

ESG

COP 27 Q&A: Executing on Net Zero

04 November 2022

Key takeaways

- On the heels of September's Climate Week and with COP27 – the UN's annual climate change summit – around the corner, advancement on Net Zero goals is an area of focus for corporates, climate activists and policymakers alike. We take a look at this progress and answer 12 questions about what to expect at COP27 and beyond based on a recent BofA Global Research publication.
- The race to decarbonize the global economy is well underway. As of June 2022, Net Zero emissions targets were in place from countries generating 91% of global GDP (and 88% of emissions) up from 68% in December 2020, and just 16% in mid-2019.
- In looking to COP27, the motivation for climate action is expanding from one of purely environmental sustainability to a combination of economics, geopolitics, and national security.
- It's no longer just about saving the planet, but about revitalizing economies after the pandemic and, more recently, in response to the war in Ukraine. These shocks have provided further impetus to accelerate action on climate change to both increase resiliency and as a means to reindustrialize economies and own the future resources and technologies required to decarbonize.

Cheat sheet: COP27 Q&A

1. What is COP27?

COP27 is the 27th United Nations Climate Change Conference, or the 'Conference of the Parties.' At this year's event in Egypt, about 200 country members of the UN's Framework Convention on Climate Change, including Heads of State, ministers and negotiators, along with climate activists, mayors, civil society representatives and CEOs will meet to negotiate and commit to levels of emissions reductions and actions on climate change. World leaders join the first two days, with negotiations ongoing thereafter. The event also includes a series of thematic days covering finance, science and youth, decarbonization, adaptation in agriculture, gender and water, civil society and energy, biodiversity and solutions to mitigate climate change.

2. What is Net Zero?

As explained in our [Corporate Strategies for Net Zero publication](#), our civilization is drenched in hydrocarbons. While hydrocarbons have powered economic growth for over 150 years, such growth has come at a cost to our environment – by some estimates, the Earth is 1.1°C warmer than the pre-industrial era and carbon emissions are at unprecedented levels. Net Zero emissions, or 'carbon neutrality,' is the offsetting of all greenhouse gas (GHG) emissions released in the course of human activities. Broadly, a Net Zero plan aims to reduce carbon emissions as much as possible and then neutralize the residue via carbon removal.

Corporate strategies are a critical but under-examined aspect of the Net Zero debate. While the near-term costs of companies moving to Net Zero will be unappealing to some, the reality is that it has become a non-discretionary priority and such strategies are ubiquitous. In fact, over 90% of companies in the S&P 500 now publish corporate social responsibility (CSR) reports, up from only 20% in 2011. And currently, over 3,900 organizations, with a combined market cap of \$26tn, have now pledged their support for the Task Force on Climate-Related Disclosures (TCFD), with supporters spanning 101 countries. The growing interest in ESG and, more specifically climate change, is evident.

3. How is the plan to decarbonize the planet going?

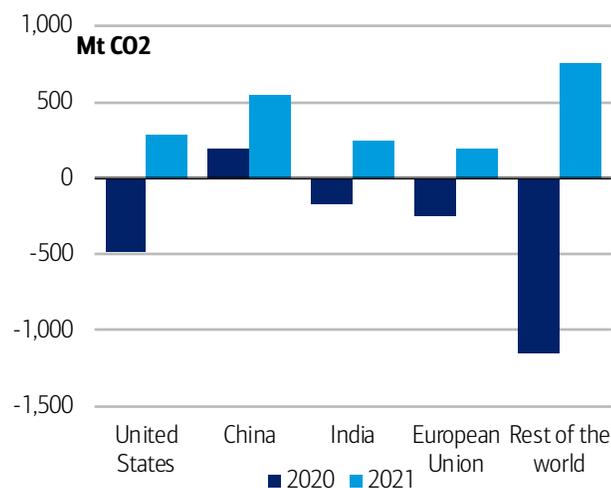
According to BofA Global Research, not so well. While 2020 provided a significant relief in global CO2 emissions as COVID-19 put the planet at a standstill, the re-opening of economies in 2021 has more than offset such progress. In fact, the increase in global CO2 emissions in 2021 was the largest in history.

Looking back to 2020, emission reductions totalled 1.9 gigatons (or “Gt,” which equals 1 billion metric tons) CO₂ due to the collapse in global transport, the biggest-ever drop. Then, energy-related CO₂ emissions grew to 36Gt CO₂ in 2021, rising by over 2Gt CO₂ year-over-year (YoY), the largest YoY increase in history. More than a quarter of the increase was driven by China, while the US and the EU also saw increases of 7% YoY (Exhibit 1). As for India, a rebound of coal demand for power generation led to an increase of 11% YoY in CO₂ emissions, topping 2019 levels.

For 2022, recent trends point to another meaningful rise in carbon emissions compared to last year’s levels. That said, the IPCC estimates the remaining carbon budget at 500Gt to limit global warming to 1.5°C with a 50% likelihood¹ (Exhibit 2). With global annual energy-related CO₂ emissions averaging 36Gt and total emissions surpassing 50Gt, the planet remains on an unsustainable warming path. Whilst not yet on track for Net Zero, owing to the worsening energy crisis and risks of higher costs, policy is ramping up to align climate goals with those of industrial and national security goals, which could accelerate clean energy deployment and global competition.

Exhibit 1: Change in annual CO₂ emissions, by region/country (metric tons)

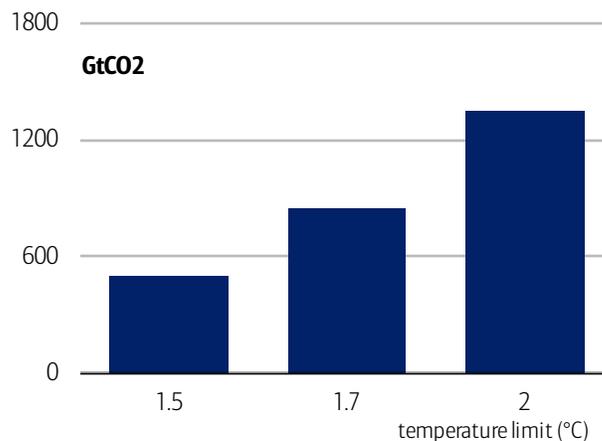
Increases of CO₂ emissions globally in 2021 more than offset the reductions in 2020



Source: International Energy Agency (IEA)

Exhibit 2: Estimated remaining carbon budgets for limiting global warming to temperature limit

In order to keep temperatures from rising above 1.5°C, CO₂e emissions would have to be capped at 500Gt



Source: IPCC data from AR6 WGI Summary for Policymakers (2021)

4. How did the race to Net Zero change from COP26 to COP27?

In the run-up to COP26 in November 2021, a flurry of corporate and government announcements saw Net Zero emissions targets rise to cover >80% of the population and >91% of GDP (vs 16% in 2019) (Exhibit 3). It was a broadly unified approach, in terms of the emissions reduction targets, and the technologies and collaboration required to achieve them.

However, the world is a very different place going into COP27. The economy is challenged in recovering from the pandemic, with supply chain and inflationary pressures as a result, further heightened by Russia’s invasion of Ukraine. The resulting price volatility and shortages of energy, food and commodities in particular have added security, resiliency and stable lower prices to the list of motivations for achieving Net Zero.

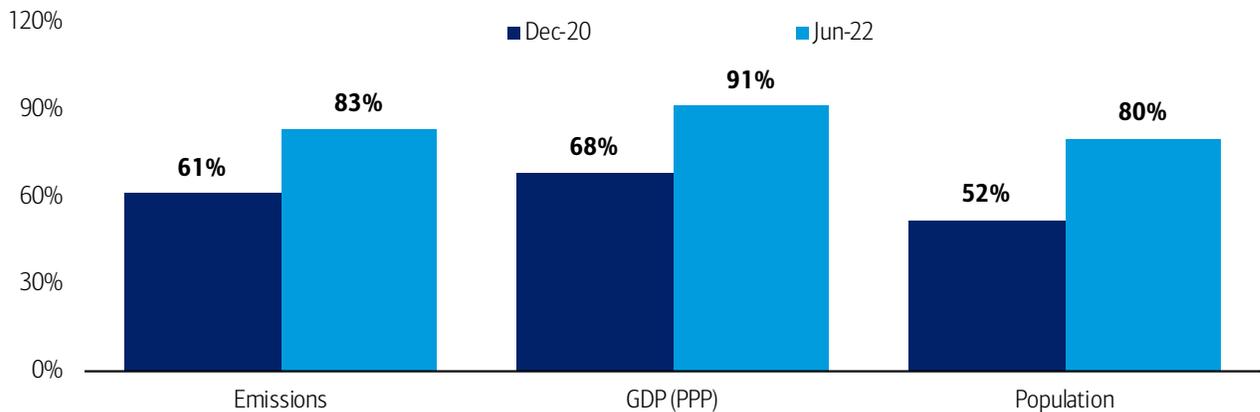
Ultimately though, this backdrop could accelerate the transition. Investments in technology and infrastructure will be required faster – not just to reduce emissions, but for economic and political reasons, too. This would bring forward the cost parity of many clean energy alternatives as nations deploy them at a greater scale to reduce emissions, but also target energy security and economic resilience (by reducing long-term energy prices), and reindustrialize their ailing economies given the vast investment required (between \$100-\$275tn to 2050 per BloombergNEF/McKinsey).

While COP26 showed some signs of progress in terms of national commitments, COP27 is expected to focus more on implementing than setting targets. Previously, participants pledged to reduce total man-made emissions from 52Gt to ~40Gt by 2030, yet these commitments are still far from the estimated 27Gt by 2030 target that would be required to eventually reach Net Zero by 2050. The question this year is, how do we get there?

¹ As per the IPCC definition, “The carbon budget is the maximum amount of cumulative net global anthropogenic CO₂ emissions that would result in limiting global warming to a given level with a given likelihood, taking into account the effect of other anthropogenic climate forcers.” See [IPCC. Climate Change 2022. Mitigation of Climate Change. Summary for Policymakers](#)

Exhibit 3: Net Zero targets cover a rising % of the economy

By June 2022, Net Zero targets covered countries accounting for 83% emissions, 91% GDP and 80% of global population



Source: Net Zero Stocktake 2022

5. What is expected at COP27?

Last year's COP26 conference in Glasgow was significant in being the first "breakout year" since Paris 2015, in which nations were required to update their emissions reduction targets to limit global warming (Nationally Determined Contributions, NDCs) under their UN obligations. These occur every five years (2020 was lost due to COVID), so the same level of targets and updates is not expected at COP27.

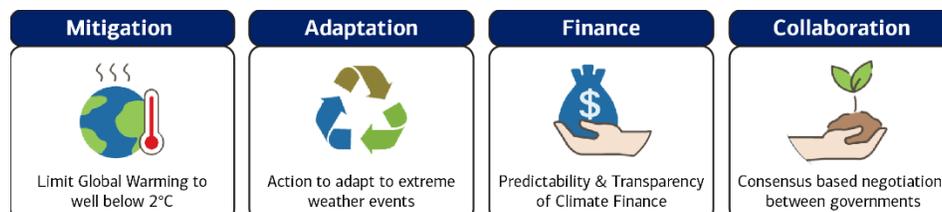
Instead, this year's focus should be on implementing existing plans and the policy, legislation, and funding frameworks required for this. Per the conference website: "This year should witness the implementation of the Glasgow pact call to review ambition in NDCs, and create a work program for ambition on mitigation."

The goals of this year's event are focused on mitigation, adaptation, finance and collaboration regarding action on climate change:

- **Mitigation:** To limit global warming well below 2C and towards 1.5C; countries expected to review/update previous pledges: "This year should witness the implementation of the Glasgow pact call to review ambition in NDCs, and create a work program for ambition on mitigation."
- **Adaptation:** Building adaptive capacity, strengthening resilience and reducing vulnerability to climate change; specific plans/actions to adapt to extreme weather events such as heatwaves, floods and forest fires.
- **Finance:** Adequacy and predictability of climate finance to achieve emissions reduction goals; transparency of finance flows and facilitated access to developing countries, including progress on \$100bn annual finance from developed to developing nations and achieving that commitment at COP2.
- **Collaboration:** Consensus-based approach to negotiations between governments, introducing new solutions/innovations to alleviate climate impacts through collaboration between government and private sector.

Exhibit 4: COP27 Aims: Mitigation, Adaptation, Finance and Collaboration around Climate Action

The purpose: 'to accelerate climate action through emissions reduction, scaled up adaptation and enhanced flows of appropriate finance'



Source: BofA Global Research

6. What does success look like at COP27 and beyond?

Given the geopolitical backdrop, mainly the reduced chance of multilateral agreements between some nations, and the tough task of requiring governments to deliver on the several announcements set at last year's conference, COP27 faces just "a 40% chance of success" in an assessment from BloombergNEF.

Perceived success of COP27 will likely hinge on two main areas of focus. First is the ambition of emission reduction targets from countries. Most G20 nations have issued higher 2030 emissions targets since 2020, but only three would be compliant to limit global warming to 1.5C by 2100, meaning that more specific policy and legislation is needed to meet existing pledges. Secondly, COP27 will need to focus on the progress towards financing \$100bn per year from developed to developing markets. This pledge was due in 2020 but has not yet been reached.

Overall, climate mitigation (particularly sector-based initiatives around specific themes, e.g., hydrogen, food, shipping), adaptation (metrics and finance), carbon markets and loss and damage to developing markets via the impacts of climate change, are expected to be the key themes addressed that will ultimately define the success of this year's conference.

7. Have the economic, political and fiscal costs of decarbonization changed?

The global energy transition to Net Zero will cost an estimated \$150tn, or \$5tn per year for 30 years – as much as the entire annual US tax base, according to the International Energy Agency. Such costs have likely been on the rise in the past 12 months, mainly due to inflation, the tightening of monetary policy, and the need for capital spending on both legacy and new energy assets. Prospects were brighter last year as energy transition investment spending surged in 2021, increasing to nearly \$800bn, 33% higher than 2020 led by Asia and Europe. This surge was driven predominantly by China, which nearly doubled its energy transition spending in 2021, relative to 2020. However, with risk aversion amidst roaring global inflation, rapidly tightening central banks, and the accompanying higher interest rates, investment has dried up.

Previous estimates for the Net Zero transition have ranged between \$3-4.5tn annually between 2021 and 2050. However, a recent analysis by McKinsey suggests that spending could be even higher after incorporating assets that use energy, such as cars and heat pumps, capex in agriculture and forestry, and continued spending on high-emissions assets. Costs could be even higher still as they exclude retraining workers, compensation for defunct assets, or loss of value pools. Indeed, a meaningful reallocation of labor may be necessary under the energy transition, as McKinsey estimates that, while 200 million jobs could be gained through the transition, 187 million will be lost.

Production costs could also increase outside of spending on new physical assets, with those for steel and cement, for example, rising by 30% and 45%, respectively. Power could also see a front-loaded increase in the global average for the delivered cost of electricity generation on the back of new investment, creating capital costs and depreciation charges for renewables, grid, storage capacity and legacy fossil fuel-based power assets.

8. How will the US's IRA and the EU's RePowerEU impact decarbonization?

The Inflation Reduction Act (IRA) and RePowerEU highlight that energy is now a matter of national security, with both plans aiming to accelerate the deployment of clean technologies such as renewable, electric vehicles and clean hydrogen, but with associated industrial policies to promote local manufacturing and supply chains. All three components of the "energy trilemma" – security, sustainability, and affordability – could align long-term, given the increasing competitiveness of clean energy alternatives as they scale.

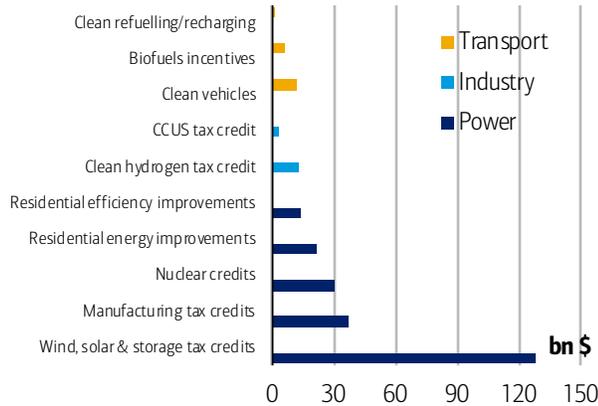
As mentioned in our [recent publication](#), the IRA marks the largest financial support for climate and energy transition in the history of the United States, setting aside about \$370bn in financing and tax credits to help support clean energy and advance future climate-related technologies. Within the energy sector, the largest line item appears to be tax credits for renewable energy and storage, which some estimate could total more than \$120bn (Exhibit 5). Nuclear energy is also a big IRA beneficiary, receiving an estimated \$30bn in production tax credits. Elsewhere, domestic manufacturing and residential energy and efficiency improvements combined could see more than \$60bn in federal support. That said, Senate Democrats suggest that this bill will help reduce carbon emissions by 40% by 2030 from 2005 levels (Exhibit 6).

The European equivalent of the IRA is RePowerEU, which is also set to drive significant changes in the bloc's energy mix because it is not just about decarbonization, but also about energy security. That said, the plan comes in a different context, as the war in Ukraine unveiled the need to reduce dependence on Russian energy. REPowerEU focuses on the dual goals of:

- **Reducing dependence on fossil fuels** at the level of homes, buildings and industry, and at the level of the power system by boosting energy-efficiency gains, increasing the share of renewables and addressing infrastructure bottlenecks.
- **Diversifying gas supplies** via higher LNG imports and pipeline imports from non-Russian suppliers, and higher levels of biomethane and hydrogen.

Exhibit 5: Inflation Reduction Act estimated spending on select energy transition items

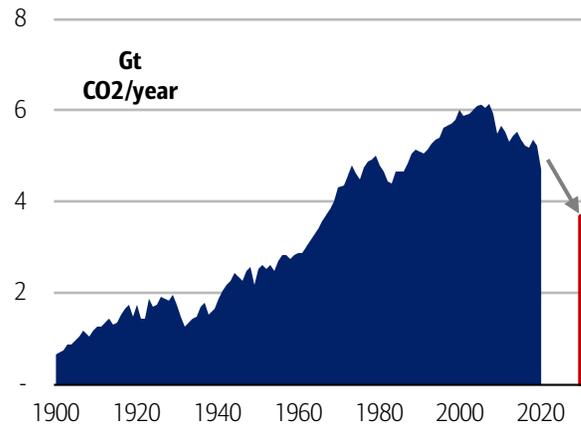
Renewable energy and storage credits make up a large portion of spending, followed by domestic manufacturing, nuclear, and residential spend



Source: Platts, BofA Global Research estimates

Exhibit 6: US emissions and IRA 2022 emissions reduction goal

Senate Democrats suggest that this bill will help reduce carbon emissions by 40% in 2030 from 2005 levels



Source: Our World in Data (OWID)

The RePowerEU policy increased targets for decarbonization technologies, as well as the complete phase-out of Russian fossil fuel energy “well before 2030” in light of its invasion of Ukraine. The revised plan published in May targets a more aggressive reduction in gas consumption overall than originally proposed in 2021 (in the “Fit for 55” policies targeting 55% emissions reduction), to a 56% reduction vs 30% before. All sectors are expected to contribute by reducing gas consumption, with buildings (heating) targeted to reduce the most owing to new technologies (heat pumps) and energy efficiency.

To offset this, the European Commission is targeting doubling of the share of renewable energy by 2030 and at the same time introducing faster energy efficiency measures to reduce overall power consumption in Europe by the end of the decade (from 11.5Twh in 2021 to 8.9Twh in 2030). By 2030, Europe will generate 85% of its electricity from renewable sources, which is approximately double that of the US or China.

9. What are the updated decarbonization projections for 2050?

There have been significant developments in the decarbonization space over the past few years. While BofA Global Research does not see major changes from its status quo, it now factors in an aggressive scenario of 14Gt CO₂ by 2050, compared to a previous 15Gt CO₂. That said, BofA Global Research’s status quo, or business as usual scenario, still factors in more than 30Gt CO₂, far off from a Net Zero world by mid-century. Under this scenario, the most polluting fuels, coal and oil, account for about half of total energy demand by 2050, against a smaller 10% share for renewables.

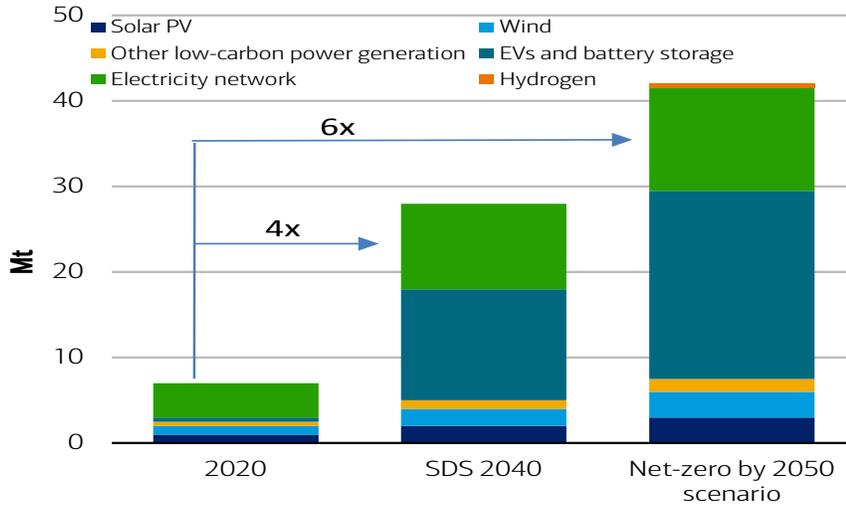
10. Do we have enough resources?

Two things are clear: the road to Net Zero isn’t easy and challenges most certainly lie ahead. For one, the time lag before clean technologies are available at scale means more fossil fuels and demand destruction in the short term. Additionally, the sheer volume of resources and investment required is also a continuing battle.

Accelerating clean energy demands to reach Net Zero emissions by 2050 would require 6x the mineral content, with increases multiples higher for some battery metals such as lithium, graphite and nickel – causing structural deficits in many metals post 2025 (Exhibit 7). According to BofA Global Research, however, add to these challenges the geopolitical fallout of each global superpower prioritizing similar technologies to achieve their own goals, only ramping up rivalries, and it is clear that the road to Net Zero will not be a straight path.

Exhibit 7: Net zero to increase mined mineral demand 6x by 2050

Accelerating clean energy demands to reach net zero emissions by 2050 would require 6x the mineral content, with increases multiples higher for some battery metals such as lithium, graphite and nickel



Source: International Energy Agency (IEA)

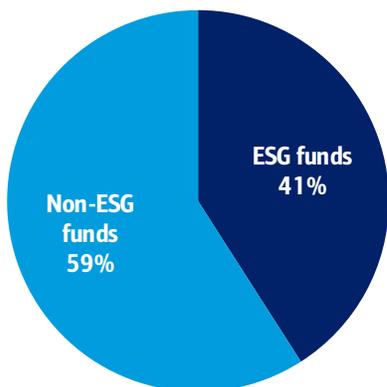
11. Does Net Zero impact the cost of capital and will capital markets reward it?

Yes! Financing the trillions of dollars of investment needed for Net Zero will require major changes in capital allocation. The focus on climate action is already reshaping how investment decisions are made and where investment dollars flow – which in turn, also impacts financing costs. Near term, financing is challenged by rising inflation, higher interest rates and geopolitical issues, but the need for sustainable financing is gaining traction not only as a necessity, but also as part of a ‘just transition’ that addresses climate change imperatives as well as extreme poverty.

But in taking a step back, ESG fund flows show resilience. According to BofA Global Research, over 40% of global equity fund flows went into ESG funds this year (\$59bn out of \$143bn) and YTD factor outperformance has been dominated by climate risk components. Additionally, based on MSCI data and scoring (2007-8/2022), forward price-to-earnings ratios for companies with top-quintile ESG scores currently reflect a 40% premium to the bottom quintile.

Exhibit 8: Over 40% of global fund flows into ESG in 2022 YTD

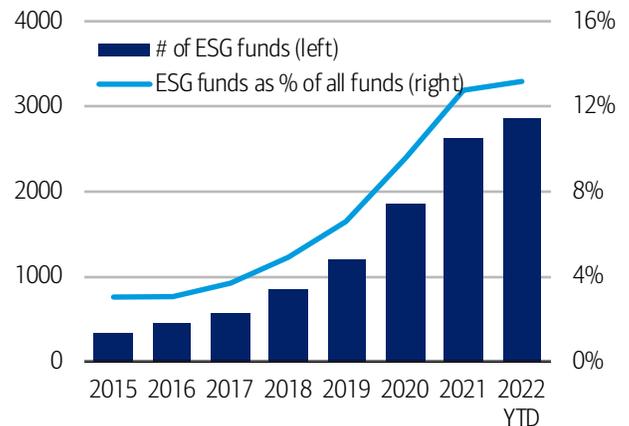
Breakdown of YTD inflows into ESG and non-ESG funds (through 8/31/2022)



Source: EPFR Informa Financial Intelligence, BofA US Equity & Quant Strategy

Exhibit 9: Today over 1 in 8 global equity funds is an ESG fund

Number of global equity ESG funds (lhs) and ESG as a % of all funds (rhs)



Source: EPFR Informa Financial Intelligence, BofA US Equity & Quant Strategy

12. What are the differences between short- and long-term policy responses?

The good news is that, in looking long term, the technologies required to decarbonize are increasingly becoming the most economical choice (or with a clear pathway to get there), and can be created locally or closer to home with the right incentives. It’s not just about action on climate change anymore – such technologies are increasingly viewed by policymakers as key for

reindustrializing economies. And the Inflation Reduction Act as well as RePowerEU, mentioned above, are key examples of how nations are accelerating the deployment of clean technologies.

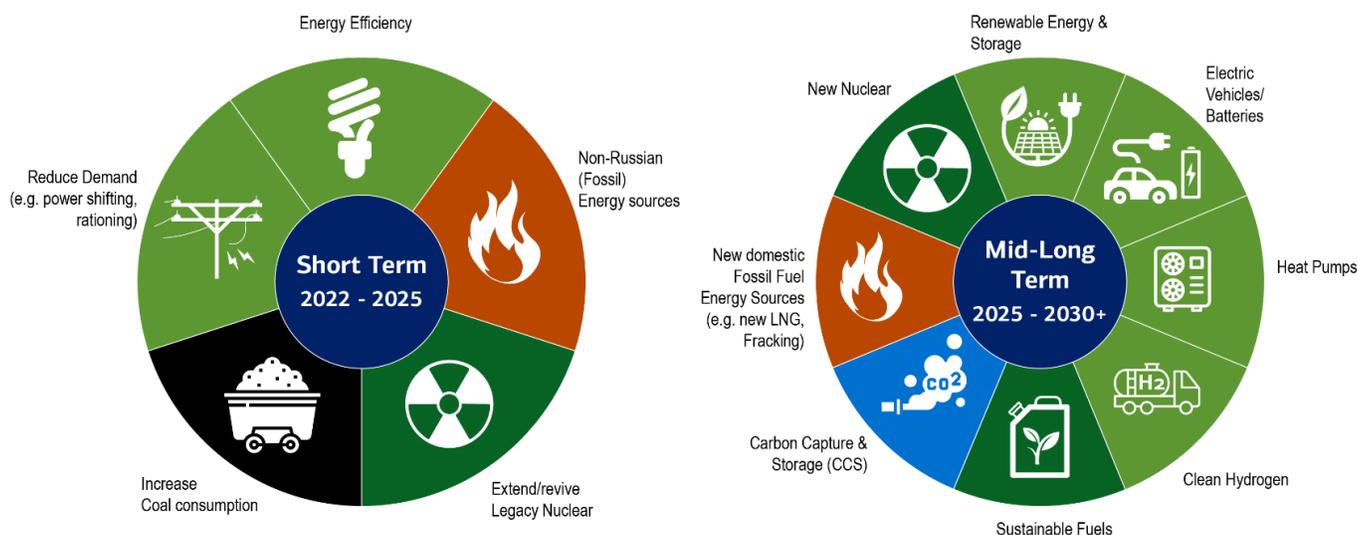
According to BofA Global Research, in the short term, however, there are several challenges ahead, not least the scale of investment, infrastructure and resources required to achieve Net Zero, which may also add to inflationary pressures. But the more pressing challenge comes from geopolitics, as countries race to own the resources and technologies required, and to weaponize them as leverage to achieve strategic goals when disputes arise.

Nearer term, to deal with the current energy crisis, policy choices are being made that may appear at odds with Net Zero goals. A combination of subsidizing energy bills, diversified energy sources, demand destruction, and extending the use of fossil fuel and nuclear assets are all in evidence, particularly in Europe. Zero emissions alternatives may be unable to fill the gap to avoid this in the short term, but the motivation to increase their adoption is now far greater.

This will likely be a focal point of discussions at COP27, in the context of implementing Net Zero ambitions in the new economic reality. Decarbonization will probably accelerate in light of all this, as investments rise ahead of original targets – but with a wider range of technologies and infrastructure to ensure resilience, and diverging decarbonization approaches from countries as a result.

Exhibit 10: Mitigating Climate Change vs the Energy Crisis: Short- and long-term policy responses look very different

Whilst policies and investments look set to accelerate the deployment of technologies necessary for reducing emissions, reaching the scale required to have a meaningful impact will take time. Navigating the energy crisis in the short term requires a combination of demand reduction and diversification of (mostly) fossil fuels



Source: BofA Global Research

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