Guinness Atkinson
Alternative Energy Fund
Review of Q2 2018

We provide commentary on the second quarter of 2018 for the Alternative Energy Fund:

- Quarterly commentary
- Total return
- Performance contribution
- Sector review
- Outlook
- Portfolio changes
- Holdings

Quarterly commentary

The Guinness Atkinson Alternative Energy Fund was down 3.95% in the second quarter of 2018. This compared to a rise in the Wilderhill Clean Energy Index of 0.2%, a decrease in the Wilderhill New Energy Global Innovation Index of 6.67% and an increase in the MSCI World Index of 1.89%. Year to date, the fund is down 3.31% which is ahead of the Wilderhill New Energy Index (down 9.60%) and behind the Wilderhill Clean Energy Index (down 1.30%). While some of the fund's Chinese renewable utilities and efficiency stocks have performed well over the quarter, the fund has been held back by the performance of the solar stocks following changes to China's solar subsidy regime.

The following factors supported alternative energy stocks over the quarter:

- Growing public and government recognition of renewables' competitiveness versus fossil fuels
- Robust growth in global electric vehicle demand, particularly in China and Norway
- Higher oil prices

The following factors weighed down on alternative energy stocks:

- China's change in solar support mechanism
- Concerns about global trade
- US tax reform concerns
- Slow payment of subsidies to generators in China
- Concerns about low pricing for renewable electricity generated from the increased prevalence of auctions

Total returns as of 06/30/18

Total return	Q1 2018	Q2 2018	H1 2018	YTD2018
Guinness Atkinson Alternative Energy Fund	0.66%	-3.95%	-3.31%	-3.31%
Wilderhill New Energy Index	-3.14%	-6.67%	-9.60%	-9.60%
Wilderhill Clean Energy Index	-1.49%	0.20%	-1.30%	-1.30%
MSCI World Index	-1.13%	1.89%	0.74%	0.74%

Total return		**1 year**	**3 year**	**5 year**	**10 year**
Guinness Atkinson Alternative Energy Fund		6.89%	-5.94%	-1.26%	-13.24%
Wilderhill New Energy Index		1.94%	-0.05%	6.10%	-5.95%
Wilderhill Clean Energy Index		16.66%	-2.02%	-0.85%	-12.17%
MSCI World Index		11.71%	9.12%	10.59%	6.90%
Calendar year returns	**2013**	**2014**	**2015**	**2016**	**2017**
Guinness Atkinson Alternative Energy Fund	61.54%	-14.29%	-11.40%	-17.16%	20.68%
Wilderhill New Energy Index	55.70%	-2.16%	1.51%	-6.43%	28.90%
Wilderhill Clean Energy Index	58.54%	-16.93%	-10.36%	-22.12%	39.81%
MSCI World Index	27.43%	5.58%	-0.28%	8.19%	23.10%

CY = Calendar Year Expense Ratio: 1.98% (net); 2.74% (gross)

All return figures represent average annualized returns except for periods of one year or less, which are actual returns.

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

The Advisor has contractually agreed to reduce its fees and/or pay Fund expenses (excluding Acquired Fund Fees and Expenses, interest, taxes, dividends on short positions and extraordinary expenses) in order to limit the Fund's Total Annual Operating Expenses to 1.98% through June 30, 2019. To the extent that the Advisor waives its fees and/or absorbs expenses to satisfy this cap, it may recoup a portion or all of such amounts absorbed at any time within three fiscal years after the fiscal year in which such amounts were absorbed, subject to the 1.98% expense cap in place at the time recoupment is sought, which cannot exceed the expense cap at the time of the waiver. The expense limitation agreement may be terminated by the Board of the Fund at any time without penalty upon 60 days' notice.

Performance contribution

Top 5 performing stocks	**Q2 2018**	**Bottom 5 performing stocks**	**Q2 2018**
TPI Composites Inc	30.24%	Cosan SA Industria e Comercio	-27.81%
China Datang Corp Renewable Power Co Ltd	25.68%	Daqo New Energy Corp	-27.40%
Good Energy Group PLC	19.88%	Boer Power Holdings Ltd	-27.06%
Kingspan Group PLC	18.16%	First Solar Inc	-25.81%
Nibe Industrier AB	13.09%	Canadian Solar Inc	-24.77%

Sector review

Solar

The solar manufacturing stocks had a disappointing quarter, mainly due to China's decision to grant no more building permissions for solar installations under the 2018 tariffs. This has reduced analysts' global solar demand forecasts for 2018 by up to 20%. The supply-demand imbalance created means that module prices are forecast to reach prices of 23-26 US cents per W by the end of 2018. While this creates a short-term headwind for the solar industry, over the next 3 years, we expect global solar demand to increase substantially as a result of the low module prices. Higher volumes and managed costs should increase earnings for the biggest, strongest solar manufacturers.

All solar holdings were weak over the quarter, but we believe the portfolio is positioned holding the companies in the sector that are best placed to recover as prices stabilize and volumes increase. Xinyi Solar and China Singyes both have large development arms in China and should be well positioned to benefit from the potential for unsubsidized solar in China. The Chinese solar module manufacturers (Jinkosolar and Canadian Solar) are among the lowest cost manufacturers in the industry with relatively strong balance sheets and meaningful sales channels outside of China. Sunpower and First Solar were also hit by the changes on expectations of lower module pricing. Both have highly differentiated offerings which should enable them to protect margins better than the more commoditized manufacturers.

Wind

TPI Composites, a contract wind blade manufacturer, had a strong quarter, exceeding analyst expectation for sales and earnings. The company attributed its increased productivity to decreased manufacturing cycle times and effective cost reduction efforts.

Despite increased competition in both the onshore and offshore wind sector, Vestas as the market leader, is well placed to protect its margins and benefits from a strong balance sheet and large order book and was flat over the quarter.

The wind plant owners and operators in China had a mixed quarter. Weakness in Asian markets was reflected in a pullback in stock prices. On a positive note, curtailment continues to abate and the changes to the subsidy regime in China indicate a commitment to catching up on historic payments that are outstanding to renewable generators in China which should allow for more growth expenditure.

Our holding in Mytrah Energy Ltd contributed over 1% of performance due to management taking the company private.

Efficiency

Building efficiency companies Kingspan (insulation) and Nibe Industrier (heat pumps) had a positive quarter. Kingspan posted reassuring results, showing growth in its insulation panels division, while Nibe had a strong start to the year with sales and profit rising more than 11%. Johnson Controls International continued to disappoint while going through a restructuring year following a spin off and a merger.

Prysmian, an Italian-based global cables manufacturer and installer, is absorbing the acquisition of its rival General Cable and has reduced its fiscal year guidance due to potential delays in cable projects and in achieving synergies from the merger, with analysts worrying about short-term earnings visibility.

LG Chem results for the first quarter undershot expectations, mainly due to increased raw materials costs and foreign exchange rates. Nevertheless, LG Chem's battery division achieved a small profit, fulfilling the company's prediction that the division would break even or be profitable by the end of 2018.

Schneider Electric remained flat over the quarter due to its Infrastructure Division announcing a net loss. The company is still well positioned to benefit from increasing use of power automation and 'smart' systems. Boer Power continues to suffer from restructuring and now liquidity issues and is not being rebalanced in the portfolio.

Hydro

Our only hydro holding, Iniziative Bresciane, had a positive run with new commissioned plants producing electricity.

Geothermal

Ormat, a developer and owner of geothermal plants, has suffered some setbacks. On May 3rd, the Kiluaea volcano in Hawaii erupted close to Ormat's Puna facilities. The impact of the eruption is ongoing although the Puna facility only accounts for a small percentage of Ormat's overall business. Ormat recently acquired US Geothermal, a geothermal power plant owner and operator. The company has a history of executing and managing growth well, giving us confidence in their performance going forward.

Biofuel

The fund's only holding in the biofuels sector, Cosan, is a Brazilian biofuel distributor. The company share price closely followed that of the Brazilian stock market index over the quarter. Brazil is suffering from political upheaval and a stagnating economy, impacting companies' earnings and sentiment. Cosan was further hit by a truckers' strike in Brazil that temporarily lowered demand.

Outlook

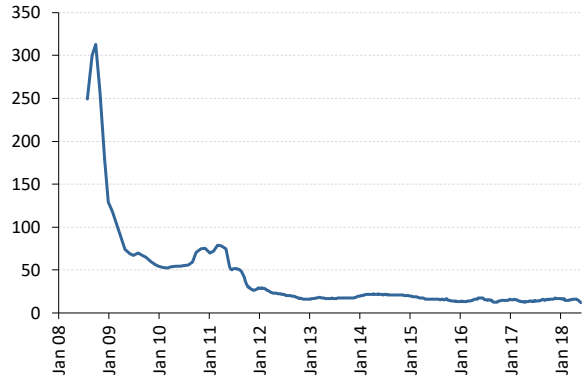
Solar PV

Following China's change in its solar subsidy regime and the resultant fall in solar module prices, the demand for solar installations is likely to continue to increase year on year. The short-term shock of reduced Chinese demand means that companies will accelerate the learning curve to be able to profit with module prices between 23 and 26 US cents per W. This is less than half the price for which modules were selling in 2015. The solar market has, once again, fast-forwarded two or three years in terms of forecast pricing. At such cheap equipment prices, the number of countries is dwindling in which solar is not economically attractive compared to wholesale power prices, let alone retail power prices. We believe we are now at the point where demand will be mainly driven by installations in unsubsidized

countries (or even countries that tax solar installations with import tariffs like the US). Regulatory change that lower module prices further is less likely with so few countries relying on subsidies and this should lead to a more sustainable economic environment and better visibility for solar company earnings.

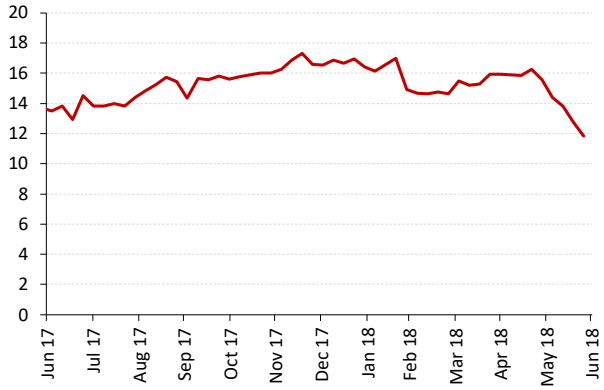
In the short term, we expect the module and silicon prices to decrease rapidly. Silicon prices will fall but will be constrained by the marginal cost of production which we think is at about $11 per kg. Many higher cost silicon plants are no longer operating at current low prices and there is limited new capacity under construction.

Long-term Silicon price ($/kg)



Source: Bloomberg

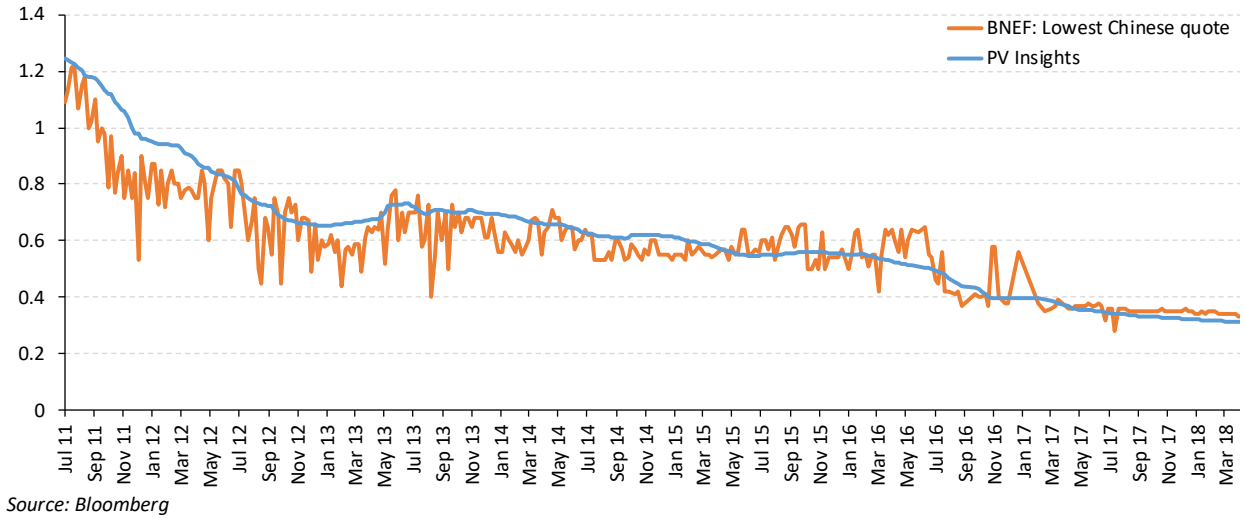
TTM Silicon price ($/kg)



Source: Bloomberg

Module prices decreased significantly in the second quarter of 2018, as the news from China impacted the market. We expect the module price to stabilize as volume picks up over the next two years.

Module price ($/W)



Source: Bloomberg

	2014	2015	2016	2017	2018e	2019e	2020e
World	46	56	75	98	94	120	134
Asia	26	35	48	73	59	66	70
North America & Caribbean	7	8	15	11	11	18	20
EU Europe	7	8	6	5	7	14	12
Non-EU Europe	1	1	2	3	4	4	6
Oceania	1	1	1	2	4	4	6
Central & South America	1	1	2	2	4	4	5
Middle East & North Africa	1	1	1	1	3	8	11
Africa (excl. North Africa)	1	0	1	0	1	3	4

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

Global solar demand forecasts have been revised downwards by analysts in the short term in response to demand from China decreasing in 2018. China's long-term 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 additional unaddressed market to support continued growth. With these cheaper module prices, we expect an increased number of unsubsidized solar plants – both on rooftops and utility scale projects.

The second-largest market for solar is the United States. Following the decision of the US International Trade commission to place tariffs on imported solar goods, the solar market is set to decline slightly in 2018. However, with the unexpected decrease in solar pricing, projects that were previously shelved for the future may be built and bolster short to medium term global demand. It is worth noting that the US solar market is much smaller than the Chinese solar market. We continue to view the US solar sector as a sentiment driver for many solar-related stocks. The import tariffs create a market where any reduction in those tariffs will accelerate demand growth significantly Demand growth is likely to exceed expectations as the fall in module prices has negated the impact of Trumps import tariffs.

India is now the third-largest solar market. India had 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 goal being reached may be low, but the ambition is there. The country installed 4.4GW in 2016 and is expected to have installed almost double that in 2017 (c.8GW). 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 stalemate between importers of solar goods and trade officials has been partially resolved, with modules no longer classified as 'electrical motors and generators', a classification which draws a 7.5% tax. Again, with the cheaper than expected modules the incremental 7.5% will hardly be felt.

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 as subsidies were introduced and then removed when too successful, solar demand is returning to growth. 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 unsubsidized

solar – both rooftop and ground-mounted. There have been unsubsidized projects announced in most of the Mediterranean countries and are spreading to northern Europe.

Southeast Asian countries are considering low-cost policy structures, i.e. auctions or feed-in tariffs capped at local generation costs. These will support high volume growth. We view this region as having a lot of potential for solar installations.

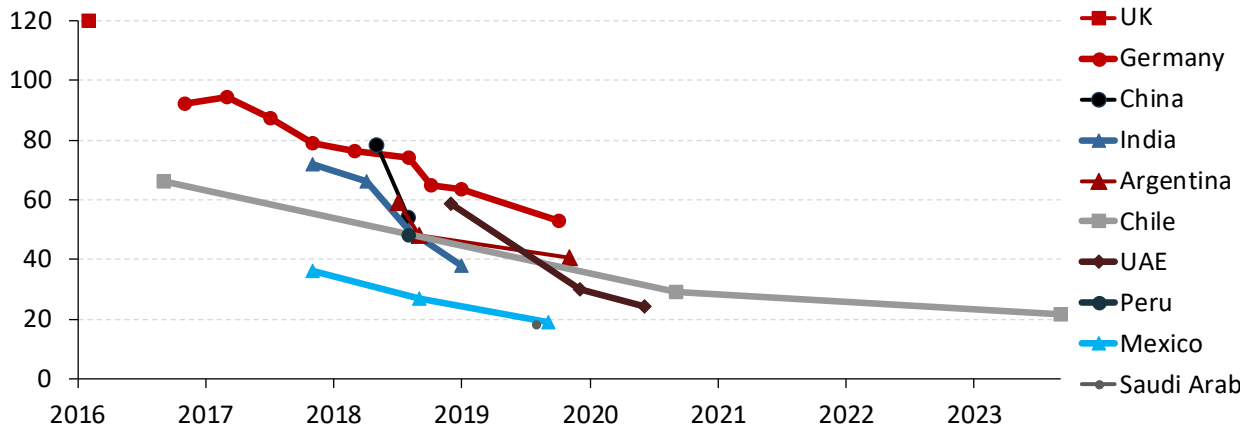
The Middle East has disappointed many in the solar sector by announcing tenders and projects which ultimately did not result in as much installation as anticipated. However, projects are now starting to move from the drawing board to rooftops (or the desert floor) and the abundant insolation cannot be ignored as a natural resource advantage for the region.

Solar LCOE developments

The records set in Q4 2017 continue to 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 ever recorded in Latin America was in Mexico's most recent auction, coming in at $19.2/MWh. The lowest ever recorded 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. The Chilean bid of $21.5/MWh is regarding a project that need not be commissioned until 2024. Falling module prices increase the likelihood that these projects will be delivered, and we expect to see further records set over the coming 12 months reflecting the new lower pricing potential for solar.

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 tariff level that was awaiting 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 Atkinson Asset Management

Wind

	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	4	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.
Forecasts are inherently limited and cannot be relied upon.

China is the largest source of wind power demand and annual level of installations have reached around 20GW each year which forms the majority of Asian demand although analysts are forecasting a move upwards to 33 GW in 2019. Europe is 20% of the global wind market, with demand between 9 and 12 GW per year. North America comprises a similarly sized market, with good demand visibility through to 2020 as Production Tax Credits provide continuing albeit falling support. Although some projects in the United States may have been delayed as developers waited to see which version of the tax reform bill would be passed, there has not been meaningful demand destruction. Whether the tax reform bill will decrease appetite for tax credits from wind projects is yet to be seen, but they are just one way to finance a renewables project.

India has an ambitious target of 60GW of wind installations by 2022, but there is a lack of clarity as to how this target would be reached. India has seen several auctions and record-low wind prices this year, which should be good for overall demand. Latin America, like India, has been particularly encouraging showing the world how low wind power pricing can go and is a meaningful extra source of c.4GW of demand per annum. As economic competitiveness of wind convinces more countries' governments to put accommodating policies in place that will complement increasing levels of unsubsidized wind in developed markets.

Offshore wind updates

Offshore wind demand continues to surprise positively, particularly in Asia. Taiwan allocated a total of 5.5GW in two separate processes, one in April and one in June. Taiwan is looking to phase out nuclear power and has targeted 5.5GW of offshore wind turbines to be built by 2025.

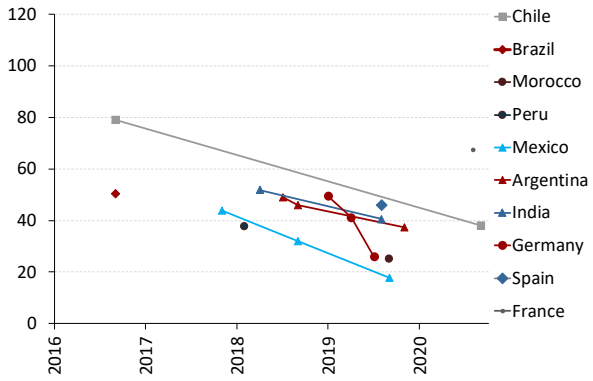
The first round allocated 3.8GW of capacity to developers in April. These projects would receive the high feed-in tariff of $199/MWh. This alone would make Taiwan the second country (after China) outside of Europe with over 1GW of offshore wind capacity. The winners of the tender were a mix of local players, like Taiwan Power and China Steel Corp, but European names took the lion's share of capacity. Denmark's Copenhagen Infrastructure Partners and Ørsted each won 900MW while Germany's WPD won 1,073MW. The likely idea behind these feed-in tariff projects is to create a

supply chain for the Taiwanese offshore wind sector. For European players, the feed-in tariff offered is over double what offshore wind generation will receive in Europe following the most recent auctions. However, there is not a mature supply chain in Taiwan. The feed-in tariff likely reflects this.

The second round for the remaining 1.7GW was more interesting, as developers were submitting bids for the electricity price they would receive for separate projects. Quite surprisingly, the winning bids were in line with European auction prices. The winning bids ranged from $72/MWh to $84/MWh for commissioning in 2025. The winners of this auction included Ørsted with 920MW and a consortium of Northland Power, Yushan energy and Mitsui with 744MW. The developers clearly assume that an offshore wind supply chain will be established on time following the first 3.8GW of installations.

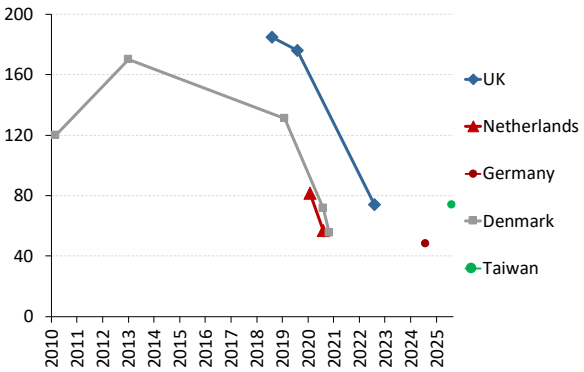
Wind LCOE developments

Onshore wind bids by delivery date ($/MWh)



Source: Bloomberg, Guinness Atkinson Asset Management

Offshore wind bids by delivery date ($/MWh)



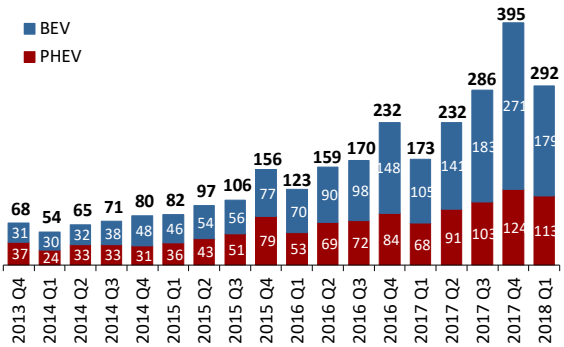
Source: UK government, Government of the Netherlands, Windpower Monthly, Vattenfall, Guinness Atkinson Asset Management

Note: Projects have not been standardized 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 like solar, 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 and wind and solar are beginning to be the dominant force at auctions globally.

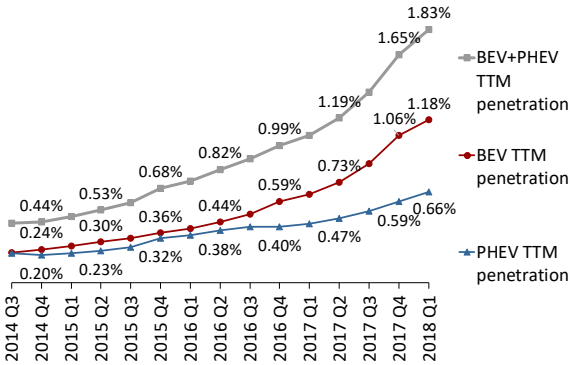
Electric vehicles

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 means 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 continue to increase year on year. We expect Q2 2017 will be another record quarter for plug-in electric vehicle sales given seasonal trends (our data sources lag by one quarter). The CAGR since Q1 2014 until Q1 2018 is 52.7% and the compound quarterly growth rate for the same period stands at 11.2%.

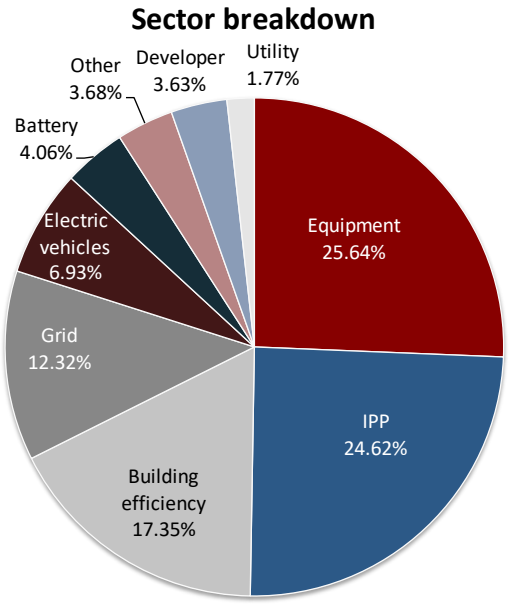
The trailing 12 months market share of plug-in electric vehicles has passed 1% in most developed markets and in China, closing in on the 2% mark. The growth rate of fully-electric vehicles, ie battery electric vehicles (BEVs), has been greater than that of plug-in hybrid electric vehicles (PHEVs), which have smaller batteries with a shorter range and still have a combustion engine for when the battery is depleted. More BEVs than PHEVs are being sold today, due to China favoring BEVs. Germany is on par with Norway, meaning the largest European country might soon be the third largest EV market after China and the US.

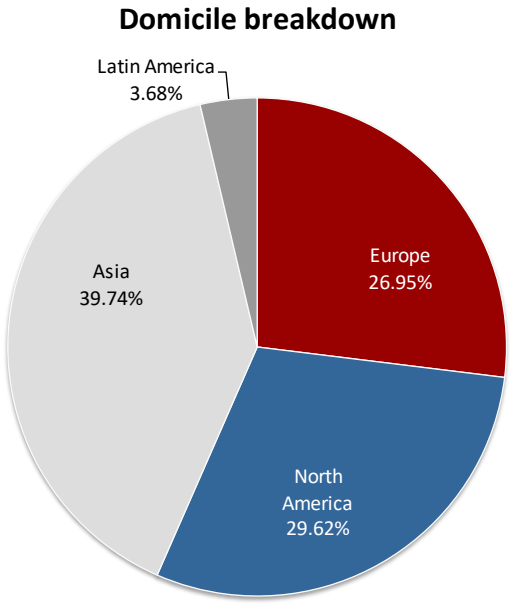
Car manufacturers have introduced more fully electric models to market in 2017 than any year before and all the main vehicle manufacturers are now developing electric vehicle ranges to compliment or even replace their existing range of internal combustion engine vehicles. Tesla's model 3 continues to be rolled out at a slower rate than hoped, but this has not stopped other car manufacturers from bringing out new versions of older models, like the new Nissan Leaf and Renault Zoe with longer electric range.

Portfolio changes

There were no active changes to the portfolio. One holding, Mytrah Energy, was bought out by its chairman in Q2 2018. The offered price was at a 64% premium to the closing price at the time of announcement. We have yet to replace the holding.

Fund holdings





Sector holdings are subject to change

Top 10 holdings as of 7/31/18	% of assets
1. Acuity Brands Inc	4.92%
2. TPI Composites Inc	4.81%
3. Nibe Industrier AB - B Shares	4.36%
4. LG Chem Ltd	4.26%
5. Johnson Controls International PLC	4.23%
6. Ormat Technologies Inc	4.13%
7. China Longyuan Power Group Corp Ltd - H Shares	4.11%
8. China Suntien Green Energy Corp Ltd - H Shares	3.93%
9. Kingspan Group PLC	3.93%
10. Vestas Wind Systems A/S	3.80%

Fund holdings are subject to change

Edward Guinness *August 2018*

Commentary for our views on global energy and Asia markets is available on our website. Please click here to view.

Total returns reflect a fee waiver in effect and in the absence of this waiver, the total returns would be lower.

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

This information is authorized for use when preceded or accompanied by a prospectus for the Guinness Atkinson Alternative Energy Fund. The prospectus contains more complete information, including investment objectives, risks, charges and expenses related to an ongoing investment in The Fund. Please read the prospectus carefully before investing.

The Fund invests in foreign securities which will involve greater volatility and political, economic and currency risks and difference in accounting methods. The risks are greater for investments in emerging markets. The Fund is non-diversified meaning its assets may be concentrated in fewer individual holdings than diversified funds. Therefore, the Fund is more exposed to individual stock volatility than diversified funds. The Fund also invests in smaller companies, which will involve additional risks such as limited liquidity and greater volatility. Current and future portfolio holdings are subject to risk. 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.

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

The WilderHill New Energy Global Innovation Index (NEX) is a modified dollar weighted index of publicly traded companies which are active in renewable and low-carbon energy, and which stand to benefit from responses to climate change and energy security concerns.

The WilderHill Clean Energy Index (ECO) is a modified equal dollar weighted index comprised of publicly traded companies whose businesses stand to benefit substantially from societal transition toward the use of cleaner energy and conservation.

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

One cannot invest directly in an index.

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