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The Great Energy Transition



The Great Energy Transition - Are Asset Owners Ready for the Leap?

No light. No water. No heat. Millions living in Texas in February 2021 experienced first-hand the devastating impact of an outmoded energy infrastructure in the face of climate change. As the state's energy grid shut down due to an unprecedented winter storm, people were left without power and water for days while the local economy was largely taken offline. Texas utility company, Brazos Electric Power, has since filed for bankruptcy protection - likely the first of many to come.

Asset owners have for years known and understood the risks associated with climate change - the threat it poses to companies, countries and people. And they've taken action. We've seen the signing of the UN Principles for Responsible Investing by scores of asset owners and managers and large scale divestment from fossil fuels by individuals and institutions representing over US\$14 trillion.¹

But while signatures and divestment can help, they won't power the future. Facing us on the road ahead is a giant economic and societal leap from old ways of producing and consuming energy to a new energy economy that is sustainable, effective and looks nothing like what's in place today.

Dubbed the "Great Energy Transition", this jump from old to new is happening now and it's being driven by powerful themes that are fundamentally changing how we produce and consume energy.

Fueling this transition is a large and growing set of industries, sectors, and companies that are doing and making what's needed to support the transformation. We believe this represents an unprecedented opportunity for asset owners to invest early on and make a meaningful contribution to a sustainable future. But getting exposure to these opportunities can be a challenge - especially if asset owners take too narrow an investment approach.

¹ Source: Go Fossil Free



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When ESG integration alone isn't enough

Environmental, social and governance (ESG) managers saw tremendous inflows in 2020 even in the midst of the COVID-19 pandemic. During the year, global assets in ESG ETFs alone more than doubled and now stand at approximately US\$200 billion.² The Global Sustainable Alliance Review reported that ESG integration ranks among the largest sustainability strategies globally, with \$17.6 trillion in assets in 2018 (a figure that has likely grown since).³

On the surface at least, an ESG integrated approach sounds like it's checking all the right boxes for asset owners when it comes to investing sustainably. Look under the hood, however, and some limits become evident.

A side by side comparison of sector exposure in the MSCI and MSCI ESG indices (focused primarily on companies with positive ESG behaviours) shows the two are barely distinguishable from one another (Figure 1). Contrast that to the sector exposure of two leading environmental indices – iShares Global Clean Energy (ICLN) and FTSE Environmental Opportunities – where industrials and utilities are leading the way, two sectors in which companies are actually doing the work needed to transition to new forms of energy (Figure 2).

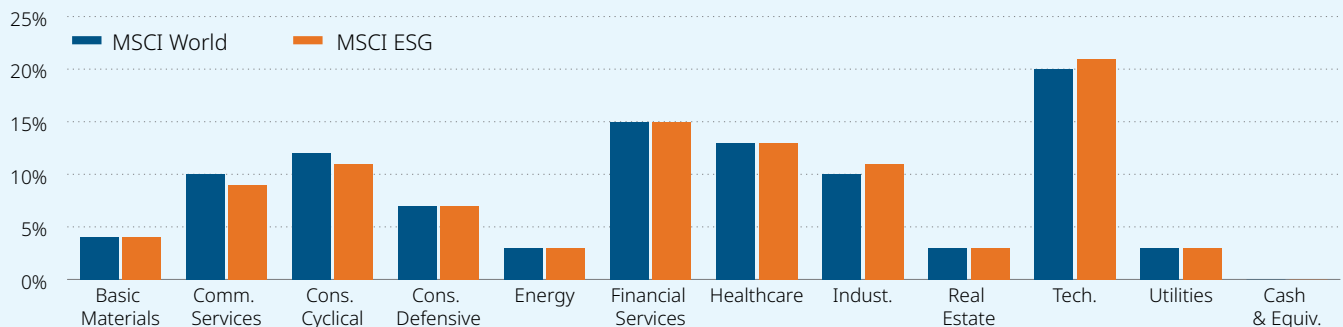
It's the same story when looking at the five holdings of the MSCI and the MSCI ESG: both include Apple, Microsoft, Amazon, and Alphabet. No difference, no diversification (Figure 3). While these companies should be commended for providing leadership and working to lower their carbon footprints, they provide little direct exposure to the drivers of the energy transition. Supporting them at the expense of thematic allocations, won't help us avoid a climate disaster.

By contrast, companies that are building the supply required for the energy transition can be found in the top holdings of iShares Global Clean Energy and FTSE Environmental Opportunities where Enphase Energy, Siemens, and Enel show clear exposure to the technology, products and services supporting the transition away from old forms of energy.

Focusing only on ESG integrated strategies can limit investors' potential to benefit from the growth that is going to come with the energy transition. On the other hand, we believe companies that make the "stuff" for the low carbon, sustainable economy represent a massive opportunity for investors, provided they start looking in the right place.

Figure 1 | Sector exposure - MSCI World vs. MSCI ESG (February 2021)

A side by side comparison of the sector exposure of the MSCI and MSCI ESG indices shows the two are barely distinguishable.



Source: Morningstar Direct

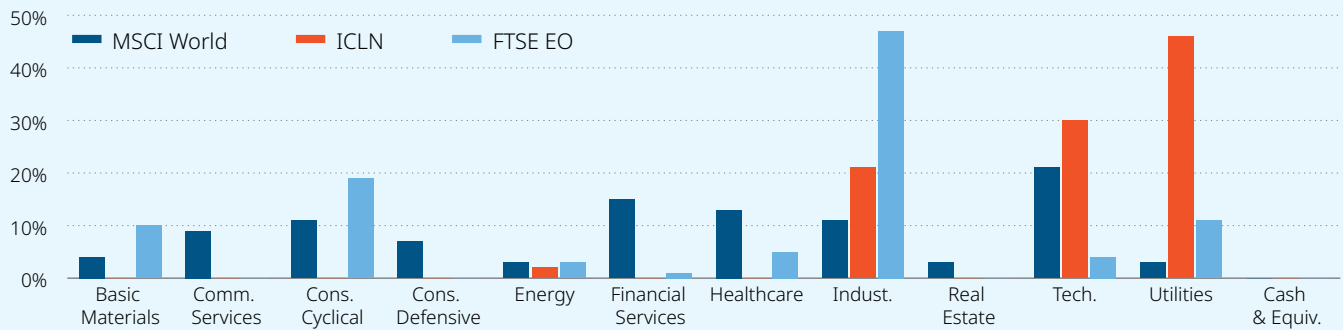
² Source: Lifting the Lid on ETF Investment. CIBC, February 15, 2021

³ Global Sustainable Investment Review. Global Sustainable Investment Alliance, 2018.



Figure 2 | Sector exposure - MSCI World vs. ICLN and FTSE EO

Environmental focus offers real exposure to sectors where companies are doing the work needed to transition to new forms of energy.



Source: Morningstar Direct, MSCI World and ICLN as at February 2021. FTSE EO as at December 31, 2020

Figure 3 | Top holdings - ESG vs. Environmental

Companies in iShares Global Clean Energy and FTSE Environmental Opportunities show clear exposure to the technology, products and services driving the transition away from old forms of energy. MSCI and MSCI ESG are nearly identical.

Top 10	MSCI	MSCI ESG	ICLN	FTSE EO
1	Apple Inc	Apple Inc	Plug Power Inc	Tesla Inc
2	Microsoft Corp	Microsoft Corp	Enphase Energy Inc	Honeywell International Inc
3	Amazon.com Inc	Amazon.com Inc	Daqo New Energy Corp ADR	Danaher Corp
4	Facebook Inc A	Alphabet Inc A	Xinyi Solar Holdings Ltd	Linde PLC
5	Alphabet Inc Class C	Facebook Inc A	Verbund AG	Siemens AG
6	Alphabet Inc A	Tesla Inc	Ormat Technologies Inc	Keyence Corp
7	Tesla Inc	Alphabet Inc Class C	Siemens Gamesa Renewable Energy SA	3M Co
8	Johnson & Johnson	NVIDIA Corp	Meridian Energy Ltd	Iberdrola SA
9	JPMorgan Chase & Co	Johnson & Johnson	Vestas Wind Systems A/S	Deere & Co
10	NVIDIA Corp	The Home Depot Inc	First Solar Inc	Enel SpA

Source: Morningstar Direct, MSCI World and ICLN as at February 2021. FTSE EO as at December 31, 2020



The power of environmental thematic

Environmental thematic strategies identify industries and companies based on themes driving climate change as well as the solutions to facilitate the leap from old to new forms of energy. Those opportunities revolve to a great extent around how we create and use energy – and they are vast.

Today, the world consumes about 14 billion tons of oil equivalent energy (160,000TWh) each year to power our \$88 trillion global economy.⁴ A stunning 84% of this energy comes from fossil fuels.⁵ At the same time, much of our current power infrastructure will exceed its operating lifespan and need to be replaced - that at a time when global electricity demand has been growing at 2.8% a year.⁶

The solutions to this problem are right in front of us. Since 2012, solar and wind power have been gaining market share. And, although solar is about two to three per cent and wind about five to six per cent of current global generation, the cost of building new plants is half that of building new gas or coal generating plants.⁷ Last year alone, 90% of new electricity generating investment went to renewables.⁸

But it's still not enough. Back in 2009, the International Energy Agency (IEA) predicted the world would need \$37 trillion in investment by the year 2030 to stabilize greenhouse gas emissions at sustainable levels and to avert the worst of climate change.⁹ According to the OECD, \$2.5 trillion in annual investment is required to deliver on its climate change goals. In each of the past four years, however, investment has only been about \$800 billion leaving a \$1.7 trillion gap.¹⁰

That gap is growing. The IEA estimates that annual investment in low carbon power and energy infrastructure solutions will have fallen by one-fifth in 2020 due to COVID-19, with the steepest drop in energy efficiency (Figure 4).¹¹ Investment has already been dropping for years – between 2017 and

2019, investment in the power sector went from \$782 billion down to \$757 billion, even before the pandemic took hold. As the energy supply and demand equation changes, this investment gap needs to be filled.

To understand where the Great Energy Transition is already having a profound impact, you need only look at how some major sectors are changing and the investment that will be needed in the coming years:

Transportation: Cars and buses increasingly will be powered by electricity.

Construction: LED lights are replacing incandescent and fluorescent bulbs while gas and oil furnaces are being replaced with electrified heat pumps optimized with computerized building energy management software systems.

Manufacturing: Specialized engineering firms are redesigning factories, replacing old blowers, stampers, conveyor belts with energy efficient ones driven by variable speed motors, power management semiconductors and computer systems.

Agriculture: New precision technologies will change how we fertilize and irrigate agriculture.

It's also worth noting that, while thematic strategies offer exposure to some big names like Tesla, 3M or Honeywell, the vast majority of holdings are companies that are probably unfamiliar to most people. Instead, thematic investors can tap into an opportunity that includes manufacturers of power infrastructure and companies that produce and sell the equipment needed to make the economy more resilient for the future. While they aren't big brand names, these companies have vitally needed products and services.

4 BP Statistical Review of World Energy 2020 & Our World in Data 2019

5 BP Statistical Review of World Energy 2020 & IEA April 2020

6 Global Energy Statistical Yearbook 2020

7 Lazard Levelized Cost of Energy Analysis 2020

8 Tech Crunch November 2020 & Renewable energy defies Covid-19 to hit record growth in 2020 The Guardian November 2020

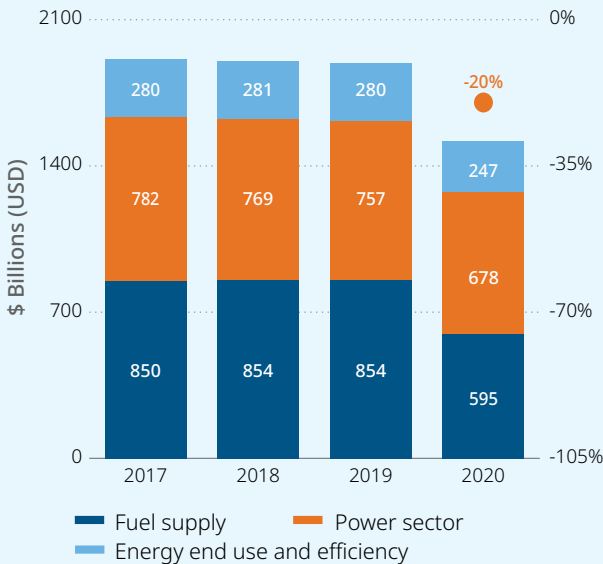
9 "World needs \$48 trillion in investment to meet its energy needs to 2035." International Energy Agency, 2014.

10 Private Finance for Sustainable Development. Remarks by Angela Gurría, OECD, January 29, 2020.

11 World Energy Investment 2020. IEA, May 2020

Figure 4 | Investment in energy on the decline – IEA

Energy investment is estimated to have fallen by one-fifth in 2020 due to COVID-19, with the steepest drop in energy efficiency according to a report by the IEA (Figure 4).



Blue-chips of tomorrow

Although there is a \$1.7 trillion gap to be filled, the timing couldn't be better in our view. Right now, technological advances are pushing down the cost curves on key investments like wind, solar, batteries and the biomaterials that provide an alternative to petrochemicals. That evolving cost efficiency appears to have created a tremendously positive space for investors - but it won't last forever.

We anticipate that today's innovative companies will soon become tomorrow's blue-chip leaders in the green economy - as that happens, their prices are expected to rise along with demand. And it's not just about doing good and powering the future.

Final words

Given the spectrum of opportunities, we believe asset owners can't get enough exposure to this transition through typical ESG integrated strategies alone. They must also consider allocating to investments more directly involved in the Great Energy Transition and through an environmental thematic lens. ESG should be viewed as one tool in the kit - but it likely isn't the entire solution. A thematic approach can help investors to zero in on themes that matter.

The energy leap has opened up myriad new ways of thinking about and addressing climate change - and it truly is the path forward to a sustainable future.

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