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 – review of the first quarter 2018

Manager	**Edward Guinness** (from launch in December 2007)
Fund size	**$12.1m**
AUM under strategy	**$22.9m**

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 commentary

Despite general jitters in world equity markets and escalating trade wars, alternative energy equities have held up well. The fund was down 0.25% over the quarter and the Wilderhill Clean Energy Index was down 1.49%.

The following factors supported alternative energy stocks over the quarter:

- Proposed Chinese renewable energy portfolio standards
- Growing public and government recognition of renewables' competitiveness versus fossil fuels
- Continued robust growth in electric vehicle demand, especially in China and Europe

The following factors weighed down on alternative energy stocks:

- Uncertainty around solar and wind equipment pricing
- Slow payment of subsidies to generators in China
- Concerns about low pricing from increased prevalence of auctions

Performance contribution

Top 5 performing stocks	Q1 2018
Tianneng Power International	13.96%
China Datang Corp Renewable Power	13.53%
Iniziative Bresciane	12.66%
Huaneng Renewables Corp Ltd	10.13%
TPI Composites	9.73%

Bottom 5 performing stocks	Q1 2018
Good Energy Group	-35.79%
JinkoSolar Holding	-24.12%
China Singyes Solar Technologies Holdings	-15.67%
Ormat Technologies	-11.85%
Johnson Controls International	-7.53%

Source: Bloomberg

Equipment manufacturers

Equipment manufacturers had mixed performance over the quarter with no overall positive or negative contribution. Daqo, a polysilicon producer, benefited from strong polysilicon pricing and an improving balance sheet. FirstSolar, a thin-film solar panel manufacturer, was a primary beneficiary of Trump's imposition of import tariffs on solar modules as its cadmium telluride panels are not subject to import tariffs. Xinyi, a Chinese solar glass manufacturer and solar installer, performed well as a result of much higher levels of Chinese solar installations than expected. Two of the polysilicon module manufacturer holdings, JinkoSolar and Canadian Solar, were weak over the quarter as their modules will be subject to Trump's import tariffs. JA Solar's share price has been stable as it awaits confirmation of approval for a management buyout.

Although our wind turbine manufacturer holding, Senvion, performed poorly over the quarter due to worries about oversupply and margin compression, our wind-blade supplier holding, TPI Composites, fared well following announcements of good fourth quarter results and a partnership to diversify to build trucks with composite tractor and frame rails.

Power Producers

The Chinese renewable energy power producers (China Longyuan, Huaneng Renewables, China Datang, Concord New Energy and China Suntien) did well over the quarter. China has announced new rules that will further lower curtailment and its intention to introduce renewable portfolio standards and renewable energy certificates. All of these potentially reduce the uncertainty of payment for renewable electricity production in China. Further support came from high levels of wind generation during the quarter.

Iniziative Bresciane's share price rose with the commissioning of several new hydro sites and the prospect of good flows in 2018 after a winter with high levels of precipitation in the Alps. Mytrah Energy fared well as confidence grew in the company due to increasing wind capacity in the portfolio. Ormat, a vertically-integrated geothermal power equipment producer, developer and asset owner and operator, fell 11.85% as a result of weaker earnings guidance than expected. Good Energy, a UK-based green utility, was down 35.79% due to delayed revenue collection and missing investors' growth expectations.

Grid & Energy Management

Wasion and Boer Power fared well in the quarter. Wasion produces meters, while Boer Power distributes and installs energy management equipment and systems. Wasion saw sales growth from new products and Boer Power's share price is finally beginning to benefit from the company restructuring.

Schneider Electric, a French power management and automation equipment and solutions provider, had a positive set of results, including higher-than-expected organic growth in its energy management division. Prysmian, an

Italian cable producer, was down 3.39% due to worries around the telecommunication cable market and the premium in its acquisition of General Cable.

Electric Vehicles & Batteries

Ricardo, a predominantly automotive engineering consultancy, had a strong quarter following positive results. Tianneng Power, a Chinese bicycle battery and li-ion battery manufacturer performed particularly well this quarter following an increase in electric vehicle battery sales and increased volume for its electric bicycle sales.

LG Chem, a Korean petrochemical company and a leading lithium-ion battery manufacturer for electric vehicles, was down slightly due to worries in the Korean market and after a small miss versus consensus revenue estimates for FY 2017.

Acuity Brands was down 4.84% as the worry of decreasing LED pricing and potential margin squeezing weighs on investor confidence. We believe these worries are overdone given the range of solutions Acuity Brands offers. Johnson Controls is in the midst of integrating its Tyco acquisition and is considering selling its Power Business to reduce capital expenditure and increase cash flow. Johnson Controls posted results that were in line with expectations, but did not increase its guidance, disappointing the market. Kingspan and Nibe fell slightly over the quarter.

Biofuel

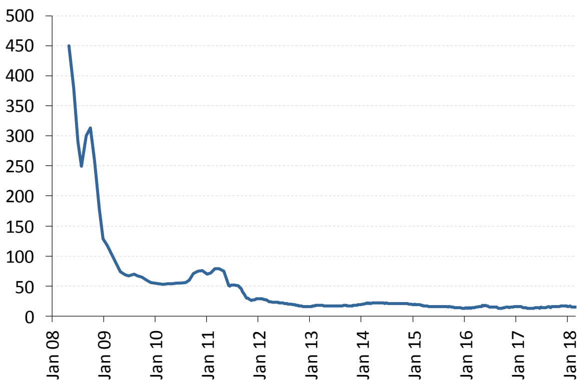
Cosan was flat over the quarter, in line with the Ibovespa Index.

Building Efficiency

Outlook

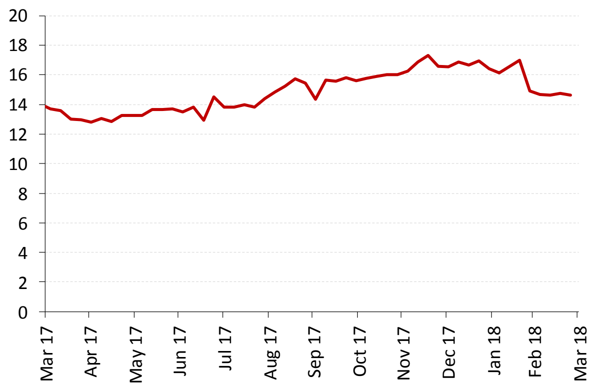
Solar

Long-term Silicon price ($/kg)



Source: Bloomberg

TTM Silicon price ($/kg)



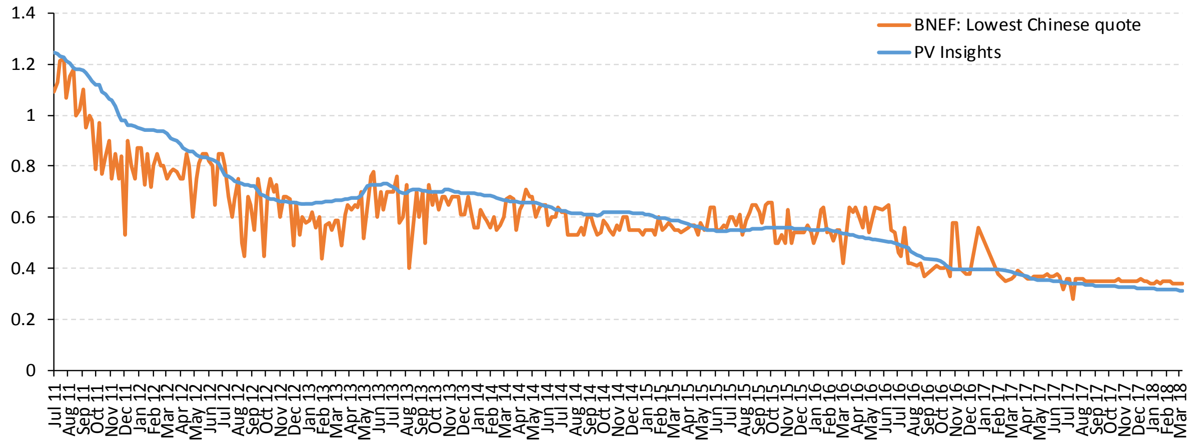
Source: Bloomberg

The solar sector continues to beat growth expectations. In 2017, China added 53GW of solar, comprising more than half of the global solar market. 2018 has similar hallmarks to 2017, with the requirement to meet construction deadlines before subsidies are reduced. The government announced tariff cuts for behind-the-meter systems that are not connected to the grid by 30 June 2018. A second deadline is at year end for the next set of subsidy reductions. We expect an installation rush in the run-up to the middle of the year and the end of the year as developers try to lock in the highest tariffs possible before the cuts. The demand increase has resulted in that the solar value chain showing less supply-demand imbalance than expected, which is supportive of pricing at all levels.

Solar Installations, GW	2014	2015	2016	2017	2018e	2019e	2020e
World	46	56	75	98	111	138	148
Asia	26	35	48	74	78	86	90
North America & Caribbean	7	8	15	11	11	17	19
EU Europe	7	8	6	5	7	13	10
Central & South America	1	1	2	2	4	3	4
Oceania	1	1	1	2	4	5	6
Middle East & North Africa	1	1	1	1	3	7	8
Non-EU Europe	1	1	2	2	2	4	5
Africa (excl. North Africa)	1	0	1	1	1	3	4

Source: Bloomberg. Note: Sorted by 2018 forecast installations. Forecasts are inherently limited and cannot be relied upon.

Module Price ($/W)



Source: Bloomberg

Module prices decreased slightly in the first quarter of 2018, as the boom in China from 2017 subsided. As this demand increases throughout the year, we expect the module price to maintain a slower rate of reduction. There is a chance that demand growth will stabilise or even that there could be an increase in module prices. Global solar demand forecasts continue to be revised upwards by analysts, mainly in response to demand from China and the increased competitiveness of solar over conventional power generation sources. China's appetite for new solar plants shows no sign of abating. China's air pollution levels remain high on the political agenda and GDP growth is driving an ever-increasing demand for energy. Most Chinese installations to date have been large, utility-scale projects, and now policy support is increasing for the rooftop solar market which provides a large unaddressed market to support continued growth.

The second-largest market for solar is the United States, where the Section 201 trade case brought forward by Suniva to the International Trade Commission resulted in 30% tariffs on imported modules and silicon cells, with a 5% step-down every year. Given that almost all low-cost silicon cells are manufactured outside of the US (over 80% in China), the ITC decision to back Suniva means that cheap solar modules will be harder to come by in the United States for the next few years. This will have the effect of slightly reducing demand. However, since modules make up an increasingly small portion of the overall costs of solar installations, we only see a short-term effect of these tariffs on the US solar market.

It is worth noting that the US solar market is less than a quarter the size of the Chinese solar market and only represents around 10% of the global solar market. Even a large drop in installations in the US would not translate into global solar demand decreasing significantly. Nevertheless, the US solar sector acts as a sentiment driver for many solar-related stocks.

India is now the third-largest solar market, having overtaken Japan. India set an ambitious goal of 100GW of total solar capacity by 2022, with 60GW coming from utility-scale plants and 40GW from rooftop installations. The likelihood of the target being met may be low, but the target does suggest ambition. The country installed 8GW in 2017, double the installation in 2016. Renewable energy policy and import duty disputes within the country could create headwinds to demand growth for the next year, but in the medium to long term India has characteristics that are very supportive for solar installation growth. The country has abundant sunshine, steadily growing electricity demand, high electricity prices, a weak grid and capable developers offering solar bids at or below coal power generation costs.

The rest of the world continues to see solar demand growth. In Europe, where several countries went through boom and bust cycles in the early 2000s, solar demand is returning. This is in part due to the 2020 renewable energy goals set for each country within the European Union, but mainly due to the competitiveness of unsubsidised solar – both rooftop and ground-mounted. There have been unsubsidised projects announced in many Mediterranean countries.

Southeast Asian countries are considering low-cost policy structures, i.e. auctions or feed-in tariffs capped at local generation costs. We view this region as having huge potential for solar installation growth.

The Middle East has disappointed many in the solar sector by announcing tenders and projects which ultimately did not result in as much installation as anticipated. We believe the region has the potential to support many countries with multi-GW solar markets and projects are now starting to move from the drawing board to rooftops (or the desert floor).

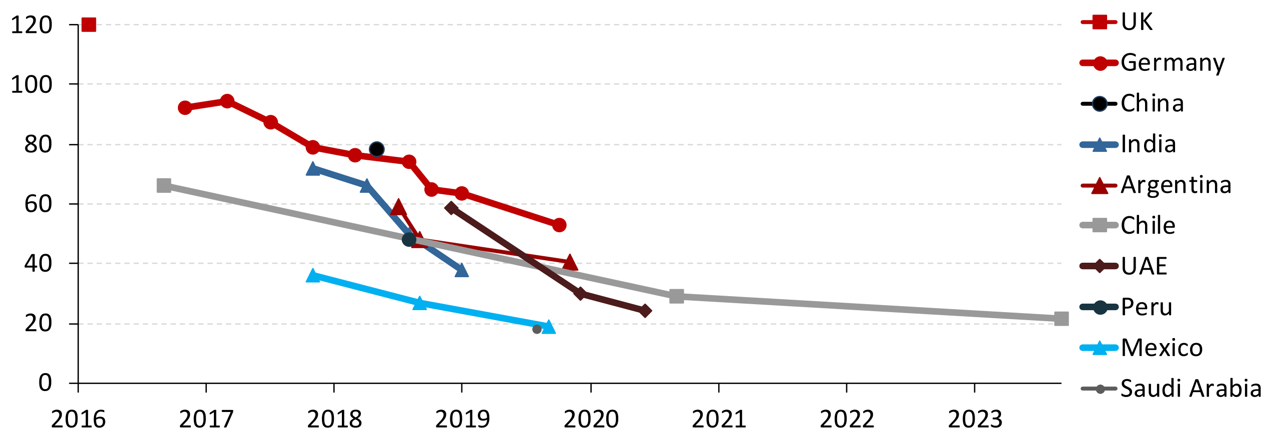
An increasing number of countries are embracing the potential for low-cost domestically generated energy that solar affords and we expect to be see growth from a more widespread range of geographies over the next five years, while China will remain supportive of its dominant solar industry.

Solar LCOE developments

There were no new record-low prices in Q1 2018. The records set in Chile, Mexico and Saudi Arabia in Q4 2017 still stand. Enel's Chilean subsidiary dominated the most recent power auction, with one solar bid as low as $21.5/MWh, the second-lowest ever recorded in Latin America. The lowest was in Mexico's most recent auction, coming in at $19.2/MWh. The lowest worldwide was a bid in Saudi Arabia's first auction at $17.9/MWh, a bid by Masdar from the UAE and France's EDF. Both the projects in Mexico and Saudi Arabia are due to come online in 2019. Although module prices have fallen, the stability of the module price may impact the completion of these projects given the short time horizon. The Chilean bid of $21.5/MWh is for a project that needs not be commissioned until 2024. Although some may hail these projects as unviable, competitor bids were not too far off the winning project bids.

It is worth noting how far the industry has come in terms of competitiveness. In 2014 the tariff of $58.5/MWh in Dubai was the lowest cost tariff for a solar project. Many analysts believed this to be an unviable level which anticipated some miraculous cost decline in equipment. Today such a tariff in a particularly sunny country such as the UAE would be ridiculed as too expensive.

PV bids by delivery date ($/MWh)



Source: Bloomberg, Cleantechnica, Guinness Asset Management

Wind

The subsidy-free bids from Germany's previous offshore wind tender have spurred other countries to strive for similar standards. In the Netherlands, a tender for two offshore wind farms, totalling 750MW of capacity, ran between 15th and 21st December. The Netherlands Enterprise Agency only accepted bids for the wind parks without subsidies. Winners are to be announced 13 weeks after closing of the tender.

After the highly-successful CfD auction rounds in the UK in September 2017, the UK government announced that future renewable energy auctions for 'less established technologies' – including offshore wind – could receive a total of £557 million ($752m) in subsidies. This would be enough to enable around 10GW of offshore wind to come online in the 2020s, according to Bloomberg analysts.

Wind installations, GW	2014	2015	2016	2017	2018e	2019e	2020e
World (onshore)	48	59	53	47	54	66	63
Asia	24	32	26	22	26	33	32
North America & Caribbean	8	10	10	8	11	14	14
EU Europe	10	10	11	12	10	10	11
Central & South America	4	3	3	3	4	4	2
Non-EU Europe	1	1	1	1	2	2	2
Middle East & North Africa	0	0	0	0	1	1	1
Oceania	1	0	0	1	1	1	1
Africa (excl. North Africa)	1	1	0	1	0	0	1
Offshore	1	4	1	5	4	6	7

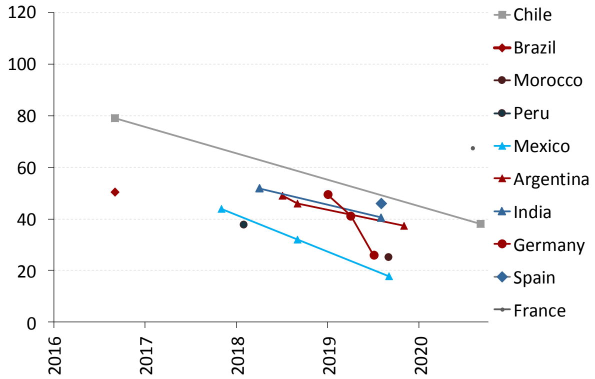
Source: Bloomberg. Note: Sorted by 2018 forecast installations.

Offshore wind updates

In the Netherlands, Vattenfall won the country's offshore wind tender based on project design and developer experience, amongst other non-financial criteria. The tender was the first of its kind where there would be no direct subsidy per unit of energy. The project, should it be finished on time in 2023, will be the first zero-subsidy offshore wind farm to be constructed. Indirect subsidies include the provision of the grid connection by the electricity grid operator, Tennet. The project is in shallow waters and close to the shore, making it less expensive. However, cost of capital will be higher than for subsidised projects, since the revenue streams of this plant are currently uncertain. Vattenfall could sign an offtaker agreement with corporates or sell its electricity to other utilities. It is encouraging that offshore wind projects continue to be built on a merchant basis.

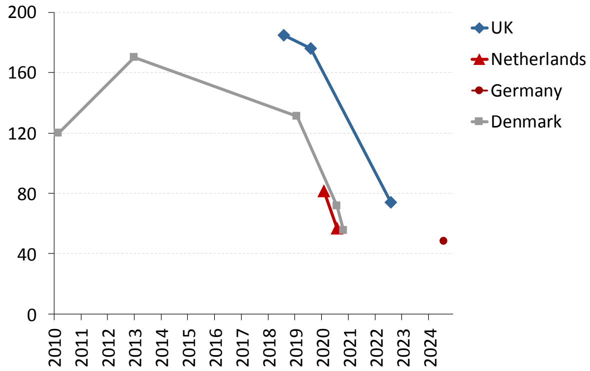
Wind LCOE developments

Onshore wind bids by delivery date ($/MWh)



Source: Bloomberg, Guinness Asset Management

Offshore wind bids by delivery date ($/MWh)



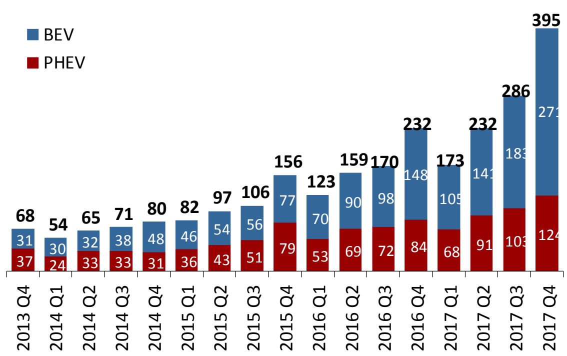
Source: UK government, Government of the Netherlands, Windpower Monthly, Vattenfall, Guinness Asset Management

Note: Projects have not been standardised for plant lifetime or financing cost and so values may not necessarily be directly comparable.

Developers are reaping the benefits of increased competition in the manufacturing space by getting more power out of the newer turbines for less capex. However, the power auctions sweeping the globe are also putting pressure on investor and developer returns. Nevertheless, the low $/MWh power prices wind is able to deliver, coupled with its ability to generate power overnight and not just during the day, as solar does, show that there is a long-term opportunity for the wind power sector. In most auctions held, a new record for that country or region was achieved.

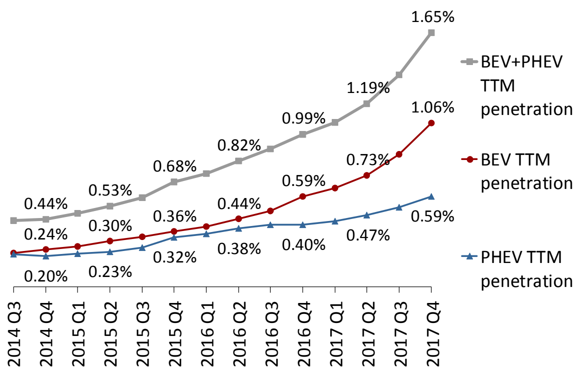
Electric Vehicles

Quarterly plug-in vehicle sales in selected countries (thousands)



Source: Bloomberg, Cleantechnica

Trailing 12-month plug-in vehicle penetration of new car sales in selected countries (%)



Source: Bloomberg. Note: TTM = trailing twelve months. Total EV sales across selected countries divided by total car sales in these countries show the penetration above.

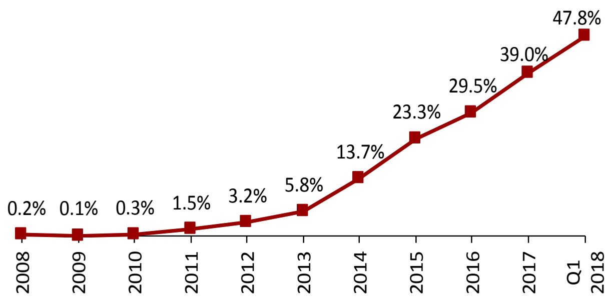
Note: Selected countries include Austria, Belgium, Canada, China, Denmark, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, *Spain, Sweden, Switzerland, UK and USA. These countries were chosen for data availability and represent three-quarters of all car sales globally.*

Plug-in electric vehicle (EV) sales have increased substantially from 2016 to 2017. We expect 2018 will be another record year for plug-in electric vehicle sales. The CAGR since 2013 until Q4 2017 is 55% and the compound quarterly growth rate for the same period stands at 12%.

The trailing 12 months market share of plug-in electric vehicles has passed 1% in most developed markets and in China. The growth rate of fully-electric vehicles, ie battery electric vehicles (BEVs), has been greater than that of plug-in hybrid electric vehicles (PHEVs), which have smaller batteries with a shorter range and still have a combustion engine for when the battery is depleted.

Car manufacturers have introduced more fully electric models to market in 2017 than any previous year. All the main vehicle manufacturers are now developing electric vehicle ranges to complement or even replace their existing range of internal combustion engine vehicles.

EV Market Share in Norway continues to increase (% of passenger vehicles plug-in hybrid)



Source: ofvas.no

Norway, the bellwether for the potential of electric vehicles in western countries, has effective subsidies that make plug-in electric vehicles as affordable as combustion engine vehicles. Overall, this gave Norway a market share of electric vehicles of 39% for 2017. In March 2018, electric vehicles in Norway had 56% market share as newer models of fully-electric vehicles arrived. In Q1 2018, plug-in electric passenger vehicles had a 48% market share for newly purchased vehicles. These numbers do not include the imported used electric vehicles, which are increasing in popularity in the country.

There were several switches in the fund this quarter. We sold Boralex, Senvion and JA Solar, replacing them with Acuity Brands, Vestas and Daqo.

We sold Boralex due to our belief that the stock was fully valued. The company operates in Canada and France, where favourable feed-in tariff levels for new projects are being replaced by competitive auction pricing. We purchased Acuity Brands based on its low valuation compared to historic valuation. The company provides lighting and building efficiency solutions, where evolving technologies including LEDs offer an attractive growth trajectory.

We sold Senvion based on relative valuation and market positioning. We had acquired the position in Senvion due to the large discount that it traded at compared to its peer group. It was replaced with Vestas, which had seen stock price weakness despite a leading market position and scoring well in our screening.

JA Solar's management is buying out shareholders. With the deadline for closing of the deal approaching, upside on the stock is limited. We added Daqo, a Chinese polysilicon supplier, to the portfolio. The company has strengthened its balance sheet over the last two years with high levels of cashflow. Within the polysilicon market it is focusing on the raw materials for mono-crystalline silicon solar cells, a subsector of the solar module market that is set to grow at a faster rate than the overall solar market and relies on higher purity polysilicon.

Thank you for your support.

Edward Guinness & Samira Rüdig-Sotomayor
Guinness Alternative Energy Fund

PORTFOLIO

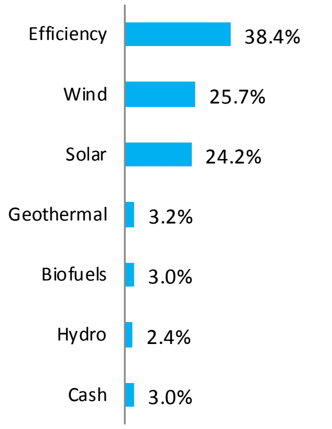
31/03/2018

Fund top 10 holdings

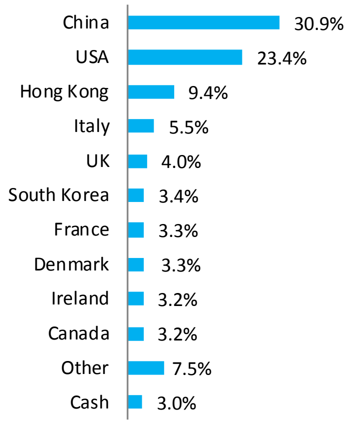
Tianneng Power	4.2%
Sunpower	3.7%
Daqo New Energy	3.7%
TPI Composites	3.7%
China Suntien Green Energy	3.6%
Huaneng Renewables	3.6%
China Datang Renewable Powei	3.6%
China Longyuan Power	3.4%
LG Chem	3.4%
First Solar	3.4%

% of Fund in top 10	36.4%
Total number of stocks in Fund	31

Sector analysis



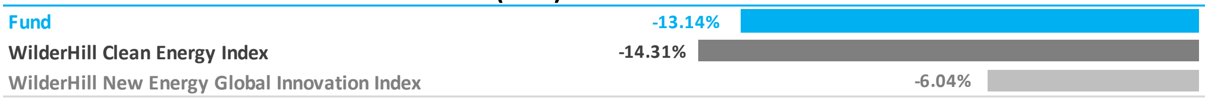
Geographic allocation



PERFORMANCE

31/03/2018

Annualised % total return from launch* (USD)



Discrete years % total return (USD)	Mar '14	Mar '15	Mar '16	Mar '17	Mar '18
Fund	70.8	-14.5	-19.3	-4.3	14.7
WilderHill Clean Energy Index	65.3	-20.5	-28.0	-0.1	26.4
WilderHill New Energy Global Innovation Index	57.9	-4.0	-11.5	4.5	17.3

Cumulative % total return (USD)	3 months	Year-to-date	1 year	3 years	5 years	From launch*
Fund	-0.2	-0.2	14.7	-11.4	29.4	-75.3
WilderHill Clean Energy Index	-1.5	-1.5	26.4	-9.1	19.5	-79.6
WilderHill New Energy Global Innovation Index	-3.1	-3.1	17.3	8.5	64.4	-47.3

RISK ANALYSIS

31/03/2018

Annualised, three years, in USD	Wilderhill Clean Energy Index	Fund
Alpha	0	-0.39
Beta	1	0.72
Correlation	1	0.83
R squared	1	0.68
Volatility	22.48	18.17

*Fund launch date: 19/12/2007.

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

Source: Bloomberg and Financial Express, 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 Guinness Alternative Energy Fund. It may provide information about the Fund's portfolio, including recent activity and performance. It contains facts relating to the equity markets 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. Details on the risk factors are included in the Fund's documentation, available on our website. Shareholders should note that all or part of the fees and expenses will be charged to the capital of the Fund. This will have the effect of lowering the capital value of your investment.

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 Link Fund Manager Solutions (Ireland) Ltd, 2 Grand Canal Square, Grand Canal Harbour, 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.

Singapore

The Fund is not authorised or recognised by the Monetary Authority of Singapore ("MAS") and shares are not allowed to be offered to the retail public. The Fund is registered with the MAS as a Restricted Foreign Scheme. Shares of the Fund may only be offered to institutional and accredited investors (as defined in the Securities and Futures Act (Cap.289)) ('SFA') and this material is limited to the investors in those categories

Telephone calls will be recorded and monitored.

GUINNESS
ASSET MANAGEMENT
Guinness Asset Management Ltd is authorised and regulated by the Financial Conduct Authority

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