30.6%), Mytrah Energy (-30.4%), Huaneng Renewables (-20.0%) and CEMIG (-15.7%).

Edward Guinness & Samira Rudig
Guinness Alternative Energy Fund

January 2016

PORTFOLIO

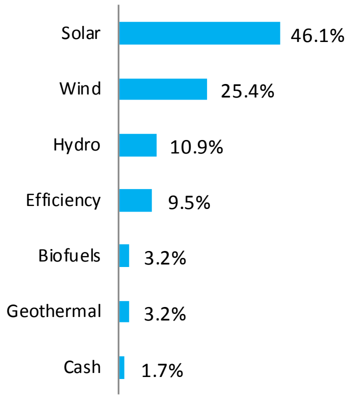
31/12/2015

Fund top 10 holdings

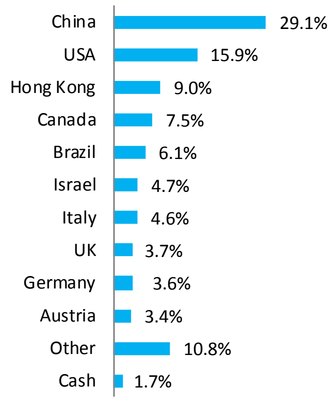
Enphase Energy	5.2%
Solaredge Technologies	4.7%
Inbre	4.6%
Sunpower	4.0%
Renesola ADR	4.0%
Jinko Solar	3.9%
Canadian Solar	3.7%
Good Energy	3.7%
Trina Solar	3.7%
Centrotec Sustainable	3.6%

% of Fund in top 10	41.1%
Total number of stocks in Fund	31

Sector analysis



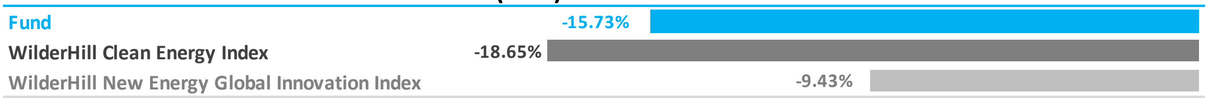
Geographic allocation



PERFORMANCE

31/12/2015

Annualised % total return from launch* (USD)



Discrete years % total return (USD)	Dec '11	Dec '12	Dec '13	Dec '14	Dec '15
Fund	-41.4	-12.6	72.1	-11.4	-11.4
WilderHill Clean Energy Index	-50.5	-17.4	58.5	-16.9	-10.4
WilderHill New Energy Global Innovation Index	-38.9	-4.1	55.7	-2.2	1.5

Cumulative % total return (USD)	3 months	Year-to-date	1 year	3 years	5 years	From launch*
Fund	9.1	-	-11.4	35.1	-30.8	-74.0
WilderHill Clean Energy Index	16.1	-	-10.4	18.0	-51.7	-81.0
WilderHill New Energy Global Innovation Index	9.3	-	1.5	54.6	-9.4	-54.9

RISK ANALYSIS

31/12/2015

Annualised, three years, in USD	Wilderhill Clean Energy Index	Fund
Alpha	0	0.28
Beta	1	0.69
Correlation	1	0.83
R squared	1	0.69
Volatility	28.70	24.43

*Fund launch date: 19/12/2007.

Performance data based on the Fund's 'E' share class (AMC: 0.75%, max OCF: 1.24%), except periods starting prior to 02/09/2008, which are based on a composite of the Fund's 'A' share class (AMC: 1.00%, max OCF: 1.49%) from Fund launch (19/12/2007) until the launch of the Fund's E class (02/09/2008).

Source: Bloomberg, bid to bid, (inclusive of all annual management fees but excluding any initial charge or redemption fee), gross income reinvested. Performance would be lower if initial charge and/or redemption fee were included.

Past performance should not be taken as an indicator of future performance. The value of this investment and any income arising from it can fall as well as rise as a result of market and currency fluctuations.

All returns stated here are in US dollars; which is the Fund's base currency. Returns in different currencies may be higher or lower as a result of currency fluctuations.

Important information and risk factors

Issued by Guinness Asset Management Limited, authorised and regulated by the Financial Conduct Authority.

This report is primarily designed to inform you about recent developments in the alternative energy markets invested in by the Guinness Alternative Energy Fund. It may also provide information about the Fund's portfolio, including recent activity and performance. It contains facts relating to the alternative energy market and our own interpretation. Any investment decision should take account of the subjectivity of the comments contained in the report.

This document is provided for information only and all the information contained in it is believed to be reliable but may be inaccurate or incomplete; any opinions stated are honestly held at the time of writing, but are not guaranteed. The contents of the document should not therefore be relied upon. It should not be taken as a recommendation to make an investment in the Fund or to buy or sell individual securities, nor does it constitute an offer for sale.

Risk
The Guinness Alternative Energy Fund is an equity fund. Investors should be willing and able to assume the risks of equity investing. The value of an investment and the income from it can fall as well as rise as a result of market and currency movement, and you may not get back the amount originally invested. The Fund invests only in companies involved in the alternative energy sector; it is therefore susceptible to the performance of that one sector, and can be volatile. Details on the risk factors are included in the Fund's documentation, available on our website.

Documentation
The documentation needed to make an investment, including the Prospectus, the Key Investor Information Document (KIID) and the Application Form, is available from the website www.guinnessfunds.com , or free of charge from:-

- the Manager: Capita Financial Managers (Ireland) Limited, 2 Grand Canal Square, Dublin 2, Ireland; or,
- the Promoter and Investment Manager: Guinness Asset Management Ltd, 14 Queen Anne's Gate, London SW1H 9AA.

Residency
In countries where the Fund is not registered for sale or in any other circumstances where its distribution is not authorised or is unlawful, the Fund should not be distributed to resident Retail Clients. **NOTE: THIS INVESTMENT IS NOT FOR SALE TO U.S. PERSONS.**

Structure & regulation
The Fund is a sub-fund of Guinness Asset Management Funds PLC (the "Company"), an open-ended umbrella-type investment company, incorporated in Ireland and authorised and supervised by the Central Bank of Ireland, which operates under EU legislation. If you are in any doubt about the suitability of investing in this Fund, please consult your investment or other professional adviser.

Switzerland
The prospectus and KIID for Switzerland, the articles of association, and the annual and semi-annual reports can be obtained free of charge from the representative in Switzerland, Carnegie Fund Services S.A., 11, rue du Général-Dufour, 1204 Geneva, Switzerland, Tel. +41 22 705 11 77, www.carnegie-fund-services.ch. The paying agent is Banque Cantonale de Genève, 17 Quai de l'Ile, 1204 Geneva, Switzerland.

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