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The Energy Transition



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Change. You may have noticed that there is a change of author for this week's Weekly Digest. John is taking a well-deserved break, and so a few of his colleagues are stepping up over the next few weeks. The topic for this week's piece is directly related to Change. Climate Change, and specifically the required Energy Transition. As an evolutionary specie, we Homo sapiens are quite reluctant to change our ways. It seems that we would rather change the world to



suit us, than to change our behaviour to comply with our bigger ecosystem. The natural tensions around this change will probably be on display at the forthcoming COP26 Climate Conference in Glasgow (31 October – 12 November 2021), where the political rhetoric will stress the urgency of action while considering the inequalities of participating nations and practical challenges in addressing a global climate crisis.

The Problem:

A simplification of the Climate Change problem can be broken down into four elements; people, energy consumption, emissions and rising temperatures. The global population has grown from just over 2 billion people in 1950 to about 7.8 billion people today, and is expected to reach 10.8-11 billion by 2100 . Our primary energy consumption, measured in terawatt hours (TWh), has risen from 25,000 in 1950 to approximately 170,000 today . The carbon dioxide concentration in our atmosphere over the last 800,000 years has average around 235 parts per million (ppm), and typically fluctuated between 200 and 300 ppm up until the Industrial Revolution. The carbon dioxide concentration is now over 400 ppm . The consequence of more people, more energy consumption and more emissions is that global temperatures have risen by an average of 1°C since the Industrial Revolution. The current trajectory implies that global temperatures will rise by 3-4°C by the end of the century .

Energy use makes up almost three-quarters of our annual 51 billion tonnes of greenhouse gas emissions. Within this energy use, the four major culprits are industries, buildings, transportation, and agriculture. These four categories account for about 90% of our emissions, with a fairly equal split .

Where Do We Need To Get To?

We need to achieve net zero emissions by 2050 to prevent global temperatures rising by more than 1.5°C from pre-Industrial Revolution levels. As previously mentioned, they have already risen by an average of 1°C. Nations accounting for almost 70% of global GDP have committed to net zero emission targets, but for now very few have actionable plans to achieve the desired result . The European Commission has recently published its “Fit for 55” proposals wherein the region aims to reduce its emissions by 55% by 2030 from 1990 levels . One element of the many proposals is to ban combustion engine vehicles in the EU by 2035. For now these are merely proposals and they require the necessary collective political support to get going. The US is aiming to reduce its emissions by 50-52% by 2030, with key investments forming part of President Biden’s \$2 trillion infrastructure plan that still requires political concessions to get parts of it started . China, currently the largest emitting nation, has committed to achieve net zero emissions by 2060 with emissions peaking around 2030. China’s goal is to invert its energy system from 85% fossil fuels/15% non-fossil fuels to 20% fossil fuels/80% non-fossil fuels by 2060 .

The key strategies in attempting to achieve the net zero goal are :

1. Decarbonise power generation – make power as clean as possible.
2. Electrify the use of energy – plug as much as possible into that clean power.
3. Increase the efficiency of consumption – reduce energy waste.

Challenges:

There are many challenges ahead in our attempt to prevent a destructive climate. For now we will discuss three main challenges, namely; time, resources and money.

Looking back on previous energy transitions, it took coal c.50 years to become 40% of global energy supply. Crude oil took 50 years to become 30%, and natural gas has taken 50 years to become 20% of energy supply . Modern renewable energy is currently mid-to-high single digits of global energy supply and is required to be 50-75% (depending on various industry bodies and respective scenarios) in the next 30 years. Clearly, we have left this quite late.

It is no secret that the Energy Transition will put pressure on mineral supply chains. To set up a wind or solar farm it requires greater mineral intensity (kg/megawatt) than its fossil fuel equivalents, as does an electric vehicle compared with a traditional combustion engine vehicle. The difference is that the renewable counterparts have significantly lower/negligible mineral intensity when in operation. The Energy Transition will require a shift in the key minerals demanded - less coal, oil and natural gas and more copper, nickel, lithium, cobalt and platinum for example. This implies changing supply chains and consequently geopolitical relations. The traditional fossil fuel supply chain is dominated by the US, the Middle East and Russia. The new renewable supply chain is dominated by China, Africa, Australia, and Southern America .

The third major challenge is money. Some estimates of funding the Energy Transition are in the region of \$130 trillion between now and 2050 . And our efforts don't end at 2050, as we have to push on beyond that deadline. For context, per the World Bank, current global GDP is \$130 trillion. We need to create another global economy by 2050. Complicating matters behind these estimates are that different nations have different starting positions. Some are richer than others, some have less debt, some are lower emitters, some are more populous, and some have established bureaucratic frameworks. Then we throw in carbon taxes and carbon border adjustment mechanisms (to stop industries from moving their emitting operations to non-carbon taxing regions) into the mix and one can see that political and trade relations are probably going to be tested.

The Opportunities:

Change is synonymous with disruption, decline, opportunity and growth. The Energy Transition is no different, and neither is the investment landscape. The political will is clearly rising and it has potential to become a "green race". So are societies' awareness and attitudes, and this has the potential to be more meaningful in democratic societies in the elections that lie between now and 2050.

As modern renewable sources of energy gain the benefit of scaling-up, through initial government incentives, the cost of energy declines quite rapidly. Solar power and onshore wind are now as competitive as fossil fuel alternatives, and this is without the potential penalty of carbon taxes for fossil fuels. Therefore, renewable energy has the added benefit of making economic sense without comprising our relationship with Mother Nature.

The Energy Transition will require a whole suite of solutions to address the reduction of carbon emissions. There is no “one size fits all” solution. Herein lie further opportunities and there are many potential access points for long-term investors looking to support the Energy Transition. We at Investec Wealth & Investment are looking across the spectrum of solutions, whether it be solar, wind, hydrogen, carbon capture, nuclear and energy efficiencies for consumption.

You may ask whether we, your investment managers, are simply chasing a trend or do we have a framework by which to assess the opportunity set? The answer is that we stick to our core investment philosophy that is focused on quality investments, with the ability to reinvest into opportunities for a long period of time. So here is a summary of the characteristics we look for:

- Companies directly exposed to the Energy Transition dynamics. (Runway).
- Companies that sit in parts of the value chain that offer a favourable competitive landscape. (Moat).
- Companies with established technologies and routes to market. (Moat).
- Companies free of material ESG risks with improving sustainability trends. (Licence to operate).
- Companies that have strong balance sheets and clear capital allocation qualities. (Resilience).
- Companies that generate (or have the potential to generate) above cost-of-capital returns. (Justification for growth reinvestment).

Concluding Thoughts:

The Energy Transition is a fundamental necessity. In order to mitigate climate change, we need to break the linkage between our energy consumption and carbon emissions. The challenge ahead is unparalleled, which is surprising to say given what the world has been going through with respect to COVID-19. We will require global cooperation and coordination of unprecedented levels as the changing climate knows no borders. The solutions will be many but decarbonising our global Power sector is foundational in this regard, and governments will need to create a fertile landscape to incentivise change. The size of this challenge is enormous, but so are the opportunities. We need to embrace change and, as investors, we seek to actively participate in this change for the benefit of our clients with long-term time horizons. One thing that is unlikely to change, if all goes well, is that this author will probably be analysing and writing on this topic by the time 2050 comes around.

Economic Commentary

FTSE 100 weekly winners

Rolls-Royce Holdings plc	12.7%
SSE plc	7.0%
NatWest Group Plc	6.6%
Taylor Wimpey plc	6.4%
BP p.l.c.	6.3%
Standard Chartered PLC	6.3%
Entain PLC	6.2%

FTSE 100 weekly losers

Pearson PLC	-8.1%
Hikma Pharmaceuticals Plc	-7.2%
Smith & Nephew PLC	-5.9%
Smiths Group Plc	-5.7%
Polymetal International Plc	-3.3%
Fresnillo PLC	-3.0%
Ocado Group PLC	-2.8%

FTSE 100 index, past 12 months



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