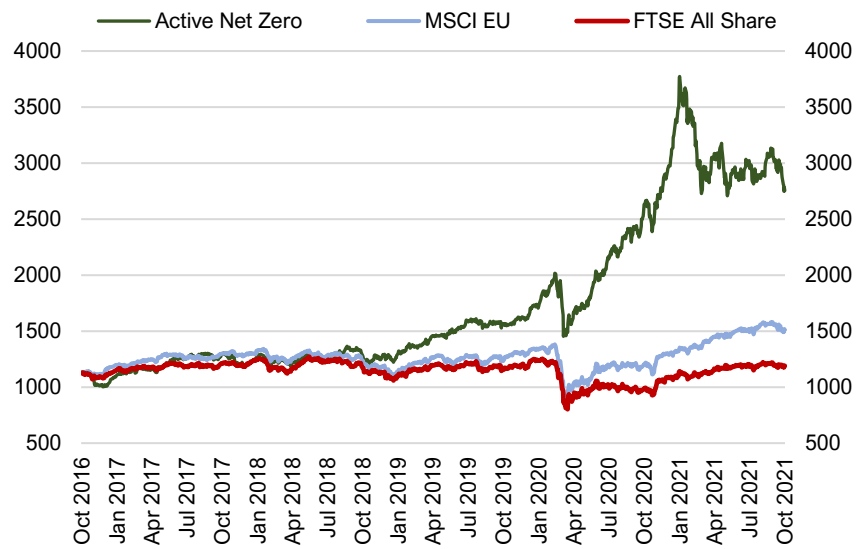
Active Net Zero Clean Energy Index

Active Net Zero Clean Energy Index – 5 Year Performance



Source: FactSet, Longspur Radnor Indices

Longspur Research and Radnor Capital Partners have launched the Active Net Zero Clean Energy Index to allow investors to measure the performance of companies actively enabling climate solutions.

The key emphasis is on the word "active". This pan-European index eliminates greenwashing by penalising fossil fuel activities and focuses on actual achievement and positive contribution, rather than promises for the future. Our proprietary selection methodology is systematic, rules based and quantifiable. The methodology is aligned with the EU Taxonomy, the IPCC 1.5°C Report pathways, and the IEA Roadmap.

In this note, we examine the Active Net Zero Clean Energy Index performance as well as breaking down the Active Net Zero Clean Energy Universe into its individual components. We also examine the growth of the Climate & Energy themed fund universe and explore what exposure these funds actually offer to investors.

- **Headline performance**. The Active Net Zero Clean Energy Index has materially outperformed broader benchmarks over the last 5 and 2 years.
- **Moving parts**. Beneath the headlines there are a number of moving parts. The core **Renewables** sub-index has been a steady performer and **Bioenergy** has continued to gain ground. **Hydrogen** has given up a portion of recent extraordinary gains as expectations have become more realistic. Both **Efficiency** and **Storage** have seen some recent weakness as supply chain issues have rippled across the broader market.
- **Where has the ESG money gone?** In the second half of this note we explore the exposure offered by the fast-growing Climate & Energy themed funds sector. The lack of alignment between these funds and the Active Net Zero Clean Energy Universe is notable.

Contact us for more details. To learn more or to apply for an index data or product licence please speak to your regular **Radnor** or **Longspur** contacts. Alternatively visit us at www.activenetzero.com.

Longspur Radnor Indices Limited

A joint venture between Longspur Capital and Radnor Capital Partners

20th October 2021

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Active Net Zero Clean Energy Index – An Introduction

Longspur Capital and Radnor Capital Partners created the Active Net Zero Clean Energy Index for two reasons. Firstly, in response to increased demand from investors for exposure to clean energy as we move towards a net zero world. Secondly, to better understand how efficiently markets are allocating capital in support of the energy transition. This carefully constructed and highly selective index provides the basis for informed investment decisions.

Whilst we have seen several ESG indices and 'green' performance indicators published in recent years, we believe there is a real opportunity to develop an index with a **clear selection methodology based around positive contribution, rather than passive compliance**. Put simply, we believe the constituents of this index are accelerating the drive towards a net zero future.

Longspur Radnor Indices Limited defines an Active Net Zero company as one which is actively helping others in the transition to a net zero world, not simply achieving net zero themselves. This distinction is encapsulated throughout the index methodology in the distinction between what are 'Active' net zero activities and what are considered 'Passive' net zero activities based on a company's operations. **We outline our proprietary research methodology later in this note.**

Whilst passive activities are welcomed and encouraged, this index is designed to isolate the performance of companies which are 'actively' contributing to global net zero.

Longspur Radnor Indices Limited is a joint venture between Longspur Capital and Radnor Capital Partners and provides two tools to help investors target active net zero.

1. The **Active Net Zero Clean Energy Index** is a published (Ticker **ANZNRG**), investable benchmark index[1] based on the top 50 European listed companies who have passed our stringent Active Net Zero eligibility criteria as well as the liquidity screening thresholds based on market cap and trading volumes. This index is also UCITS compliant with a single stock weighting limit of 9%.

2. The **Active Net Zero Clean Energy Universe**, is a research index[2] including all listed European companies who have passed the Active Net Zero eligibility criteria based on the revenue methodology with no limit to the number of companies included and with no exclusions based on liquidity thresholds or market capitalization size.

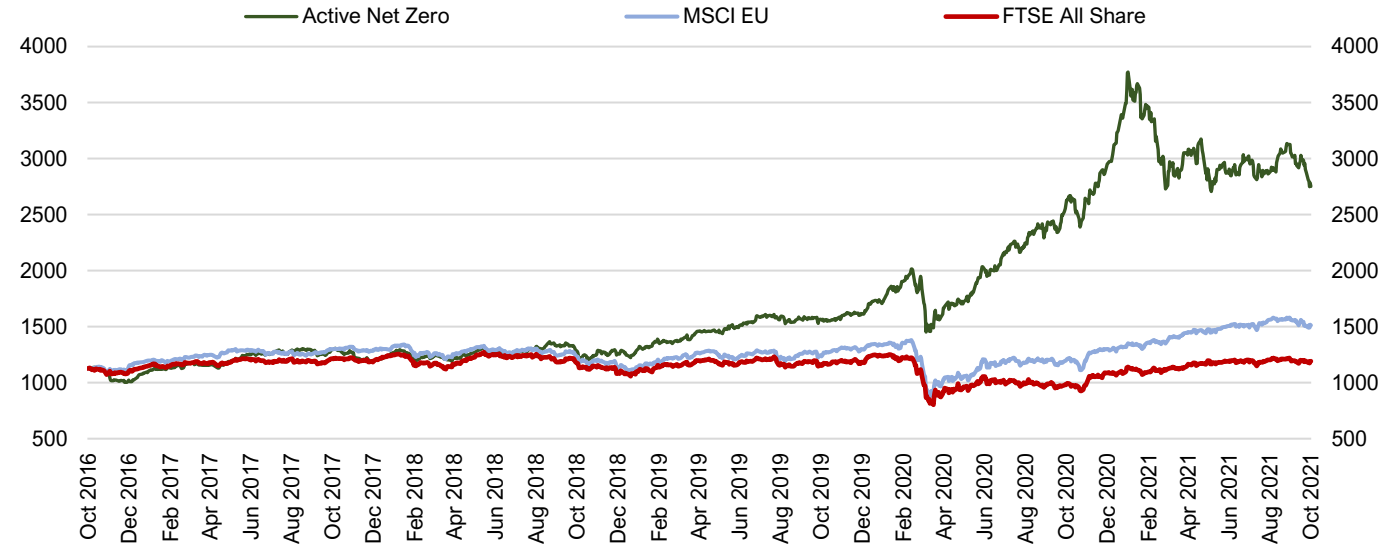
The purpose of launching these two indices side by side is so they can be used as both a standalone research index and as part of an ESG investment strategy utilising the same systematic, rules-based eligibility methodology.

[1] *A published non-significant Benchmark for evaluating fund performance within the scope of UK BMR/ESMA regulations. Elston Indices is the Benchmark Administrator for the Active Net Zero Clean Energy Index. Longspur Radnor Indices is a Benchmark Contributor to the Active Net Zero Clean Energy Index. For more information, see Notices.*
[2] *For research and illustrative purposes only, not a Benchmark as per UK BMR/ESMA definitions.*

Active Net Zero Clean Energy Index – Performance Review

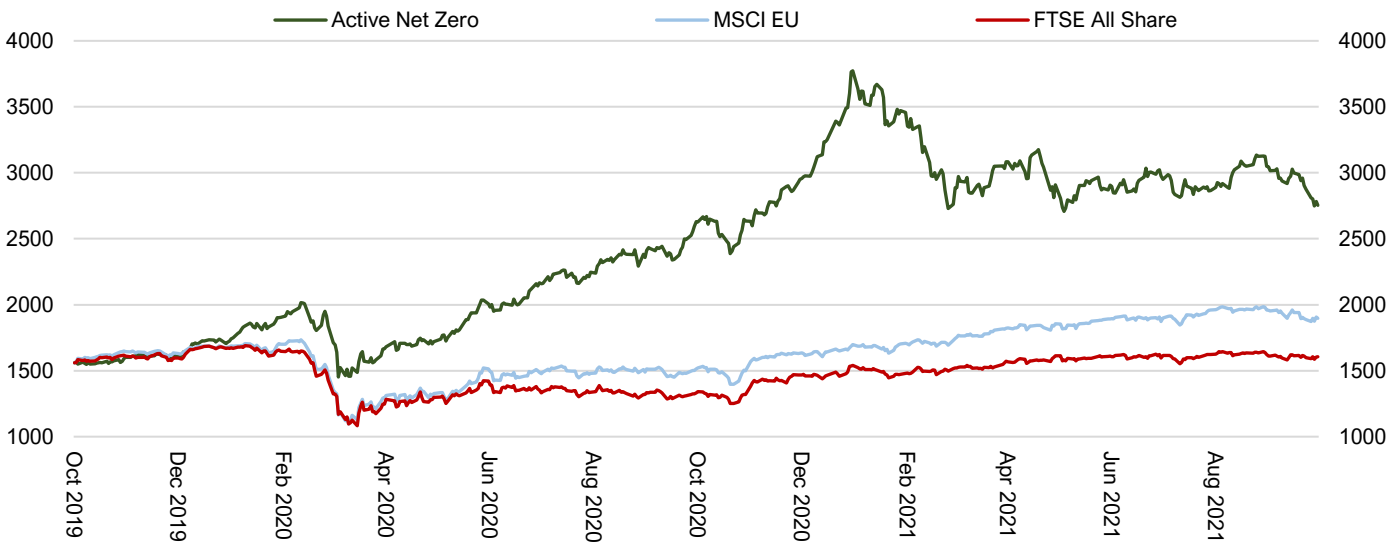
In Figure 2 and 3 below we show the **5 Year** and **2 Year** performance of the headline Active Net Zero Clean Energy Index relative to both the FTSE All Share and the MSCI Europe (ex UK) benchmarks. Both the FTSE and the MSCI indices have been rebased to the Active Net Zero Clean Energy Index.

Figure 2: Active Net Zero Clean Energy Index vs FTSE All Share and MSCI EU indices – 5 Years



Source: FactSet, Longspur Radnor Indices

Figure 3: Active Net Zero Clean Energy Index vs FTSE All Share and MSCI EU indices – 2 Years



Source: FactSet, Longspur Radnor Indices

The headline Active Net Zero Clean Energy Index is based on the broader Active Net Zero Clean Energy Universe and represents the 50 largest and most liquid constituents of this broader Universe. The proprietary research methodology underpinning our approach identifies those pan European listed companies **actively** enabling the net zero energy transition. All companies that meet our proprietary criteria are included within the Universe.

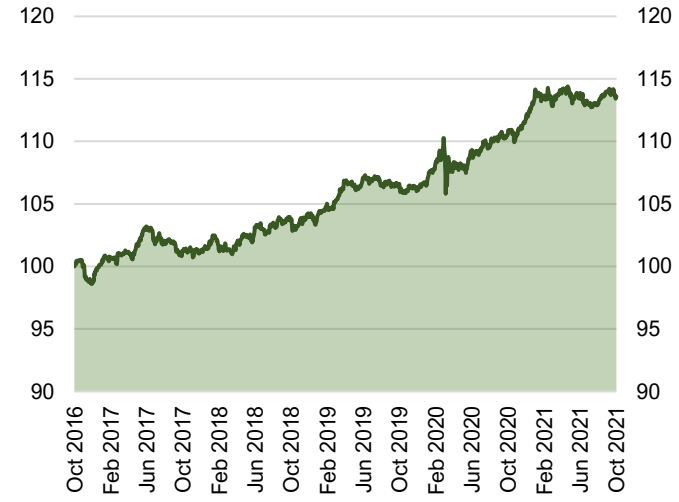
In the Figures below, we show the 5 Year and 2 Year performance of the sub sectors within the Active Net Zero Clean Energy Universe. Although we maintain these sub sectors as custom indices and calculate them on a similar basis (market cap weighted but subject to a single stock capped weight of 9%), these are not deemed to be benchmark indices and are not maintained by an approved benchmark administrator (unlike the Active Net Zero Clean Energy Index).

Renewables - 73 companies, 76% of Universe market cap

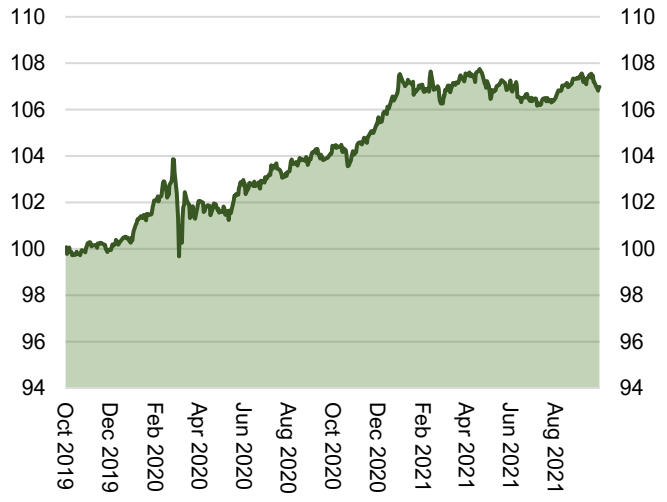
This sub index captures those companies whose predominant activity is the development and deployment of wind, solar, hydroelectric, geothermal and tidal power generation.

- Companies in the wind sector can be involved in the manufacturing of turbines, innovators of turbine technology, and developers of generation projects in their own right.
- Hydroelectric generation is eligible as are other small-scale technologies that can be more reliable than wind and solar in adverse conditions. Geothermal power uses natural heat below the earth's surface to generate electricity and whilst this form of renewable generation is only significant in areas where this form of natural heat is readily available, it forms an important part of the energy mix in a net zero world.
- We **exclude** from this Universe the UK listed renewable infrastructure investment trust sector as their returns profile (income vehicles primarily) are distinct from the operating companies that make up the rest of the Universe.

Renewables – 5 Year Performance



Renewables – 2 Year Performance



Source: FactSet, Longspur Radnor Indices

Given the dominance of renewable energy generators within this sub-index it is not surprising to see a steady performance, well insulated from more general market volatility.

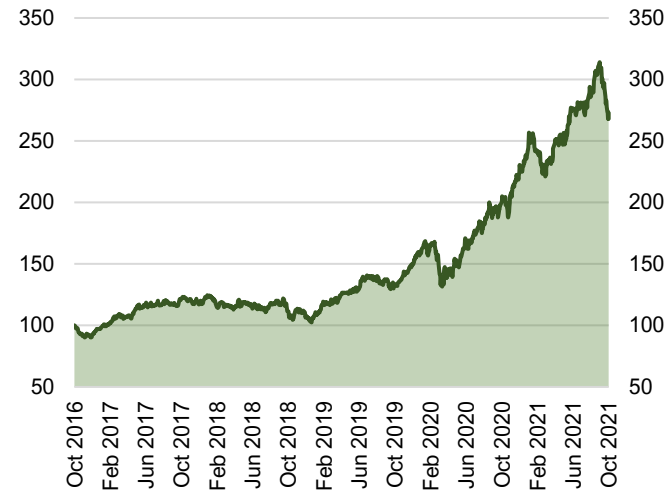
- Notable positive price movements over the last year have been **Verbund AG** (+60%), **Acciona SA** (+37%), **EDP Renovaveis** (+23%) and **Falck Renewables SpA** (+16%)

- Notable negative price movements over the last year have been **Neoen SA** (-32%), **Siemens Gamesa Renewable Energy SA** (-27%) and **Orsted** (-20%)

Efficiency - 17 companies, 13% of Universe market cap

Companies are considered eligible in this sector if through developing technologies they are able to improve efficiency of both generation and distribution of electricity. Relevant technologies can range from reducing losses on the grid, or reducing use of energy in homes, retail or commercial / industrial buildings.

Efficiency – 5 Year Performance



Efficiency – 2 Year Performance

Source: FactSet, Longspur Radnor Indices

The Efficiency sub-index has been a relatively steady performer and is perhaps less "blue sky" than some of the other sub-indices. The constituent companies are more mature with established business models. By and large, the positive share price performance has been driven more by revenue and profit progression rather than pure sentiment. More recently, the sub-index has not been immune from supply chain concerns that have impacted the broader market.

- Over the last 5 years the Efficiency sub-index has delivered a **+125%** price return, with a **+70%** return over the last 2 years.

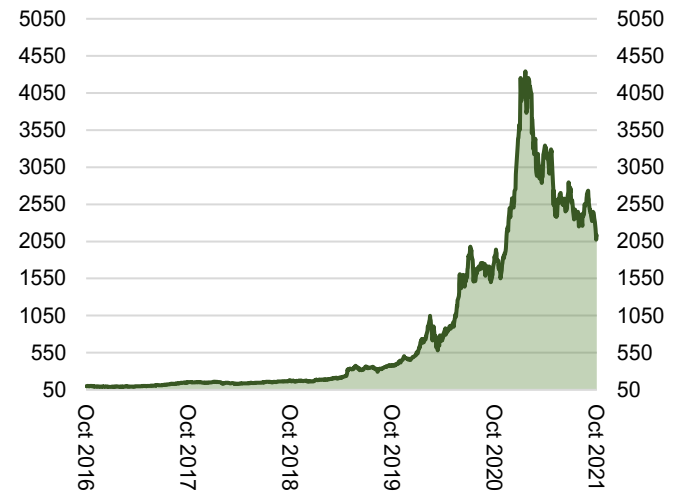
- Notable positive performers over the last year have been **NIBE Industrier AB** (+71%), **Alfen** (+34%) and **Smart Metering Systems PLC**(+34%)

- Notable detractors over the last year have been **Signify NV** (+11%) and **Dialight PLC** (+15%)

Hydrogen - 16 companies, 5% of Universe market cap

There is no doubt that hydrogen will play a significant role in the energy transition. However, there is much debate around the various flavours of hydrogen. A company is eligible for inclusion in the Active Net Zero Clean Energy Universe if it is involved in the production and storage of "green" or "blue" hydrogen, as well as hydrogen and fuel cell technologies or alternative fuel vehicles using hydrogen.

Hydrogen – 5 Year Performance



Hydrogen – 2 Year Performance

Source: FactSet, Longspur Radnor Indices

Of all the sub sectors within the Active Net Zero Clean Energy Universe, hydrogen has seen the most pronounced volatility.

- Since early 2019 through to the January 2021 peak, the hydrogen sub sector delivered a **+2253%** price return as the prominence of hydrogen as a breakthrough energy transition technology grew off the back of vocal policy commitments from a number of governments. Unsurprisingly for what is still a nascent technology, many of the companies involved in this area are still loss making and, in some cases, pre-revenue. Valuations are somewhat more subjective than in other areas where fully commercialised business models are more established.

- Since the January 2021 peak, the hydrogen sub-index has fallen by **-51%** reflecting a degree of profit taking and a number of muted trading statements from companies as Covid related issues impacted shorter term revenues.

- Despite the pull back witnessed so far in 2021, the Hydrogen sub index has still delivered a **+463%** return over the last two years

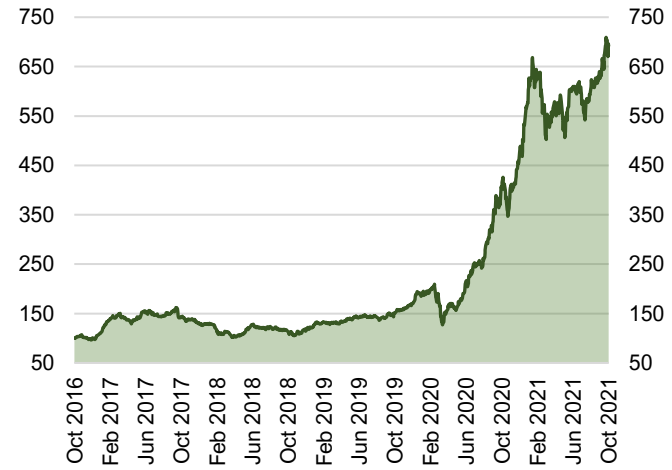
- Notable positive contributors over the last year have been **AFC Energy PLC** (+148%), **Ceres Power PLC** (+36%) and **ITM Power PLC** (+30%)

- Notable detractors over the last year have been **Proton Motor Power Systems PLC** (-65%), **McPhy Energy SA** (-45%) and **Powercell Sweden AB** (-41%).

Bioenergy - 15 companies, 4% of Universe market cap

Eligible companies are involved in biomass through the process of using plant or animal material as fuel to produce electricity, heat or biofuels. Under the Index methodology, eligible companies are those that supply the biomass, are involved in engineering the technology and or equipment or are involved in the production or consumption of biomass as fuel for electricity, heat or biofuel. Areas such as sustainable aviation fuel and the combination with carbon capture technologies are also features within this sub index.

Bioenergy – 5 Year Performance



Bioenergy – 2 Year Performance

Source: FactSet, Longspur Radnor Indices

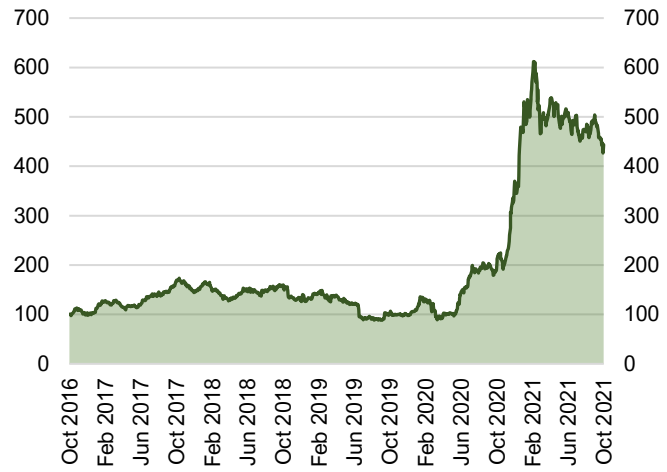
Bioenergy has been one of the stronger performing sub-indices reflecting the growing contribution of biomass power generation into the overall energy mix and the growing prominence of biofuels within specific industry applications (ie sustainable aviation fuel). The recovery in the oil price has also had a positive effect by reducing the competitive price differential.

- Over the last 5 years Bioenergy has delivered a +592% price return and a still impressive +357% price return over the last two years.
- Price performance has remained positive in 2021 to date with the February 2021 sell off now very much in the rear view mirror. Year to date, the sub-index has delivered a +22% price return.
- Notable positive contributors over the last year have been **Aker Carbon Capture ASA** (+208%), **VERBIO AG** (+172%) and **Drax Group PLC** (+78%)
- Notable detractors over the last year have been **Quantafuel ASA** (-57%) and **CropEnergies AG** (-16%).

Storage - 15 companies, 1% of Universe market cap

Due to the intermittency of renewables such as wind and solar, energy storage and battery technologies are crucial in the shift to net zero. Eligible companies in the energy storage sector are involved in the development of battery technology or other forms of energy storage, such as EV charging and the manufacturing of EVs.

Storage – 5 Year Performance



Storage – 2 Year Performance

Source: FactSet, Longspur Radnor Indices

The Storage sub-index bears some similarities to the Hydrogen sub-index in terms of overall price volatility. It is also a technology led sector where many (but not all) of the constituents are IP led technology businesses that are some distance away from full commercialisation of their technologies.

This is also a sector where there has been a number of investment trust IPOs in London where the battery assets are being owned for their income characteristics. Similarly to the Renewables sub-index we have **excluded** these close end vehicles from our Universe as they are not run as operating companies.

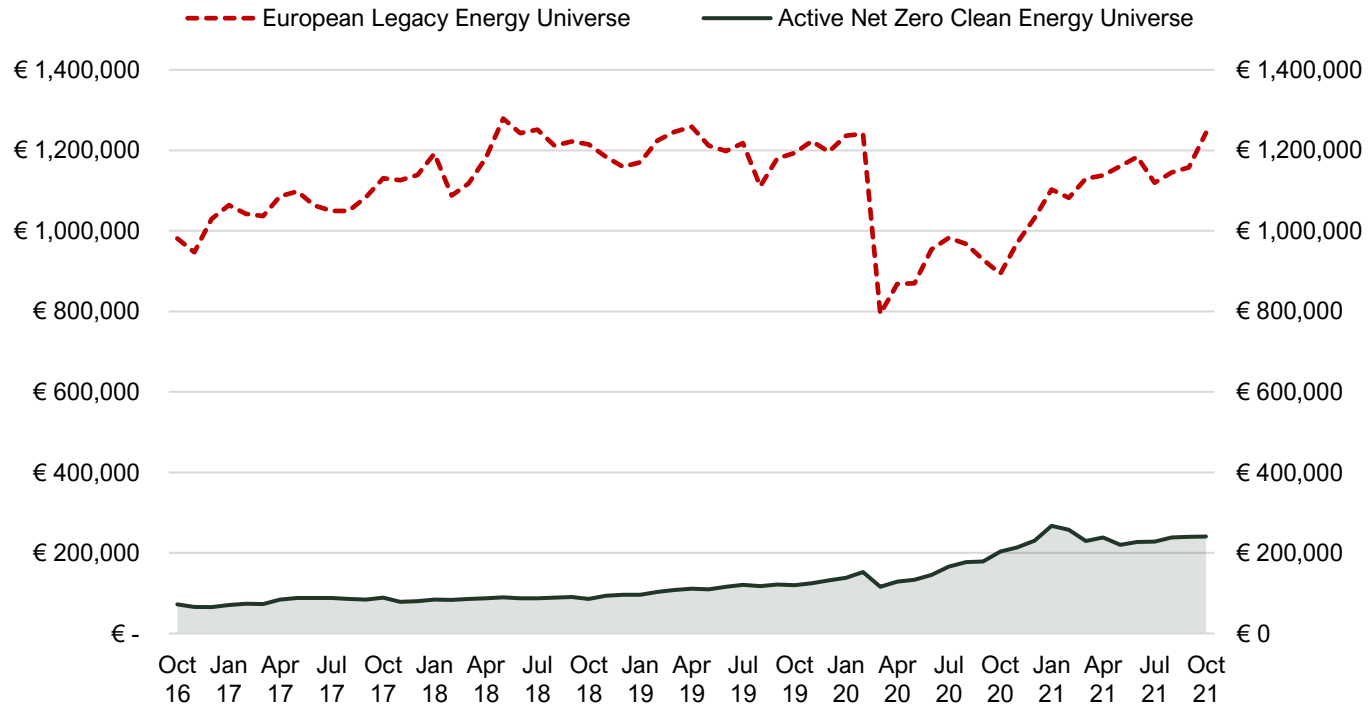
- Notable positive contributors over the last year have been **Zaptec AS** (+364%), **Fastned BV** (+238%) and **NHOA SA** (+123%)

- Notable detractors over the last year have been **Inzile AB** (-62%), **Invinity Energy Systems PLC** (-25%) and **SaltX Technology Holdings AB** (-25%).

Where has all the ESG money gone?

In Figure 4 below we show the aggregate market cap (in Euros) of the Active Net Zero Clean Energy Universe versus the European Legacy Energy Universe over the last 5 years. Although a blunt measure it does demonstrate the gulf in capital scale between legacy carbon intensive companies (ie oil & gas and carbon dominant utilities) and those companies that are driving the net zero energy transition.

Figure 4: Active Net Zero Clean Energy Universe market cap vs European Legacy Energy Universe



Source: FactSet, Longspur Radnor Indices

- In market cap percentage growth terms, the Active Net Zero Clean Energy Universe has materially outperformed the Legacy Energy Universe. Since October 2016, the aggregate Active Net Zero Clean Energy market value has grown by **+233%** to €241 billion, compared to **+27%** for the Legacy Energy Universe.

- However, in absolute value terms the picture feels very different. Over the last 5 years:

  - The Legacy Energy Universe has added €262 billion of market value;

  - The Active Net Zero Clean Energy Universe has added €169 billion of market value.

In fact, the total market value growth for the Legacy Energy Universe over the last 5 years is greater than the total current market value of the Active Net Zero Clean Energy Universe in its entirety.

In our eyes, this suggests that the seismic shift of capital re-allocation that will, by common agreement, be required to drive the transition away from a carbon-based energy system has yet to really occur.

If this is the case, it does pose the rather more fundamental question: **where has all the ESG money gone?**

Top 30 European registered Climate & Energy Funds

There has been extensive commentary and coverage on the significant growth in the number and size of ESG badged funds, both active and passive, that have proliferated over the last three years. At a global level, recent research from Morningstar has suggested that total ESG AUM has now breached the $2 trillion barrier, more than tripling since 2018. However, more recently the tone of commentary has become increasingly questioning as the fund management industry has come under scrutiny for over liberal use of the ESG and sustainability theme when marketing funds.

We believe that "greenwashing" is likely to become an increasingly thorny issue for the fund management industry. As we explore in more detail below, one of the critical challenges facing fund managers is the fact that many of the technologies and business models that directly address the energy transition are either early stage or disruptive and do not offer enough immediate scale in terms of market capitalisation and liquidity to absorb this growth in capital. As we show below, this can have the effect of skewing portfolios in some surprising directions.

Not all ESG badged funds are specific to the energy transition, with many focusing more broadly on "responsible" or "sustainable" investment themes. However, the energy transition is one of the more visible investment themes that will be underpinning the capital markets for decades to come and it is therefore unsurprising that we have seen a growing number of funds that purport to align with the energy theme.

As part of our research ahead of launching the Active Net Zero Clean Energy Index, we examined the European funds landscape in detail to better understand the range of funds that are out there and what they actually owned.

We explore the detail of this research below but it would be safe to say that we impressed by the sheer number of funds seemingly focused on this critical area and the scale of AUM they represent. However, once we explored their portfolio composition, we were noted a clear **lack of alignment** to the Active Net Zero theme, especially from those funds that are actively managed.

The key headline data points are as follows:

- As of 30th September 2021, we had identified a total of **223** funds domiciled in Europe that are badged with the **climate / energy transition / zero carbon** theme.
- These **223** funds collectively account for **£80.3 billion** of AUM
- Of these **223** funds; **56** were identified as being Index / ETF funds accounting for **£29.4 billion** of AUM (or 37% of total AUM).

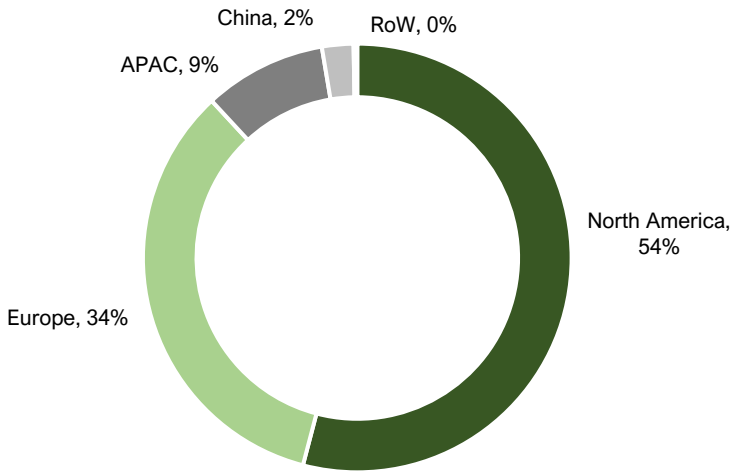
- The remaining **167** funds are deemed to be actively managed and account for **£50.9 billion** of AUM.

Once we had identified our target fund universe, we then examined the portfolio of the 30 largest actively managed funds in greater detail. Our key findings were as follows:

- The 30 largest actively managed Climate & Energy funds domiciled in Europe collectively manage **£33.8 billion** in AUM.
- The largest single fund manages **£8.6 billion** in AUM (Nordea Global Climate) while the 30th largest manages £300m in AUM.
- 12 of the Top 30 Climate & Energy funds manage in excess of £1 billion AUM.

Before looking at the individual companies populating these fund portfolios, we assessed their geographic exposure and the underlying market capitalisation of their holdings.

Figure 5: Top 30 Climate & Energy funds geographic exposure



Source: FactSet, Morningstar

We can see from Figure 5 above the extent to which these funds invest on a predominantly global basis and in particular the emphasis on **North America**, which accounts for **54%** of total exposure.

Europe, which is the focus of the Active Net Zero Clean Energy Universe, accounts for **34%** of total exposure, or **£11.2 billion** of AUM. In order to reflect this geographical disparity, when we looked at the alignment of these portfolios against the Active Net Zero Clean Energy Universe constituents, we do so solely on the basis of European element of their exposure.

The next area we explored was the exposure within these funds to differing market capitalisation levels. In Figures 6 and 7 below, we show the respective global market cap breakdown for the Top 30 Climate & Energy funds compared to the market cap breakdown for the Active Net Zero Clean Energy Universe.

Figure 6: Top 30 Climate & Energy funds – global market cap breakdown

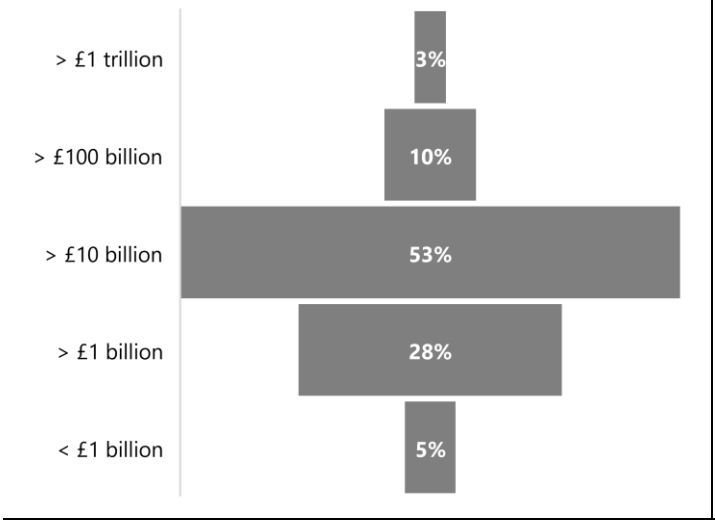
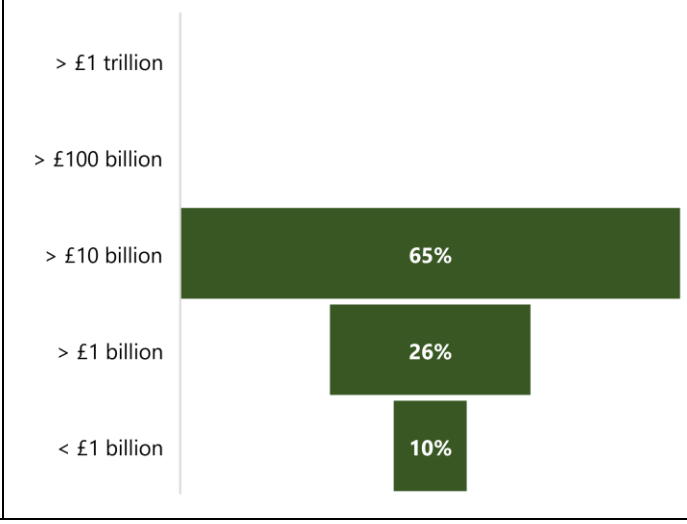


Figure 7: Active Net Zero Clean Energy Universe – global market cap breakdown



Source: FactSet, Longspur Radnor Indices

We can see from the above that the Active Net Zero Clean Energy Universe is more heavily weighted towards lower market capitalisation stocks than the composition of the Top 30 Climate & Energy funds. However, the difference is less stark than we might have first anticipated.

- **13%** of the total AUM of the Top 30 Climate & Energy funds are invested in stocks with market capitalisations in excess of £100 billion. There are no such stocks in the Active Net Zero Clean Energy Universe. As we explore later, those stocks in excess of £100 billion are predominantly North American and sit well outside the broad Climate & Energy theme.

- **81%** of the total AUM of the Top 30 Climate & Energy funds are invested in stocks with a market capitalisation between £1 billion and £100 billion. The equivalent figure for the Active Net Zero Clean Energy Universe is **90%**.

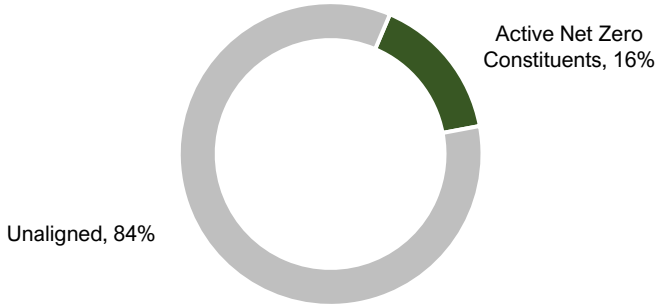
- There is a higher exposure to smaller cap stocks within the Active Net Zero Clean Energy Universe where **10%** of the total market capitalisation of the Universe is represented by sub £1 billion market cap companies. This compares to 5% exposure for the Top 30 Climate & Energy funds.

Overall, we were unsurprised to see the Active Net Zero Clean Energy Universe displaying a higher emphasis on sub £100 billion market companies. Hower, we were surprised to see that the overall exposure to £1 billion plus market companies between the two is as narrow as it is at 81% and 90% respectively.

This suggests to us that any material differences in composition between the two is less driven by scale and liquidity and is more likely to driven by stock identification and investment process.

In Figure 8 below, we show the proportion of the European element within the Top 30 Climate & Energy funds that are invested in constituents of the Active Net Zero Clean Energy Universe.

Figure 8: Top 30 Climate & Energy funds exposure to Active Net Zero Clean Energy Universe constituents



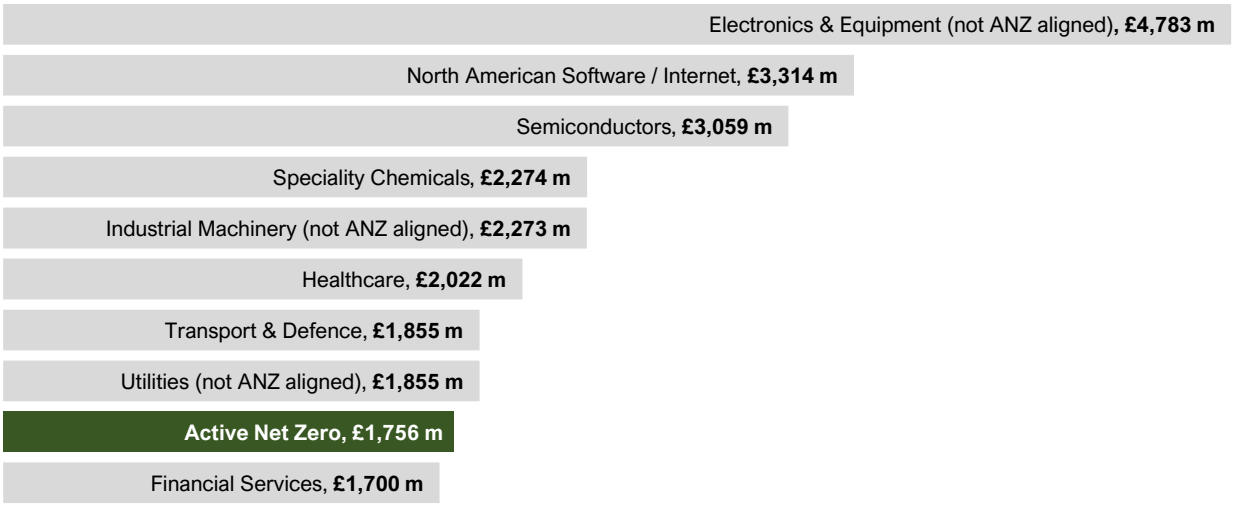
Source: FactSet, Morningstar

At a headline level, we were surprised to see how small a proportion of the European AUM was aligned with Active Net Zero Clean Energy Universe. We recognise that the funds in question are actively managed and in that sense, individual fund managers will have a high degree of autonomy in constructing their portfolios.

We also recognise that although our Active Net Zero classification methodology is robust and externally aligned, it does set a higher bar. The critical yardstick for us when assessing a company's contribution to the net zero energy transition is the distinction between **"compliance"** and **"enablement"**. We also place a high degree of prominence on those companies that are already delivering a net positive result rather than those who are promising a net positive result at some future point in time.

So, if we accept it would be unrealistic to expect 100% alignment, it would not be unreasonable to expect a reasonable degree of even partial alignment.

Figure 9: Largest global sector exposures within the Top 30 Climate & Energy funds



Source: FactSet, Longspur Radnor Indices

In Figure 9 above we show the largest global sector exposures within the Top 30 Climate & Energy funds.

- We can identify 8 sector groupings where aggregate exposure is larger than the £1.8 billion exposure these funds have to constituents of the Active Net Zero Clean Energy Universe.

- Of these sectors we highlight **North American Software / Internet** (£3.3 billion), **Semiconductors** (£3.1 billion), **Healthcare** (£2.0 billion) and **Transport & Defence** (£1.9 billion) for their degree of misalignment with even a broad definition of the Climate and Energy Transition theme.

The analysis in Figure 9 above is based on overall global exposure. In Figure 10 below, we go into more granular detail and assess the 25 largest aggregate individual European holdings across these funds.

Figure 10: Largest 25 European exposures within the Top 30 Climate & Energy funds

Company	Country	Market Cap, £m	Active Net Zero alignment	*Comments*
Vestas Wind Systems	Denmark	£30,315 m	Yes	
Infineon Technologies	Germany	£41,795 m	Partial	*Industrial power controls is 16% of group*
Schneider Electric	France	£70,232 m	Close	*Energy management dominates but efficiency split unclear*
ASML Holding	Netherlands	£251,150 m	No	
Air Liquide	France	£57,537 m	No	
Koninklijke DSM	Netherlands	£24,753 m	No	
National Grid	UK	£32,874 m	Partial	*Renewable energy revenues are not segmented*
Nibe Industrier	Sweden	£17,988 m	Yes	
Legrand	France	£21,324 m	Partial	*Some energy efficiency but nowhere near 50%*
Alstom	France	£10,504 m	No	
EDP Renovavies	Spain	£17,877 m	Yes	
Siemens Gamesa Renewables	Spain	£13,302 m	Yes	
Tomra Systems	Norway	£6,005 m	Partial	*Waste recycling is deemed a passive activity*
Kerry Group	Ireland	£17,770 m	No	
Iberdrola	Spain	£48,445 m	Partial	*ANZ aligned revenue is c.33% of group*
Prysmian	Italy	£7,128 m	No	
Umicore	Belgium	£10,430 m	Partial	*Energy & Surface revenue 32% of group*
Symrise	Germany	£13,460 m	No	
SSE	UK	£16,834 m	Partial	*Renewable energy share does not outweigh Thermal*
SIG Combibloc Group	Switzerland	£6,830 m	No	
Orsted	Denmark	£42,924 m	Yes	
GEA Group	Germany	£6,033 m	No	
Croda International	UK	£11,840 m	No	
Enel	Italy	£60,276 m	Partial	*Thermal generation dominates*
Spirax Sarco Engineering	UK	£11,325 m	No	

Source: FactSet, Longspur Radnor Indices

We can see from Figure 10 above that of the 25 largest European holding across the Top 30 Climate & Energy funds, only **5** are constituents of the Active Net Zero Clean Energy Universe. These five are coloured dark green.

For the remaining holdings outline whether they are wholly unaligned, or even partially aligned with our Active Net Zero methodology.

- Only one company, **Schneider Electric,** is close to full alignment. The majority of group revenue is generated by their Energy Management System business which is an aligned activity, however there is a degree of ambiguity around the full extent of energy efficiency contributions across all the revenue in this segment.

- Of the remaining **8** companies that are partially aligned with the Active Net Zero methodology, the primary barrier revolves around the proportion of their "positive" revenue being outweighed by their "passive" and in some cases outright "negative" revenue.

- In total these 25 largest holdings account for £5.4 billion of the £11.2 billion (or just under 50%) aggregate European exposure held by the Top 30 Climate & Energy funds.

- The 5 Active Net Zero aligned companies account for **£1.2 billion** of exposure compared to **£2.3 billion** represented by companies with **partial alignment** and **£1.9 billion** represented by companies that are **wholly unaligned**.

- By way of further illustration, the two largest pure hydrogen plays in the UK market (**ITM Power** and **Ceres Power**) who are both Active Net Zero Clean Energy Index constituents only appear much further down the rankings.

  - **ITM Power** is the **40th** most owned company with £79m of ownership across 5 funds

  - **Ceres Power** is the **52nd** most owned company with £52m of ownership across 4 funds

It is difficult for us to draw any other conclusion that there is a clear misalignment between funds that are badging themselves as being focused on the climate and energy transition and the actual exposures these funds offer.

We do accept that the Active Net Zero bar has been set high. However, we believe this is necessary if the energy transition is to be achieved within the time frames outlined by the scientific consensus. We also believe that underlying investors, whose motives are to align fully with the energy transition theme, are not being offered the exposure they are seeking.

Active Net Zero – The Concept

The IPCC Special Report on Global Warming of 1.5°C requires the world to eliminate net greenhouse gas emissions by 2050 if it is to keep global warming to within 1.5°C of pre-industrial levels and avoid the worst impacts of climate change. Pursuing this target is consistent with the Paris Agreement and countries representing over 60% of global emissions have already announced net zero targets including the USA, EU, China, Canada, Japan and South Korea. In fact, all the G7 countries except Italy have announced net zero targets.

The IPCC report shows that failing to achieve net zero will leave the world and its economies exposed to severe risk. We believe investors who want the environment to be considered in their investment strategies will want those investments to be consistent with a net zero approach. Increasingly, investing in activities that are not consistent with net zero will be seen as out of mandate. We also believe that a significant number of investors want to invest in delivering a net zero solution, not just complying with it. This is where active net zero is important.

The Institutional Investors Group on Climate Change (IIGCC) represents over 350 members with over US$42tr of assets. It sees two dimensions for investors to be considered in alignment with the temperature goals of the Paris Agreement.

Two dimensions for investors

Decarbonising investment portfolios in a way that is consistent with achieving this net zero goal

Increasing investment in 'climate solutions' required to meet that goal, such as renewable energy, low carbon buildings, and energy efficient technologies

Source: IIGCC

We describe companies in the **second dimension as Active Net Zero companies**; those actively working to deliver a net zero solution.

Identifying Active Net Zero Companies

The Longspur Radnor Index methodology is based on company revenues.

To be eligible for inclusion, a company must have an Active Net Zero Score of at least 50% based on company revenues from Active Net Zero activities. Revenues are segmented based on whether they are active, passive or negative. Negative net zero activities are those based on fossil fuels including coal, oil and natural gas. Whilst companies that produce fossil fuels can be included, revenues from this sector count against its active revenues, making it difficult for those with significant fossil fuel activities to be included.

There is some merit in using capex rather than revenue as it is a good sign of a company's intentions. However, we are concerned with what a company is doing now

rather than what it intends to do, and capex is seldom shown in segmental notes to annual accounts, making its use here difficult. However, where segmental capex is available, we are happy to include companies on that basis.

As the clean energy sector includes early-stage technologies, a number of companies are pre-revenue. Where a company is pre-revenue or does not have revenue in a specific year, we are happy to use segmental opex. We see the inclusion of these companies as a key differentiator of the index, especially as, in order to achieve net zero, development of these technologies needs to be accelerated. The IEA 2020 Energy Technology Perspectives report highlights that the technologies required to meet around 75% of the emissions reductions needed for net zero are currently not mature.

Identifying Active Net Zero Activities

In order to use widely accepted definitions, we consider net active zero activities to be those outlined in the Annex to the EU Sustainable Finance Taxonomy (Regulation 2020/852 of the European Parliament and of the Council); 3.1 – 3.5, 3.9, 3.14 and 4.1 – 4.25. Under 3.5, Manufacture of other low carbon technologies, we include the supply of materials for low carbon technologies including mining of key minerals such as lithium, graphite, manganese and cobalt for energy storage where this is done sustainably. These activities are in line with the pathways set out in the IPCC Special Report on Global Warming of 1.5°C and in the IEA Net Zero by 2050 Roadmap.

As currently drafted, the Taxonomy omits nuclear energy, but this is still a matter of debate. For the purposes of this index we include electricity generation and hydrogen production from nuclear fission and fusion. While there are many good reasons to discard these technologies, they remain contributory technologies to a net zero world, which is the focus of this index.

Negative net zero activities are those based on fossil fuels including coal, oil and natural gas. Transition technologies which will not be part of a net zero end game are treated as per their net zero world contribution, which may be negative. So, for example, gas generation revenue will be treated as negative.

Activities Summarised

The eligible renewable energy businesses accepted for inclusion in the index and therefore considered an Active Net Zero activity are detailed below.

Renewables - Wind & Solar:

Company in the wind sector are involved in the manufacturing of turbines or associated parts, are wind developers and or generators, or are involved in the development of technologies for wind turbines. Generators of electricity using PV material, solar developers or companies engaged in the development of solar technologies are eligible.

Renewables - Biomass & Biofuels

Eligible companies are involved in biomass through the process of using plant or animal material as fuel to produce electricity, heat or biofuels. Under the Index methodology, eligible companies that supply the biomass are involved in engineering the technology and or equipment or are involved in the production or consumption or biomass as fuel for electricity, heat or biofuel.

Small Scale Renewables - Hydro power, tidal and geothermal

Hydroelectric generation is eligible as are of other small-scale technologies that can be more reliable than wind and solar in adverse conditions. Geothermal power uses natural heat below the earth's surface to generate electricity and whilst this form of renewable generation is only significant in areas where this form of natural heat is readily available, it forms an important part of the energy mix in a net zero world.

Energy Efficiency

Companies are considered eligible in this sector if through developing technologies they are able to improve efficiency of both generation and distribution of electricity. Technologies can range from reducing losses on the grid, or reducing use of energy in homes, retail or commercial buildings.

Hydrogen

Hydrogen technology could be a significant driver in the energy transition. A company is eligible if it is involved in the production and storage of green or blue hydrogen, as well as hydrogen and fuel cell technologies or alternative fuel vehicles using hydrogen.

Energy Storage

Due to the intermittency of renewables such as wind and solar, energy storage and battery technologies are crucial in the shift to net zero. Eligible companies in the energy storage sector are involved in the development of battery technology or other forms of energy storage solutions, such as EV charging and the manufacturing of EVs.

Mining

Mining of materials used for low carbon technologies including mining of key minerals such as lithium, graphite, manganese, and cobalt for energy storage, where this is done sustainably.

Issues along the Value Chain

There are issues where a company such as an energy retailer supplies both low renewable and fossil fuel derived energy. In these cases, the positive and negative impact of the revenue from each source are weighed against each other. If the revenue is not split, we estimate a split based on any other disclosed supply data. Similarly, grid (transmission) companies are assessed on how much clean and dirty power is being transmitted. Traditional grids and retailers themselves do not bring about the changes required but initiatives such as smart grid technologies and smart meters are enablers and we count as positive contributions.

The coal fired car

We see the manufacture of EVs as a key element of a net zero world. There have been a number of papers pointing out that at present where these vehicles charge on grids which are fossil fuel dominated, they do not contribute to mitigating climate change. However, we assume that grids will move to a net zero solution so that the EVs are then essential to decarbonising a key section of transport needs.

Energy efficiency

Energy efficiency is a key route to meeting net zero targets. For some observers there is no difference between a low energy LED lightbulb and a low emission gas turbine. Of course, gas turbines are still relative high emission, whereas LED lightbulbs are a major leap (notwithstanding the Khazzoom-Brookes postulate). However, our key criteria are that LEDs are part of the zero-emissions end game but combined cycle gas turbines (CCGTs) are not. So, we include efficiency but not CCGTs. For the same

reason we exclude bus companies unless the majority of their journeys are in low emission vehicles.

Waste to energy

We consider the biogenic content of waste to energy as an active net zero activity. For most commercial waste we consider this at 50% if no other information is available. While the remaining content can be seen as a negative contributor to a net zero world, we see the offsetting benefits of dealing with unrecyclable waste as a benefit and allow this to be treated as a neutral activity.

Blue hydrogen

Hydrogen produced from methane, using steam methane reformation with carbon capture and storage can be a viable low carbon solution whilst producing the significant quantities of hydrogen required for decarbonising industry. As such we see it as a positive activity in a net zero world.

Mining

We see similar issues with mining where mined material can be used in a variety of applications. Some may be active net zero, but not all. For example, where a graphite mine supplies exclusively to battery anode producers, this is clearly an active net zero activity. But if less than half of this mine supplies such an activity it would not be suitable for this index.

The key question in making these distinctions is **"will the activity contribute to a net zero world beyond the company itself?"**

Eligibility and Screening Criteria

The universe is all European listed companies with Europe, defined as the European Economic Area plus Switzerland and the UK.

To be eligible for inclusion in the Index, constituent companies are subject to the following screening criteria:

• Have an Active Net Zero score of at least 50% based on a company's revenue characteristics

• Minimum free float adjusted market capitalisation criteria

• Minimum trading volume criteria

• Subject to individual security maximum weightings cap.

Rebalancing will be carried out annually on 30 June.

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