

On the Minds of Investors

Achieving net zero: The path to a carbon-neutral world

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The focus on achieving net zero emissions by 2050 has intensified over the past year. European governments, in particular, are even more determined to accelerate the rollout of renewable energy in the wake of the conflict in Ukraine, which has led to soaring commodity prices and an increased urgency to end dependency on Russian fossil fuels.

Yet reaching net zero over the coming decades remains fiendishly difficult. To succeed will require huge changes to the global economy, in terms of energy generation, consumption, housing and even human diets—all of which carry significant risks, as well as opportunities, for investors.

To help ensure investors are well prepared, we look at the scale of the challenge, the best strategies to achieve net zero, the options for policymakers and the key investment considerations for the transition ahead.

The scale of the challenge

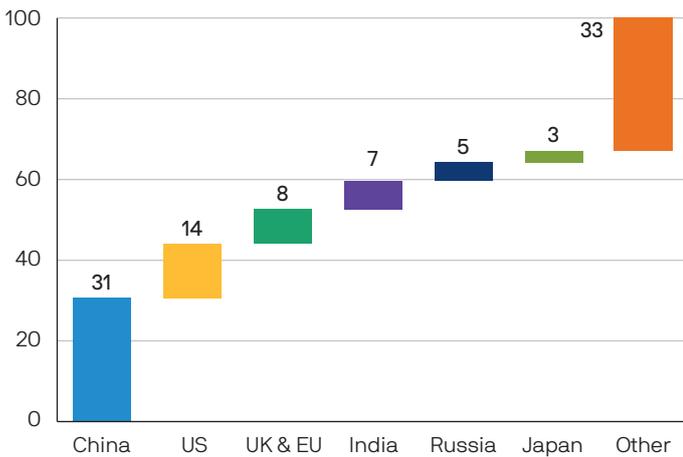
The task of cutting greenhouse gas emissions to the degree that is needed to reach net zero by 2050 should not be underestimated. Even before targets for emissions reductions can be set, policymakers and investors first need to be able to precisely map, quantify and analyse global greenhouse gas emissions, which itself is fraught with uncertainties.

The problem is that not all emissions are created equal, with different greenhouse gases having different lifetimes and varying abilities to absorb infrared radiation (heat). Carbon dioxide (CO₂), for example, has the lowest global warming potential of the major greenhouse gases – but has one of the longest lifetimes in our atmosphere – which helps to explain why the immediate focus of policymakers is on bold CO₂ reduction targets. However, reducing emissions of shorter-lived, but more damaging greenhouse gases, such as methane and nitrous oxide, will also need to be addressed if emission reduction plans are to remain credible.

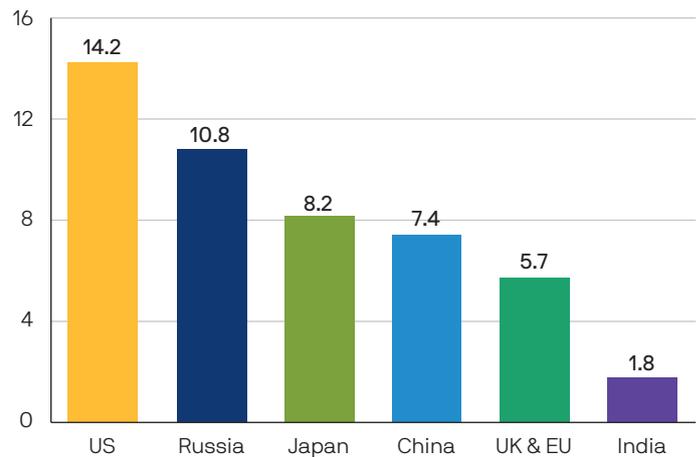
Governments face significant challenges putting their emission reduction goals into action. One issue is that the effort required to reach net zero falls disproportionately on the emerging markets, which tend to be among the biggest polluters (greenhouse gas emissions from China and India have grown by over 300% in the last three decades alone) but also face some of the biggest challenges reaching net zero. The level of employment created by fossil fuel industries in many developing economies is one example.

Leaders in the emerging world continue to stress that emissions reduction targets must be balanced against economic goals, and that emissions per capita, stages of economic development and the effect of “offshoring” manufacturing need to be accounted for when setting climate goals. Agreements and trade-offs will therefore need to be made between the developed and emerging world to ensure emissions targets remain on track.

Global CO₂ emissions by country
%, 2020



Global CO₂ emissions per capita
Tonnes, 2020



Source: (All charts) Gapminder, Global Carbon Project, Our World in Data, United Nations, J.P. Morgan Asset Management. Emission impact from land use change (such as deforestation) is not included. Data as of 31 March 2022.

What is the right metric to measure emissions?

“At the country level, absolute greenhouse gas (GHG) emissions don’t tell the whole story about the relative environmental impact of each country. At a minimum, we need to account for differences in population size by looking at emissions per capita, and we should acknowledge that countries are at different stages of economic development by assessing emissions per unit of GDP. We may also consider that, historically, emerging markets have contributed less to global GHG emissions because their economic output has been lower. In addition, some emerging market countries have higher CO₂ emissions because the production of CO₂-intensive goods has been offshored.

For companies, beyond looking at total carbon emissions, one can take into account their relative size by assessing efficiency relative to revenues or physical units of production. Those emissions can also be broken down into various categories, or scopes (as defined by the Greenhouse Gas Protocol), reflecting at which point in the value chain of a company emissions are generated. Although most efforts are currently focused on Scope 1 (direct emissions from controlled assets) and Scope 2 (indirect emissions from purchased electricity or heating/cooling) emissions, there is a growing interest in Scope 3 emissions, where indirect emissions from the rest of a company’s value chain are also considered.

Combining all those insights to determine the emissions characteristics of investments is an area of active research, with rapidly developing standards. In this context, our team recently published a [document](#) reviewing the current state of greenhouse gas accounting and clarifying how the range of carbon metrics can be applied to the investment process.”

Keven Roy, Ph.D., Climate Change Research Analyst, J.P. Morgan Asset Management Sustainable Investing team

The best strategies to achieve net zero

The challenges posed by decarbonisation are considerable, but they are not insurmountable. We have identified four key strategies that are needed for achieving net zero emissions: increase clean energy generation, accelerate electrification, improve efficiency and offset remaining emissions.

Strategy	Description
 Increase clean energy generation	<ul style="list-style-type: none"> ● Overhaul global energy mix to boost renewables and reduce/eliminate fossil fuels, especially coal ● Accelerated renewables rollout ● Infrastructure upgrades to enable transmission of renewable power
 Accelerate electrification	<ul style="list-style-type: none"> ● Maximise use of electricity across industry and household energy consumption ● Electric vehicles ● Electrified industrial production
 Improve efficiency	<ul style="list-style-type: none"> ● Reduce energy demand by upgrading equipment ● Shift in consumer preferences, such as diet ● Greater precision within agriculture ● Energy-efficient lightbulbs ● Reduced meat consumption, rise of meat alternatives ● Reduced food waste
 Offset emissions	<ul style="list-style-type: none"> ● Remove remaining unavoidable emissions from the atmosphere, and store in ways that avoid harm ● Reforestation and bolstered conservation efforts ● Increased focus on biodiversity ● Man-made technology solutions, such as carbon capture

Increase clean energy generation

Clean energy technologies have the largest role to play in achieving net zero targets, given that 73% of global emissions stem from the energy sector itself. Many estimates suggest that the share of oil, coal and gas in the global energy mix will need to decline from the current level of around 90% to close to 20% by 2050. However, significant investment is required to ramp up production and to upgrade infrastructure to enable the transfer of clean energy around the world.

Designing a power grid with the flexibility to deal with the variability of wind and solar power production is another complex challenge. Governments will therefore need to drive progress by investing in infrastructure, such as robust transmission systems, while incentivising the private sector to hunt for technology breakthroughs. The recent collaboration between Norway and Denmark is one example of progress. While Norway generates

most of its electricity from hydropower, Denmark relies much more on wind power. Thanks to new high-voltage power cables, the two nations are now well positioned to leverage each other's energy sources depending on weather conditions.

Much cheaper storage options will also be needed to smooth out fluctuations in renewable power sources. While manufacturing costs of storage technology, such as batteries, will come down with scale, the rising cost of the raw materials used to make them could prove more challenging. We believe the clean energy transition will have implications for global commodities, **potentially launching a new supercycle.**



Accelerate electrification

The large-scale electrification of existing industries is the next step to achieving net zero, with the rise of electric vehicles being one example. A wave of auto manufacturers have announced plans to shift to all electric production over the coming years, but take up is slow: while EVs have tripled their market share versus two years earlier, electric vehicle sales still made up only 8.6% of total auto sales in 2021.

Part of the challenge is that, until recently, there had been little first-mover advantage. Motorists were reluctant to go electric until a robust charging infrastructure had been created, while energy companies were wary of building the charging network without being able to see the demand. We expect the long-term winners in this area to be those who focus on dedicated electric vehicle platforms, rather than bridge technologies such as hybrids.

For some industries, however, full electrification is not feasible. For example, prototype electric engines are being developed for aeroplanes, but batteries are still far too heavy to be a viable energy source for long-haul flights. Industrial production that uses high-heat processes is another area where full electrification may not be achievable. Here, low-carbon biofuels and hydrogen power will likely form part of the solution.



Improve efficiency

Improvements in energy efficiency to reduce the overall level of energy demand will need to play an important part in reducing emissions. The expansion of LED lightbulb usage in India is a good example of a high-impact change.¹ Changes may be straightforward for assets with relatively short lifetimes such as lightbulbs, but greater policy incentives will be needed for equipment that is replaced much less frequently.

Food production and food waste is another area where energy demand could be reduced significantly. Cutting meat production (meat and dairy production account for 77% of agricultural land use but just 18% of the world's calories²), reducing the use of chemicals in food production, reducing food packaging and cutting food miles will all help, while tackling food waste – which contributes 6% of global greenhouse gas emissions – is another priority.

Changes will be required in the agriculture industry too, particularly around the efficiency and precision of fertiliser and water usage. European Commission research has shown that, when used efficiently, fertilisers can improve crop yields while simultaneously helping to capture more carbon dioxide thanks to the increased production of biomass. However, excessive fertiliser use can create significant disruption to the surrounding environment. High investment costs to employ more precise techniques have historically hampered uptake, again highlighting the need for policy incentives to drive change.



Offset emissions

Given that emissions will not be fully eliminated by 2050, carbon offsets will need to help companies reach their net zero targets. Natural offsets, such as forests and peatlands, are the most effective, yet they are disappearing at a frightening pace. The world lost over 47 million hectares of forest over the past decade, an area equivalent to the size of Sweden. At the same time, about 20% of greenhouse gas emissions are created by activities that are destroying these natural habitats.

To counter this damage, we expect the focus on biodiversity – the way that companies coexist with and protect the environment around them – to accelerate accordingly. The good news is that countries that are especially vulnerable to biodiversity loss are starting to innovate. “Blue bonds” – debt instruments that are issued to support investment in healthy oceans – are one way that countries are gaining access to new capital in exchange for conserving biodiversity.

Technology-based offsets, such as carbon capture, utilisation and storage (CCUS), will be another tool to help reach net zero. CCUS involves separating CO₂ emissions from other gases created by industrial processes or power generation, and then compressing and transporting them to sites where they can be used or stored. However, huge investment will be required to scale up projects to lower the cost of carbon capture. Investors should also be wary about overestimating the impact of CO₂ sequestration and removal, which the Intergovernmental Panel on Climate Change estimates will be able to contribute less than 10% of the net emissions reduction required over the next decade to stay on track to hit net zero by 2050. For most industries, emissions reduction – rather than offset – will need to be the priority.

¹ <https://www.carbonbrief.org/guest-post-how-energy-efficient-led-bulbs-lit-up-india-in-just-five-years>. A policy initiative procured LED bulbs for the national market at scale and sold them through vendors at lower prices, although still at a profit. LED bulb sales rocketed, taking annual sales from 5 million in 2014 to about 670 million in 2018. The annual energy savings from the project are estimated to be sufficient to power the whole of Denmark for a year.

² Our World in Data - <https://ourworldindata.org/global-land-for-agriculture>

The options for policymakers

Policy implementation may prove the hardest part of the journey to net zero. Governments can meet the challenge with a “sticks”-based approach that mandates climate change mitigation, or a “carrots”-based approach that incentivises it. Infrastructure investment, research and development (R&D) spending, subsidies and tax incentives (carrots), along with regulation and carbon pricing (sticks), will all have roles to play.

Infrastructure investment

Public infrastructure investment can help by committing vast sums of money and taking on more risk than individual companies can, while quickly building scale and consistency. Government investment serves as the foundation on which the private sector can then innovate, compete and ultimately reduce costs. Formal public-private partnerships can advance the energy transition while also generating opportunities for private investors. Real assets stand to be notable beneficiaries.

Infrastructure that supports the supply of renewable energy is a high priority. Both solar and wind investment, and capacity, continue to grow, and further investment could help meet some of the technological challenges around storage and efficiency. In the meantime, investment in national grids could connect the many isolated suppliers and expand the reach of renewables. Increasing investment to improve nuclear power, a reasonably reliable and efficient form of sustainable energy, will also help diversify from solar and wind, which are currently less reliable and efficient.

Policymakers also need to invest in greener transportation. There are a number of options, such as accelerating individual electric vehicle adoption by building more charging stations, or improving rail links to provide a more credible alternative to air travel. Local governments can electrify their fleets of vehicles, from police cars to school buses and everything in between.

Research and development spending

R&D spending on innovation and technology will be key to developing solutions that are not available yet. For example, we do not yet have carbon-neutral materials to use in steel, cement or fertiliser. We are unlikely to be able to electrify aeroplanes or long-haul trucks, but they could use more advanced biofuels that we have not yet developed.

We need more research on direct air capture (DAC) technology that seeks to remove CO₂ that is already in the air. These initiatives require much longer timelines and have a high probability of failure. Yet the scientific community achieved an extraordinary feat with Covid-19 vaccines in less than a year, with the help of ample funding, global coordination and a partnership between the public sector, private industry and the academic community. This can be replicated over time to meet some of the toughest challenges to achieving net zero.

Subsidies and tax incentives

Subsidies, tax credits and other incentives, such as loans and guarantees, can help accelerate change and bring down costs. Investment in solar and wind, for example, has been greatly aided by subsidies. Incentive programmes that engage consumers, such as swapping internal combustion vehicles for electric vehicles or upgrading appliances, can speed up transitions already underway. They can also help smooth out more challenging transitions over time. For example, subsidies or tax breaks to create electric vehicle manufacturing plants in areas where a local economy has depended on coal mining could provide new jobs and growth that eventually surpass the economic importance of coal.

Regulation

Thoughtful regulation can help reduce economic barriers and catalyse change. For example, tougher fuel, energy and appliance standards can push companies and consumers to reduce their carbon footprints, while more stringent codes for buildings and future construction, with respect to insulation, material usage, heating, and cooling systems and lighting can have a similar effect.

If these regulatory items are phased in over the course of a decade, companies and consumers will have ample time to comply with new standards. In some cases, regulation can actually be helpful in creating demand, such as with nuclear energy, where regulatory oversight may help overcome safety and environmental concerns.

Carbon pricing

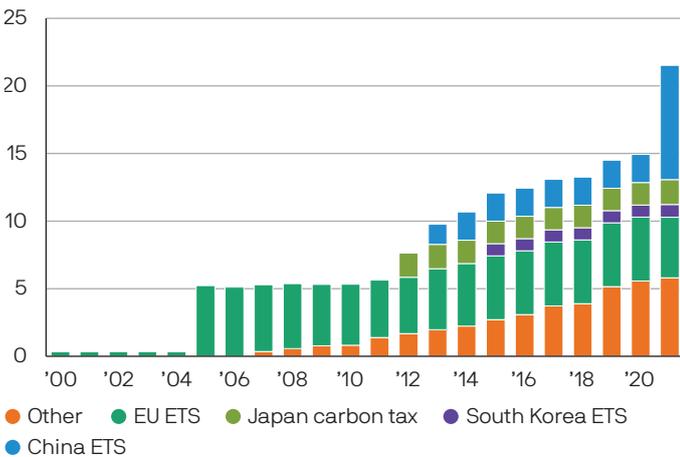
The price of carbon can be set through taxes or emissions trading schemes (ETS), both of which incentivise carbon producers to reduce their carbon intensity. The European Union (EU) has been a pioneer in this field, launching the world’s first carbon market in 2005. The EU’s example is being increasingly copied, with several individual countries, notably China, launching their own emissions trading systems over the last couple of years. As a result, close to 25% of global greenhouse gas emissions are now covered by carbon pricing initiatives compared to just 5% in 2005.

However, there is not one common carbon price, with international carbon prices remaining generally well below those in Europe. More importantly, most carbon prices are also below the level required to reach net zero emissions by 2050, according to many climate scientists and policymakers.³

The goal of a common global carbon price set at a level that could help meaningfully reduce emissions is currently out of reach. However, there are positive developments. The EU – mindful of the delicate balancing act it faces between meeting domestic climate ambitions while at the same time not damaging European corporate competitiveness – has suggested it could introduce a carbon border adjustment mechanism (CBAM) to ensure that the environmental footprint of a product is priced the same, whether it is manufactured locally or imported. So far, the CBAM has only acted as a threat to international peers, but the credibility of that threat has been strengthened following the recent agreement by EU member states on the required regulation for implementation.

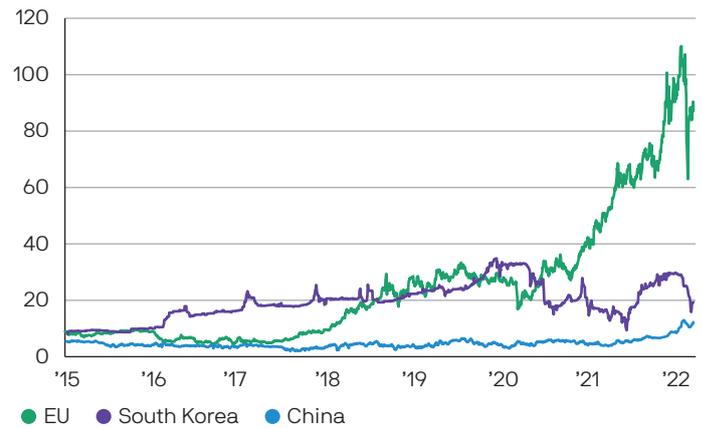
Global emissions covered by carbon pricing initiatives

% of global greenhouse gas emissions



Emissions trading system prices

USD per tonnes of CO₂ equivalent



Source: (Left) World Bank, J.P. Morgan Asset Management. ETS is emissions trading system. (Right) International Carbon Action Partnership, J.P. Morgan Asset Management. China ETS price is based on the average of Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin ETS prices. Data as of 31 March 2022.

³ Although the estimate is wide, a range of between USD 40 and USD 80 per tCO₂e is often argued as necessary to limit global warming to less than 2°C (Mainstreaming the transition to a net-zero economy, The Group of Thirty, October 2020).

How does the Russia/Ukraine war impact the net zero agenda?

The evolution of the Russia/Ukraine conflict remains highly unpredictable, yet one thing is certain: the tragic events in Ukraine have hugely accelerated European policymakers' desire to reduce their energy dependency on Russia. The EU is upgrading its 2030 target for the amount of energy generated from renewables from 32% to 40%, and the European Commission has put forward a proposal titled REPowerEU targeting a two-thirds reduction in gas imports from Russia by the end of 2022. While politically these targets have widespread support, views on the route to achieve them vary widely.

The place of nuclear energy in the energy transition is one example. While nuclear was until very recently generally not seen as part of the solution, the conflict in Ukraine has fundamentally changed the equation. Several countries, such as France, have pledged to invest vast sums of money in new nuclear plants while others, such as Belgium, have decided to postpone the closure of their nuclear plants. Conscious of the challenge facing many countries and realistic about the need of stable energy sources on our way to net zero, the European Commission updated its taxonomy earlier this year and now considers some nuclear activities as being in line with the EU's climate and environmental objectives.

In the short term, there is an unavoidable conflict between the desire to increase energy security and to reach net zero. If the EU is determined to reduce its reliance on Russian gas, an increase in the consumption of other fossil fuels is inevitable over the coming quarters, as evidenced by the level of gas-to-coal switching that has been triggered by the surge in gas prices.

That said, we believe that looking beyond the very near term, this conflict will ultimately turbocharge the net zero agenda. Since the outbreak of war, the German government has announced its intention to accelerate the implementation of its Renewable Energy Sources Act that will look to double onshore wind capacity from 55 to 110 gigawatts while also increasing offshore wind capacity significantly. In Italy, the utility provider Enel has signed a grant deal with the European Commission to raise production at its existing solar panel factory 15-fold, following a statement from the European Commission that it would do "whatever it takes" to rebuild solar manufacturing.

The UK government has followed suit with the launch of its Energy Security Strategy that targets 95% of electricity generation from low carbon sources by 2030. All of these initiatives will take time to come to fruition, but it is clear that the pressure on political leaders to drive change has intensified yet further as a result of war in Europe.

The key implications for investors

The transition to a net zero emissions world will have an enormous, but uneven, impact across economic sectors. Our research analysts provide their views on how the transition to net zero will impact some of the industries that will undergo the greatest changes: autos, energy, infrastructure, real estate, retail and utilities.



Autos

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Credit Research Analyst in the Global Fixed Income, Currency and Commodities Group

Cars and light commercial vehicles still account for over a third of transportation-related emissions, which explains the intense focus on vehicle emission reductions and the adoption of electric vehicles, leading to one of the biggest transformations in the industry's history.

EU regulators are spearheading the charge by further tightening the bloc's already strict 2030 vehicle emission targets. US regulators have followed Europe's lead by raising fuel economy standards for models to be sold in 2024-2026. This transition is creating substantial headwinds for the auto industry, but also opportunities for incumbents that can make their business models more sustainable by proactively transforming their business despite the significant costs involved.

We remain focused on companies that have more ambitious EV strategies. The long-term winners will likely be those with dedicated EV platforms and higher levels of vertical integration of the battery electric vehicle (BEV) powertrain, including investments in the battery cell and its supply chain. We favour companies focusing more on pure electric vehicles rather than bridge technologies such as hybrid engines.

This transformation is requiring increasingly higher investment spending despite electric vehicle profitability still not reaching par with internal combustion engines (ICE) for most companies. Battery costs are a key issue, with cost parity versus ICE unlikely to be reached until later this decade. However, carmakers that postpone changes are likely to face significant operational headwinds, investor apathy and potentially negative effects on their credit ratings. Even with some increase in leverage, we see this investment in the future as critical.



Energy

David Maccarrone

Equity Research Analyst, US Equity and International Equity Groups

Forecasting profitability for the lowest-emitting, lowest-cost fossil fuel assets is essential when investing in the energy sector. The European energy crisis underscores the ongoing importance that fossil fuels will play in the global economy for decades to come even as consumption eventually declines. The recent spike in energy prices has enabled some lower-quality companies to deliver strong share price performance. Yet in a number of instances, we believe the market is not appropriately discounting the risks to these companies' energy transition strategies, with undue focus on potentially transient sources of cash flow rather than sustainable ones.

Natural gas has been the primary driver behind the significant decline in US greenhouse gas emissions over the past decade. Increased demand for liquefied natural gas (LNG) in Asia to replace coal is a big investment opportunity for energy companies to help drive substantial emissions reductions. New LNG supply is likely to come from regions that have greater environmental, social and governance considerations in production, such as the US or Canada, with reduced carbon intensity helping to accelerate the path to net zero.

The path to net zero also requires a contribution from emerging, scalable technologies. Europe is taking the lead in developing larger-scale, integrated solutions. One consortium developing a green hydrogen hub in northern Europe includes an offshore wind project powering an electrolyser that produces hydrogen to partially decarbonise

an oil refinery. Another Scandinavian project will capture CO₂ from industrial sources, transport it by pipeline and permanently store it in offshore underground reservoirs.

European oil companies are championing these investments as they build on existing competencies and expand technical skills. However, even with strong industrial integration and supportive carbon prices, today's economics remain marginal. Additional technology gains are needed to deploy these strategies more broadly. It is premature to declare who the big long-term winners are, but the past year has witnessed the market sour on less differentiated decarbonisation strategies with low barriers to entry.

Reaching net zero will require energy companies to scale down their traditional businesses, while investing and delivering on climate-benefiting new businesses. There will be abundant opportunities for energy companies to grow earnings through existing business models during this time. Expansion opportunities that create enduring shareholder value may be more scarce considering the risks around commercialising technology and the magnitude of capital hoping to participate in this world-changing transition.



Infrastructure

Nick Moller

Global Infrastructure Investments Group

The energy transition to net zero has been a focus for many years within private infrastructure, given the direct impacts to opportunities and risks within the sector.

Facilitating the energy transition will continue to provide a wide variety of investment opportunities. We expect utilities to spend more on green infrastructure as they continue to shift away from traditional fossil fuels towards renewable sources. Yet, the intermittency of renewables means electricity generation is likely to be complemented by natural gas generation, and, to some extent, batteries, as costs decline. We also anticipate that there will be necessary complementary investments in electricity transmission and utility electric grids, because renewables are frequently located away from urban centres.

The move towards net zero across the broader economy will also require significant investment beyond what is traditionally considered green infrastructure. For example, we expect to see investment in pipeline integrity to reduce leaks, in less carbon-intensive sources of heating and in storage to facilitate greater use of biofuels.

We believe “stranded asset” risk will remain in focus, with a particular lens on more carbon-intensive fossil fuels, though the timeframe is still unclear. Valuations present a further risk for investors. The recent significant increase in investor interest in green infrastructure has increased demand but the supply of such investments has not grown as quickly, which could impact forward-looking returns. Finally keeping the costs of the energy transition to consumers manageable is critical to maintaining support for overall decarbonisation efforts. Managing essential infrastructure in a sustainable way, with a focus on governance, is critical for risk-adjusted returns.



Real estate

Dianna Russo

Real Estate Americas Group

Reducing reliance on carbon and reducing power usage wherever possible lowers a property's operating expenses and, therefore, enhances performance and returns. Equally important, carbon reductions can increase a property's attractiveness to today's most desirable tenants, providing a competitive edge that may allow increases in the rental rate.

However, to achieve the required carbon reductions to reach net zero emissions, property owners need to get comfortable with potentially large capital expenditures. For example, if an owner chooses to replace equipment that is not at the end of its useful life in order to achieve reduction goals, it will increase costs, though policymakers will often offer incentives to induce upgrades.

On the other hand, there is a growing cost to carbon. Fines and penalties based on usage or emissions represent a real cost for property owners in markets where there are heavy regulations. The sustainability ratings of assets by various industry groups also drive owners to look more carefully at usage. Tenants are increasingly looking to work or live in assets that match their overall corporate/personal goals.

Many property owners have turned to renewable energy credits (RECs) to offset carbon emissions when working towards a net zero commitment. RECs are created when a plant generates one megawatt hour of energy from a renewable source, such as wind or solar. Unfortunately, there are currently not enough new renewable energy sources being constructed to produce enough RECs to meet demand, so the price of RECs has increased significantly.

One attractive way of lowering a property's carbon footprint is to install solar panels and use the energy produced onsite to power the property – though as in other areas, reliable battery storage is needed to make this option more efficient. Renting rooftops or parking areas to a solar provider are other options that add renewable energy to the power grid and provide an added income stream to the asset.



Retail

Bilquis Ahmed

Equity Research Analyst, International Equity Group

Fashion is responsible for 10% of global greenhouse gas emissions. Given extended supply chains, retail brands are directly responsible for only a fraction of these emissions, yet the best-in-class brands are still looking at the end-to-end emissions profile of their products and attempting to reduce the emissions in each stage of the chain.

Over half of the total emissions are created in the fabric extraction, processing, weaving, and manufacturing stages. Greater adoption of renewable energy by national grids over time will help, but in the near term switching to less energy-intensive spinning and dyeing options can materially change a product's environmental profile. Similarly, recycled fibres have a much lower environmental footprint; only 10% vs. virgin fibre for cotton as an example.

Brands are now embedding this knowledge in their design teams to enable such process improvements from product conception, as well as committing to targets on the emission profile of fabrics. A prominent French luxury house has even created an environmental profit and loss statement which is used to evaluate individual brand management teams alongside traditional financial accounts.

The missing ingredient is consumer consciousness. Currently only 7% of consumers state that sustainability is the most important factor in their purchase decision and the rise in cheap, ultra-fast fashion brands has increased the volume of clothing heading towards landfills. A prominent European clothing chain has installed clothing collection points in all their stores and collected over 16,000 tonnes of clothing and footwear to be reused or recycled in 2021 alone, but industry-wide recycling efforts are still nascent. We see a risk that new regulations – such as the EU's Ecodesign Directive – may force the issue by mandating that fabrics must be recyclable, but concrete proposals are lacking so far. Currently there is little sign of differentiation in brand valuations based on environmental factors, likely due to the combination of limited consumer and government action to date.



Utilities

Fred Barasi

Equity Research Analyst, International Equity Group

A globally coordinated push towards net zero has huge ramifications for the utilities sector. Solar and wind power generation – despite being the cheapest form of new capacity – only reached 10% of global electricity production for the first time in 2020. The electrification of high-emitting sectors such as transport and domestic heating could also lead to electricity demand increasing three-fold by 2050 (according to International Energy Agency projections), after having been flat or falling in most developed countries for two decades.

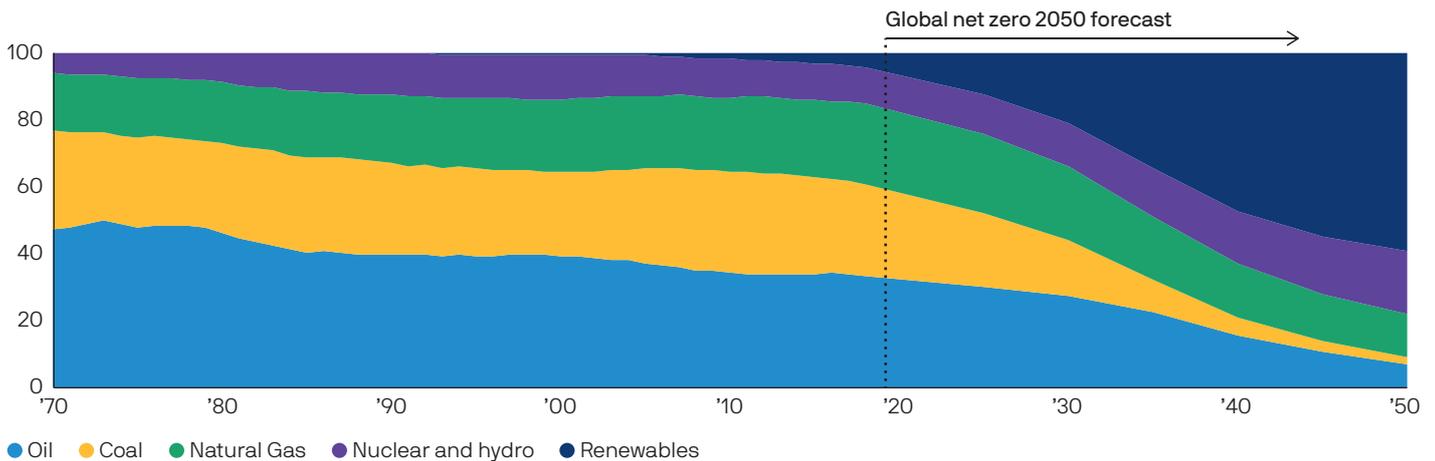
For utilities, the energy transition provides a wealth of opportunities for investment, starting with onshore and offshore wind and solar generation. The IEA's net zero scenario envisages a four-fold increase in wind and solar installations in 2030 vs. 2020. Widespread electrification will lead to significant investment in electricity networks, such as transmission and distribution grids. Rising renewable penetration will also create investment opportunities to address intermittency and energy storage, with batteries, green hydrogen and carbon capture technology among the carbon-neutral options.

There will be relative winners and losers. The transition raises existential questions for operators of gas infrastructure, especially companies operating low-pressure pipelines delivering gas to domestic properties. Most utilities are in the midst of a transition from fossil fuel dominated power generation to renewables, and some will adapt better and more quickly than others. Many of the relative winners are likely to be found among the European utilities, who were the first movers in the pivot to renewable generation – eight of the ten largest renewable operators are listed European companies – and this scale brings competitive advantages in the form of lower costs, preferential access to new projects, and established relationships with regulators and customers.

Nonetheless, the overall impact of the net zero transition is likely to be a significant positive for the utilities sector, with growing electricity demand and abundant investment opportunities allowing for value creation. Following an average 15% share price decline in 2021 for global renewable stocks, we now see attractive valuations in a number of companies which we expect to benefit from this multi-decade growth opportunity.

Global energy mix

% primary energy consumption



Source: BP Energy Outlook 2020, J.P. Morgan Asset Management. Forecast is based on BP's scenario for global net zero emissions by 2050. Data as of 31 March 2022.

Conclusion

Dramatic changes to the global economy will be required if net zero emission targets are to be achieved by 2050. Quantifying the scale of the problem is a challenge in itself. Calculations should account for a company's or country's size and stage of economic development, rather than looking at the volume of emissions alone. To reduce emissions, a combination of increased clean energy generation and electrification alongside improved efficiency will be required. Offset strategies will be needed to tackle the remaining unavoidable emissions, although these strategies are capacity constrained. For most industries, reducing emissions rather than offsetting emissions is required, and investors should view corporate commitments with this in mind.

Policymakers will be the key driver of change, by providing both carrot-based incentives to encourage investment, research and development, and also sticks-based measures, such as carbon pricing schemes. The war in Ukraine has only accelerated the desire of policymakers to shift away from fossil fuels. Our research analysts see both opportunities and risks in their sectors: for industries such as utilities, we are finding attractive valuations in several companies that stand to benefit from the huge increase in electricity demand, while in other areas, such as energy, we see examples where the market may be overly focused on potentially transient sources of cash flow.

Following a decade of dominance for consumer-facing technology companies, companies that can enable climate-based technology solutions look set to be the biggest beneficiaries of new environmental initiatives going forward. Regardless of the industry under consideration, a thorough understanding of how the wave of policy changes ahead will impact cash flows and valuations should be an essential part of any investment decision today.

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