



The Challenges of Emerging Markets Net Zero Investing

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In the years since the Paris Agreement, the corporate world has built a dense network of net zero and climate risk frameworks and standard-setting agencies. Notably absent though, are standalone frameworks for emerging markets, in both a corporate and sovereign setting, seemingly in contradiction of the Paris Agreement's commitment to common but differentiated responsibility and respective capabilities. In this paper, Lazard Asset Management will set out our perspectives on adapting and adjusting existing net zero frameworks to accommodate emerging markets, corporate and sovereign decarbonization, and emerging markets climate engagement. Without considering these distinctions, investors risk implementing strategies that will result in a systematic rebalancing away from emissions-intensive emerging markets assets, and even emerging markets overall which could result in portfolio decarbonization, rather than real-world decarbonization.

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Introduction and Perspectives on Emerging Markets Net Zero Investing

Lazard Asset Management’s [Approach to Net Zero Portfolios](#) outlined our high-level framework on how the investment management industry can implement the objectives of the Paris Agreement, based on “*emissions reductions... help from all actors to deliver them, and financing to expedite the changes.*”¹ We believe the principles can be applied across a broad range of investment strategies, but also understand that investing in Emerging Markets (EM) requires its own specific guidance. We believe the current range of tools and standards available to investors, including those from the Net Zero Asset Owners Alliance, the Science-Based Targets initiative (SBTi), and the Net Zero Asset Managers initiative (NZAM) are excessively “one size fits all” and that the next iteration of these standards should include EM-specific considerations. Lazard Asset Management has started to engage with some of these organizations and looks forward to collaborating on the development on new best practices for EM net zero.

Without developing such standards, we believe relevant investors risk decarbonizing their EM investments through divestment, rather than supporting real-world emissions reductions and the energy transition in these economies. By contrast, the introduction of EM standards can support responsible and engagement-led EM investing. Lazard Asset Management believes [net zero investing should always prioritize real-world emissions reductions](#).

This paper will set out where and how we think additional guidance is needed when implementing net zero across Emerging Markets Equity and Fixed Income portfolios. We believe the use of EM-specific portfolio benchmarks for countries and industries, derived from existing climate scenarios should be considered.

Given well-documented differences in climate disclosures between developed markets (DM) and EM, we also propose a disclosure and target setting “on-ramp” for corporations, a process that will also guide the industry’s climate engagement and escalation policy. While most net zero literature in the investment management industry focuses on the need to invest in climate solutions businesses, or those that support mitigation or adaptation activities, less guidance exists on how to direct financing from developed to emerging economies. To this end, we believe the industry’s application of EM net zero should consider corporate and sovereign climate strategies in the context of persistent DM to EM financing gaps.

Finally, as with our general perspectives on net zero, we advocate for engagement-led change, on a bilateral and collaborative basis, across EM corporates and sovereigns. In an EM setting, sovereign engagement has a particular significance because of the decarbonization headwind that exists from the EM policy gap. In other words, the stated targets and policies in major EMs are further from being 1.5°C aligned than those in many major developed economies.² This might mean that the economics of decarbonization are more challenging in certain countries

This approach can be summarized as:

1. Global investment benchmarks for climate change do not make sufficient allowances for a differentiated pace of change in EMs.
Proposal: *The industry should develop and implement EM-specific equity and corporate debt benchmarks derived from the International Energy Agency (IEA), Transition Pathways initiative (TPI), and Central Banks and Supervisors Network for Greening the Financial System (NGFS) pathways.*
2. Major third-party assessments of sovereign-level climate performance do not cover large parts of the sovereign issuer universe.
Proposal: *The industry should develop and implement standalone net zero methodology for EM sovereigns.*
3. Major global climate initiatives are inaccessible to smaller or EM corporates.
Proposal: *The industry should allow for an “on-ramp” process for EM corporates to adopt major climate initiatives at an appropriate pace, supported by EM-specific engagement and escalation policy.*
4. Policy and institutional support for climate change in EM is often lower than in DM countries.
Proposal: *The investment industry as a whole should extend climate engagement to EM sovereign issuers, standard-setting agencies, accounting bodies, and regulators.*
5. A major climate change financing gap exists in EM across both the public and private sectors.
Proposal: *Advocate for a strategy that encourages investments in countries and companies in need of additional capital to pursue a “just transition” rather than a strategy that encourages divestments from countries or companies that are currently underperforming.*

than others, where a more supportive policy framework exists. The existence of this EM policy gap also means that net zero engagement in EM must naturally extend to regulatory bodies and standard-setting agencies so that disclosure and target setting can become core business competencies for EM corporates in the way they have become for their DM equivalents over the last several years. Lazard Asset Management has recently joined the Emerging Markets Investors Alliance to begin to facilitate our EM sovereign engagements.³

History of Emerging Markets in Global Climate Policy

By focusing on EM-specific approaches, both in terms of the pace of decarbonization and the need to direct financing towards EMs, it is possible to derive frameworks that are grounded in climate science and international climate policy. This means it's necessary to start by thinking about how EMs are currently considered in global climate policy.

The international community's approach to tackling climate change is underpinned by two UN institutions—the Intergovernmental Panel on Climate Change (IPCC), established in 1988, and the UN Framework Convention on Climate Change (UNFCCC), established in 1992. At a high level, the IPCC exists to establish scientific consensus on climate change and the solutions required to tackle it, while the UNFCCC exists to co-ordinate international agreements aimed at tackling climate change. Throughout their history, both organizations have acknowledged that DMs and EMs should be treated differently for several reasons. The Rio Earth Summit in 1992 for example included as Principle 7 that *“in view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear.”* The Kyoto Protocol, adopted in 1997, adapted this to what has become an iconic phrase in climate policy, by stating that DMs and EMs should approach the climate change fight in a way that acknowledges their *“common but differentiated responsibility and respective capabilities.”*

Although the *“common but differentiated responsibility”* can be understood and interpreted on many different levels, greenhouse gas (GHG) emissions data provides a proxy for most of the issues at stake. If we look at GHG emissions data, including those from land-use change, we can generate a list of countries that look, in the present day, responsible.⁴ China, the United States (US), and the European Union (EU) sit on top of this list. When only carbon emissions are considered, India is added to the list in fourth place.⁵ If we look at historic cumulative emissions, we can generate a second list of countries that appear in a slightly different order.⁶ From 1850–2021, the US, China, and Russia have been the top three cumulative contributors to global GHG. Finally, if we look at emissions per capita, we can produce an altogether different list of countries that also speaks to the development challenge that underpins the climate change fight. Here, China is second to the US, but has overtaken the remaining DM level, whereas India retains at a level that is only 13% of the US figure.⁷

The emissions picture is further complicated by the fact that international emissions data is gathered and set on a territorial basis, i.e., based on where the emissions are produced, not consumed. In the United Kingdom (UK) for example, the government reports consumptions-based emissions that are ~60% higher than the territorial emissions that sit at the heart of UK climate policy.⁸ These “imported” emissions are, in climate policy terms, not the responsibility of the UK, but as the world's emphasis shifts to the “EM COP” in Egypt this autumn, pressure is likely to mount for DMs to set targets based on “consumption” emissions. In April 2022, Sweden became the first country to adopt such an approach.⁹

In translating global climate policy into a framework specific to EM investing, it is important to consider regional- and country-specific emissions pathways, the role of governmental policy in setting the pace of a national transition, and the need to deliver financing from DMs to EMs. It may be helpful to consider whether existing climate investing frameworks and approaches regarding corporate emissions reductions are excessively generous to DMs, as a net zero approach that is derived from a global carbon budget is fundamentally a zero-sum calculation.

Financing Gaps and Emerging Markets Vulnerability

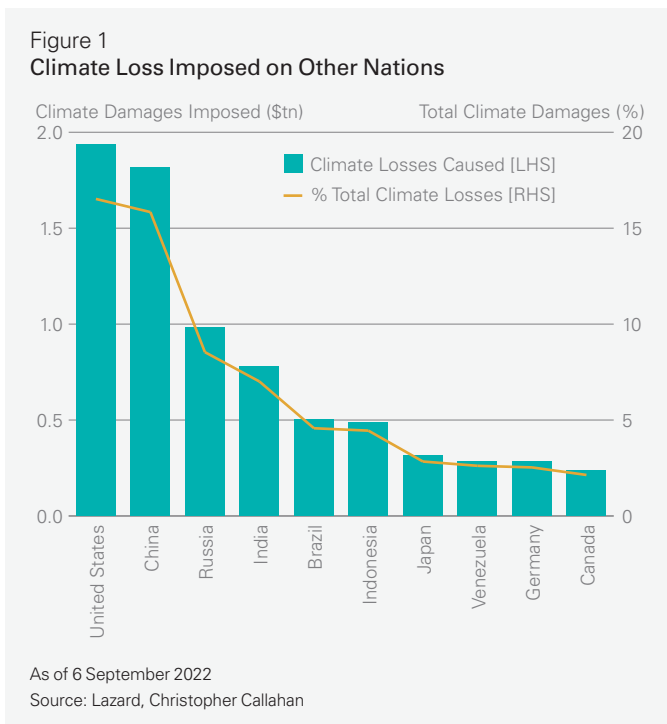
The UNFCCC has also promoted the concept of directing climate finance from DMs to EMs. COP15 in Copenhagen in 2009 established the target of \$100bn in annual climate finance by 2020¹⁰ from what were termed “Annex 1 Parties” or developed countries, to “non-Annex 1 Parties”.

This climate finance pledge has been as much of a failure as were other international agreements to deliver emissions reductions. Non-delivery of this climate finance promise by DMs is, as a result, arguably one of the largest causes of friction in international climate negotiations. A 2021 article in *Nature* calculated for example the US had contributed less than 20% of its fair share contribution to the \$100bn target and that it was unmet in each of the years from COP15 up to the 2020 target year.¹¹ The international community has also yet to implement a ‘Loss and Damage’ mechanism, as established at COP19 in Warsaw in 2013. Simply put, a “loss and damage” mechanism would help to provide financing to the most vulnerable countries, in terms of the physical risks of climate change, for the losses and damages they face from climate change that they either cannot adapt to or cannot afford to adapt to. The recent appointment of Simon Stiell of Grenada as the new head of UN Climate Change is significant in the context of unresolved loss and damage promises. Grenada is a “Small Island State,” which is a negotiating bloc for the UN's COPs, made up of 39 small island and low-lying coastal developing states. Unsurprisingly, given their heightened climate change vulnerability, Small Island States are particularly focused on loss and damage, given their low historic responsibility for climate change but high expected costs, especially from adaptation.

Small Island States are not the only EMs that will face insurmountable damages because of climate change. We need only to look at the flooding in Pakistan witnessed in summer 2022. Pakistan is only responsible for ~1% of global GHG emissions. At the time of publication of this paper, the Pakistani government estimates the cost of recovery of the summer's catastrophic floods to be in excess of \$10bn. While the International Monetary Fund (IMF) has provided the country \$1.1bn, this is completely inadequate to fund a recovery and highlights the need for a "loss and damage" mechanism. Without adequate assistance to fund the recovery, we certainly cannot expect that a sovereign nation such as Pakistan will invest in climate change mitigation in any meaningful way.

As Pakistan's Climate Minister, Sherry Rehman put it in an interview with the *Guardian* in September 2022: *"There is so much loss and damage with so little reparations to countries that contributed so little to the world's carbon footprint."*¹²

Climate damages are not inconsequential in size. Academic research suggests the damages imposed on other countries from cumulative emissions from the US are ~\$2tn. Early industrializers Germany, Canada, and the UK are also among the main perpetrators of historic damages, at ~\$250–\$290bn each.¹³ This means that in emissions and development terms, *"high-emitting countries have benefited themselves while harming low-income, low-emitting countries, emphasizing the inequities embedded in the causes and consequences of historical warming."* This is an important consideration given the often constrained nature of state financing in EMs.

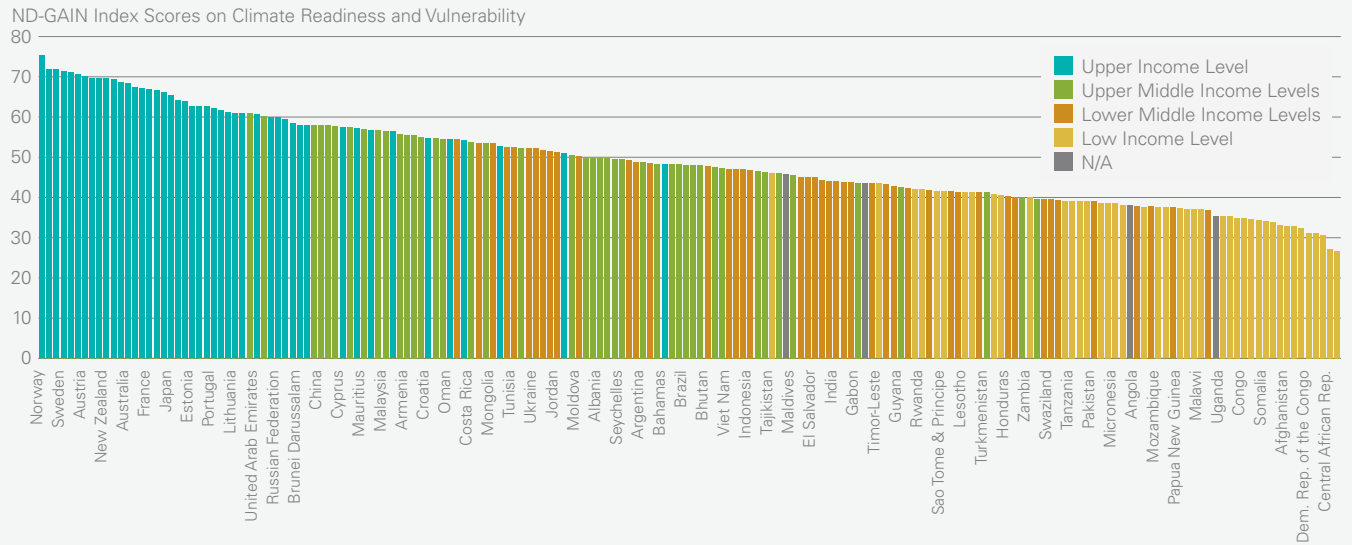


A picture emerges therefore where EMs face an urgent financing need across both public and private sectors. A recent report from Standard Chartered suggested that they will need ~\$98.4tn to transition in time to meet net zero goals. The report estimates that should EMs fund this investment without help from DMs, average household spending is expected to fall by 5% each year,¹⁴ which would have dire consequences on these economies and their development. Governments in many of these countries have more limited access to affordable capital and a wide range of investment needs beyond only climate mitigation. As such, we believe that the mobilization of capital from DMs to EMs will be necessary if the world is to meet net zero goals. However, the process to mobilize even \$100bn per year, which is not sufficient, has been challenging. We believe this further justifies our view that a differentiated approach is needed when considering the net zero transition in EMs. Such an approach must distinguish between countries and accounts for the fact that the investment in transition and therefore the pace of transition may be slower in particular EMs.

The financing challenge many EM countries are facing is further exacerbated by the fact that many face the greatest risks from the physical impacts of climate change and have had the least ability to respond to these risks. The IPCC's work has introduced the scientific consensus on climate change and includes the following statement on who has the most to lose from the physical impacts of climate change: *"vulnerability is higher in locations with poverty, governance challenges, and limited access to basic services and resources, violent conflict, and high levels of climate-sensitive livelihoods."* This speaks to a need for an increased emphasis on adaptation in many EMs given heightened physical climate risk. When looking at climate solutions investments in a DM economy setting, it's immediately clear that the universe of corporate solutions is focused on mitigation activities so again there is a need for an approach that distinguishes between EM and DM countries and within EM countries. The vulnerability is clear when metrics for physical climate risk are considered. The ND-GAIN Index, which measures countries' vulnerability and readiness in terms of the physical risks of climate change, finds that the lowest-income countries tend to be most exposed (vulnerable) and least prepared (lacking in readiness). ND-GAIN measures *"overall vulnerability by considering six life-supporting sectors: food, water, health, ecosystem service, human habitat, and infrastructure"* and readiness as *"economic readiness, governance readiness, and social readiness."*¹⁵

This data further demonstrates the challenge in funding the transition in many EM countries, where capital to fund mitigation or "transition" must also compete with capital to fund adaptation to climate change as well as a myriad of other projects not limited to schools, hospitals, roads, and public transport, and is further complicated by the more limited access to capital

Figure 2
ND-GAIN Index of Climate Readiness



and higher cost of capital many of these countries face. The UN Environment Programme (UNEP) Adaptation Gap Report 2020 noted that 72% of countries have “adopted at least one national-level adaptation planning instrument (plan, strategy, policy or law),” however, the funding costs continue to rise. The UNEP estimates that current adaptation costs in DMs are ~\$70bn per year, but they will increase to \$140–\$300bn in 2030 and further to \$280–\$500bn annually by 2050.¹⁶ In many cases, we foresee that the urgent need to invest in adaptation may supersede investment in mitigation projects in countries with limited access to and high cost of capital. However, we acknowledge that transition efforts will be stalled without investment from DM governments, multi-lateral institutions, and private sector investors because fighting climate change in EMs cannot come at the expense of development.

“If emerging markets do not get help with their transition to net zero, either they will not transition at all, which means the Paris Agreement goals are missed, or they will transition but it will have a crippling impact on their economies.” Bill Winters, Chief Executive Officer of Standard Chartered, 2022¹⁷

The Importance of Granular Climate Benchmarks

Since publication in 2018, the IPCC’s Special Report on Global Warming of 1.5°C (SR15) has become one of the main reference documents for 1.5°C pathways.¹⁸ The original research highlighted the need for 45% CO₂ emissions reductions by 2030 from a 2010 base. As global emissions have continued to rise since the publication of these pathways, the headline ambition required quickly rose to ~50% for the 2020–2030 period, a

target that has also been adopted by the UNFCCC’s Race to Zero campaign.¹⁹ The EU has adopted the same approach for its climate benchmarks, where the annual required rate of decarbonization is set at 7% per annum.²⁰ This rate has also been adopted by providers of decarbonization or climate change indices, such as those offered by MSCI.²¹ Industry groups such as the NZAM, of which Lazard Asset Management is a member, have also adopted emissions reductions of ~50% from 2020 to 2030 as the headline objective, based on SR15, although in the case of the NZAM with the important phrasing that emissions reductions should be a “fair share of the 50% global reduction” to 2030.²² The Net Zero Asset Owners Alliance interprets SR15 as a corridor of 49%–65% emissions reductions by 2030, or 6.5% annually at the mid-point.²³ There is therefore a consensus across asset owners, asset managers, and index providers, that a 1.5°C-aligned portfolio is one that decarbonizes at ~7% annually. This is a target that does not accommodate “common but differentiated responsibility.”

Table 1
Major Climate Benchmarks

Scenario/Benchmark Name	Decarbonization Rate 2020–2030 (%)
Paris Aligned Benchmark	-7.0
MSCI Climate Change Indices	-7.0
Net Zero Asset Managers initiative	-6.7
Net Zero Asset Owners Alliance (minimum)	-6.5

As of 25 January 2022

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Source: Lazard

While this approach is valid on a global aggregated level, when dealing with portfolios that have more focused regional or industrial exposure, granular benchmarks are needed. As the Task Force on Climate-related Financial Disclosures, (TCFD) portfolio alignment team put it:

“We recommend that portfolio alignment methods prioritize granular benchmarks where they meaningfully capture material differences in decarbonization feasibility across industries or regions. This will allow tools to increase the sophistication with which they can accommodate necessarily differentiated rates of decarbonization into performance benchmarks.”²⁴

This determination has now been continued by portfolio alignment work being undertaken by the Glasgow Financial Alliance for Net Zero (GFANZ):²⁵

“Certain regions and sectors may need to decarbonize more slowly compared to the rest of the economy and more complex models could be constructed to avoid situations where an unjustly high overshoot is applied to an emerging market company.”

“It may be unrealistic to align a company in a hard-to-decarbonize sector, or one in an emerging economy, with the same decarbonization benchmark as a company in an easy-to-decarbonize sector or developed economy.”

Detailed industry-specific pathways already exist, such as from the TPI²⁶ and the SBTi via their sectoral decarbonization approach,²⁷ but less guidance is available on the use of regional pathways. To deliver the “*common but differentiated responsibility and respective capabilities*” concept from global climate policy, a way forward would be to consider using regional and country-level decarbonization benchmarks in the same way industry benchmarks are already in use. Given their deployment in adjacent parts of climate finance, regional pathways from the IEA and the NGFS are well suited for adoption in this setting.

This means the discussion of portfolio decarbonization benchmarks needs reframing. Rather than seeing a portfolio target as a top-down construct with a particular fixed rate, a portfolio decarbonization target should be seen as a derivation of the underlying asset-level targets. In short, it should be a weighted average of individual targets. In this sense, there is no such thing as a Paris-aligned rate of decarbonization without first knowing the underlying assets.

The need for granular regional and industrial benchmarks can be demonstrated by an analysis of corporate commitments to the SBTi, where there are now >1,600 companies (August 2022) with emissions-reductions targets. Here, a company can use one of two methodologies—the *Cross Sector Pathway* for 1.5°C alignment, or the *Sectoral Decarbonization Approach*, where reductions are based on a physical emissions intensity pathway derived from that sector’s carbon budget. Under the former approach, a company must deliver 42% cumulative emissions reductions 2020–2030, which equates to a 5.3% compound rate

Table 2
TPI Industrial Decarbonization Pathways

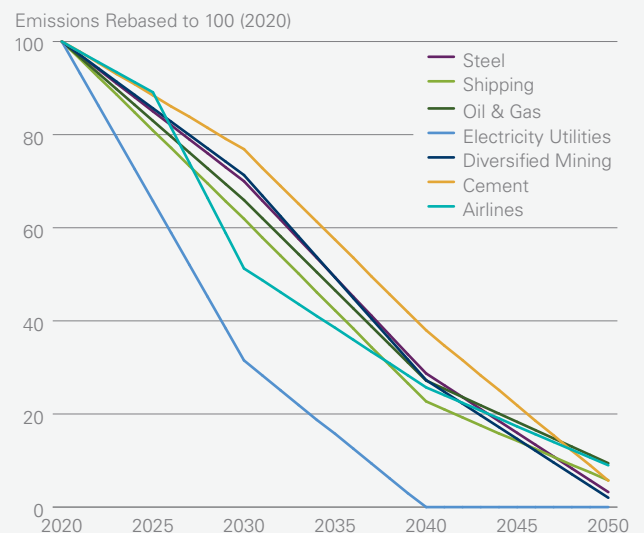
Scenario/Benchmark Name	Decarbonization Rate 2020–2030
SBTi Power Sectoral Decarbonization Approach 1.5°C	-13.3% (tCO ₂ /MWh)
Transition Pathway Initiative Global Electricity Utilities 1.5°C	-10.9% (tCO ₂ /MWh)
Transition Pathway Initiative Cement 1.5°C	-2.6% (tCO ₂ /t cement)
Transition Pathway Initiative Steel 1.5°C	-3.5% (tCO ₂ /t steel)

As of 4 October 2022

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Source: Lazard, TPI

Figure 3
TPI Industrial Decarbonization Pathways



As of 4 October 2022

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Source: Lazard, TPI

of reduction. This illustrates the first disconnect between methodologies, in that a portfolio of companies that are all committed to 1.5°C under the SBTi, would not necessarily deliver 7% annual decarbonization. When the second SBTi method is considered, the picture is further complicated as decarbonization rates exist from -2.5% to -15.1%, per unit of physical output. What this means however, is that on an industry level, there is a mismatch between the net zero benchmarks used by individual corporations, and the portfolios that they may be part of. This is before we even consider the role of regional benchmarks which are not yet part of the SBTi’s approach. In a recent paper in the journal *Nature Communications*, the authors suggest corporate target-setting methodologies should reflect differentiated responsibilities, meaning that “*companies in developed nations*

Table 3
Electric Utility Decarbonization Pathways

Scenario/Benchmark Name	Decarbonization Rate 2020-2030	Physical Intensity 2020 (tCO ₂ /MWh)	Physical Intensity 2030 (tCO ₂ /MWh)
Transition Pathway Initiative Global Electricity Utilities 1.5°C	-10.9% (tCO ₂ /MWh)	0.438	0.138
Transition Pathway Initiative Europe Electricity Utilities 1.5°C	-15.2% (tCO ₂ /MWh)	0.239	0.046
Transition Pathway Initiative Non-OECD Electricity Utilities 1.5°C	-10.3% (tCO ₂ /MWh)	0.529	0.179
Transition Pathway Initiative OECD Electricity Utilities 1.5°C	-14.5% (tCO ₂ /MWh)	0.305	0.064
SBTi 1.5°C Power Pathway	-13.3% (tCO ₂ /MWh)	0.416	0.100

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Source: Lazard, SBTi, TPI

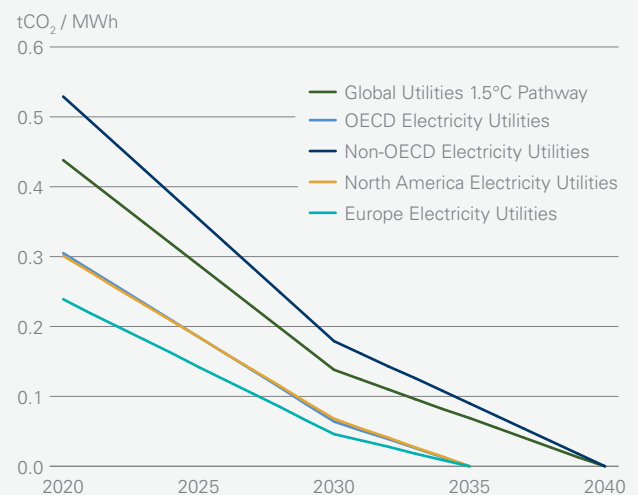
*have a greater responsibility in mitigating climate change than companies in developing countries due primarily to their greater historic contributions to climate change and mitigation capabilities.*²⁸ This makes it possible that more complexity is introduced over time to corporate net zero targets in a way that creates mismatches with the portfolios that their securities go into.

The TPI also publishes sector benchmarks based on physical intensity, in the same mold as the SBTi. Here, the global electricity utilities 1.5°C pathway has a -10.9% annual (tCO₂/MWh) decarbonization rate 2020–2030, but those for cement and steel are -3.5%/-2.6%. The TPI has recently started publishing regional decarbonization rates by industry. When the above rate of -10.9% for global utilities is divided up, TPI calculates a European rate of -15.2% annually and a non-OECD rate of -10.3%. Crucially though, because this is a physical intensity benchmark, the absolute values can also differ. This means in 2020 the starting carbon intensity for the non-OECD group is 0.529 tCO₂/MWh, while for Europe it is 0.239 tCO₂/MWh. Using this approach, a non-OECD utility is not only being asked to decarbonize more slowly than an OECD equivalent, but from a much higher starting point in absolute terms. Without this level of granularity in decarbonization benchmarks, assets and portfolios are being judged against targets that are likely to be either too punitive or too generous.

Referencing this back to the SBTi, where the sector pathways are still global by industry, this is likely reflected in the nature of the companies that have chosen to set targets. Of the 104 electric utilities companies that have set or committed to setting a science-based target, 88 are in Europe, North America, or DM

Asia. It's hard to see how the SBTi can be properly expanded to EMs without the use of more granular benchmarks as the process would require setting targets that EM corporations are unlikely to be able to hit and should not be asked to deliver. As it stands the SBTi 1.5°C global power pathway has a 2030 emissions intensity target of 0.100tCO₂/MWh, 47%–117% above the TPI levels for their DM benchmarks across Europe, North America, and OECD.

Figure 4
TPI Regional Electric Utility Pathways



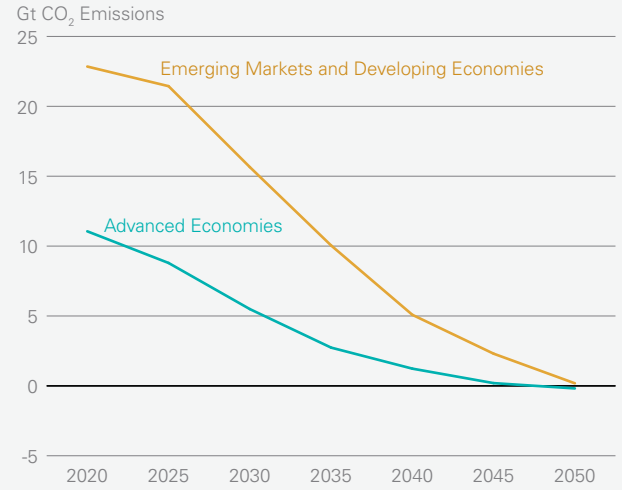
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Source: Lazard, TPI

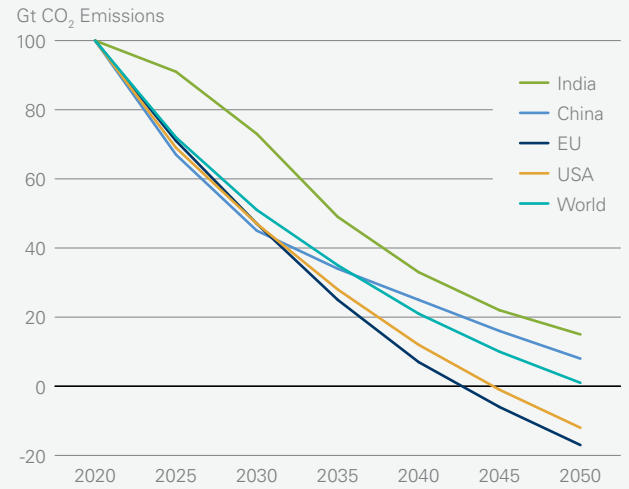
More recent 1.5°C scenarios that have been published since the original SR15 report have introduced regional- and country-level pathways that make it possible to consider regional differentiation. In the IEA’s net zero by 2050 scenario, global emissions fall by 4.6% per annum from 2020–2030, but with a 3.7% rate for emerging markets and developing economies and 6.8% for advanced economies.²⁹ The NGFS scenarios, built on three major climate models, show even more granularity, with pathways at country and regional levels. The average decarbonization rate for India for 2020–2030 is 3.1%, but >7% for China and the EU and with a country range of 0.5% to 8% annually.³⁰ The NGFS scenarios are particularly helpful because they also show the role for negative emissions technologies in certain countries. The EU and US are expected to reach ~600Mtpa CO₂ of negative emissions by 2050, at which time China and India will still have positive emissions of ~900Mtpa/500Mtpa CO₂. This tells us the decarbonization rate by region and country is important, but also the existence of either residual or negative emissions in 2050. The NGFS scenarios are sufficiently detailed at a country and regional level that they can be mapped to equity or fixed income indices to derive benchmarks that are more representative of the underlying country components.

Figure 5
Regional Decarbonization Pathways



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Source: Lazard, IEA

Figure 6
Country Decarbonization Pathways



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Source: Lazard, NGFS

Table 4
Regional and Country Decarbonization Rates

Scenario/Benchmark Name	Decarbonization Rate 2020–2030 (%)
IEA Net Zero Emissions <i>Advanced Economies</i>	-6.8
IEA Net Zero Emissions <i>EM and Developing Economies</i>	-3.7
NGFS <i>India</i>	-3.1
NGFS <i>China</i>	-7.6
NGFS <i>US</i>	-6.5
NGFS <i>EU</i>	-7.2

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Source: Lazard, IEA, NGFS

These newer 1.5°C pathways can form the foundation of a second generation of climate benchmarks that seek to apply the same level of regional granularity to existing levels of industry granularity.

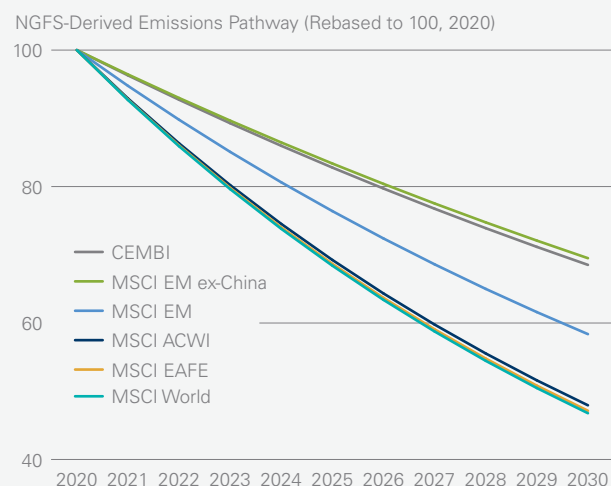
Table 5
Financial Benchmark Decarbonization Rates

Benchmark	NGFS Decarbonization Rate (%)
MSCI World	-7.32
MSCI EAFE	-7.25
MSCI ACWI	-7.09
MSCI EM	-5.24
JP Morgan Corporate EM Bond Index (CEMBI)	-3.71
MSCI EM ex-China	-3.57

As of 27 September 2022

Source: Lazard, JP Morgan, MSCI, NGFS

Figure 7
Financial Benchmark Decarbonization Pathways



As of 27 September 2022

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Source: Lazard, JP Morgan, MSCI, NGFS

A final candidate exists for use as an EM decarbonization benchmark, in the form of “fair share” calculations. These embed concepts of historic responsibility (cumulative CO₂ emissions) and the right to develop (CO₂ emissions/capita) and divide the remaining carbon budget using this overlay. This creates even more divergence than the regional splits described above, which explains why the discussion of fair share is so emotive in climate

negotiations. Using Climate Action Tracker’s (CAT) fair share approach, it’s possible to see huge divergence between their standard 1.5°C pathways and their 1.5°C fair share pathways. As with our scenarios, India is granted the most incremental carbon budget, while Europe is asked to decarbonize at ~20% per annum 2020–2030. It is not feasible to fully implement the fair share principle in investment portfolios—for one reason DM economies will never adopt such decarbonization pathways, but it should go some way to demonstrating how regional benchmarks are only really a conservative step in trying to implement the common but differentiated responsibility principle.

Table 6
Fair Share Decarbonization Rates

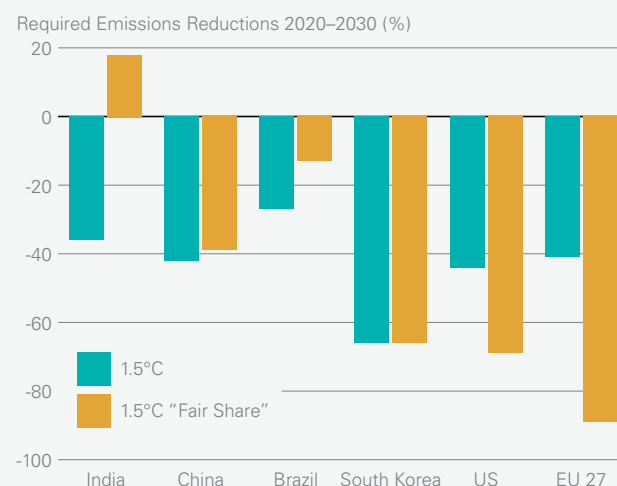
Scenario/Benchmark Name	Decarbonization Rate 2020–2030 (%)
Climate Action Tracker EU27 1.5°C	-5.2
Climate Action Tracker EU27 1.5°C Fair Share	-19.7
Climate Action Tracker India 1.5°C	+1.7
Climate Action Tracker India 1.5°C Fair Share	-4.4

As of 4 October 2022

Forecasted or estimated results do not represent a promise or guarantee of future results and are subject to change. For illustrative purposes only.

Source: Lazard, Climate Action Tracker

Figure 8
Fair Share Decarbonization Rates

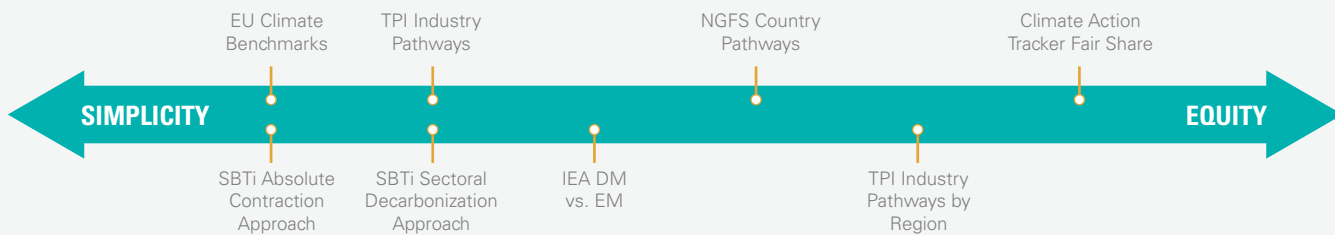


As of 4 October 2022

Forecasted or estimated results do not represent a promise or guarantee of future results and are subject to change. For illustrative purposes only.

Source: Lazard, Climate Action Tracker

Figure 9
The Spectrum of Climate Benchmark Approaches



For illustrative purposes only.
Source: Lazard

In essence, most climate benchmarks and emissions pathways attempt to balance the competing interests of simplicity and equity. Currently, Lazard Asset Management believes it would be beneficial if these frameworks shifted further towards the equity principle.

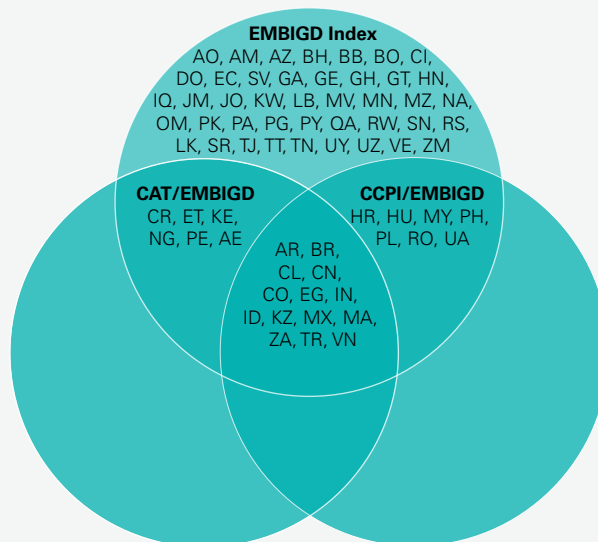
For certain asset classes, the overall methodologies need refining, in addition to the benchmark decarbonization rates. The Net Zero Investment Framework (NZIF) provides scrutiny from the point of target setting to the delivery of emissions reductions, but even here is a skew to DMs. The NZIF recommends the Germanwatch Climate Change Performance Index for analysis of the sovereign net zero transition,³¹ but this methodology only covers 55% by weight of the JP Morgan Emerging Market Bond Index Global Diversified, while another mainstream sovereign methodology, CAT, only covers 54%.

Table 7
Coverage Rates for Country Assessments

Sovereign Methodology	EM Sovereign Benchmark Coverage
Germanwatch Climate Change Performance Index	55%
Climate Action Tracker	54%

As of July 2022
Source: Lazard, CCPI, Climate Action Tracker, JP Morgan

Figure 10
Country Assessment Coverage



As of July 2022
Source: Lazard, Climate Action Tracker, CCPI, JP Morgan

Emerging Markets Sovereign Net Zero Transition

Developing a tool to assess the net zero transition for sovereign bonds comes with several unique challenges specific to the asset class. Despite most countries having made commitments under the Paris Agreement, with many also setting net zero targets, very few, if any, are currently on track to meet these targets. Additionally, most sovereign nations define their own decarbonization paths, so there is not the same “business relevancy” concern corporates may have if they fail to transition. Elections or changes in government can also change the direction of climate policy, creating further challenges for prioritization of decarbonization. Furthermore, sovereigns, especially many smaller EM countries, have limited capacity to take on additional debt, have higher costs of capital than DM countries do, and face competing social needs besides investing in energy transition and climate mitigation. Although DM countries have pledged to help fund, support, and invest in the transition in EM countries, it is still not yet known if and how this financing will materialize.

For relevant fixed income investment professionals, assessing credit quality is central to the investment process. Therefore, believe net zero aligned portfolios should be looked at through a credit lens. Many of the issues associated with the energy transition are medium- to longer-term and in many cases will not have immediate impacts on credit quality or bond prices. That being said, if the transition is costly, or perceived to be costly, there is a risk of social unrest, especially when policies target more vulnerable portions of the population, that may impact credit quality or bond prices. In the near term, we believe that the most likely credit impacts of the energy transition will be due to the policies that increase the daily cost of living and either unfairly burden the most vulnerable or are perceived to do so. As such, we believe in the near- to medium-term, the concept of a “just transition” and how transition policies are implemented within a country as well as the way DM countries work with EM countries to fund the transition will be important and have the potential to impact credit quality and bond prices. For credit investors with net zero aligned portfolio(s), a framework that can be used to assess the risks associated with the net zero transition, and whether those risks are priced into bond valuations can be one important tool when making an investment decision. However, we expect that there may be longer-term credit impacts for fossil-fuel exposed economies as other economies decarbonize, which may impact growth and employment. We acknowledge that many of the credit impacts of the energy transition will be longer term.

While credit investors tend to focus on mitigating downside risks, a number of countries may be in a position to benefit from the transition with potential positive impacts for credit quality in the longer term. For example, countries with exposure to the metals and materials required for the transition may have the potential to benefit. Additionally, countries which currently depend on importing fossil fuels and are subject to volatile energy prices may benefit from increased energy independence from a transition to renewables; however, there may be ramifications in the near- to-medium term. Ultimately in these cases, an energy transition that improves energy security is likely to be supportive for a sovereign credit over the long term.

According to the IEA, over \$1 trillion needs to be spent annually on clean energy in developing and emerging economies in order to put the world on a path to meet net zero by 2050.³² In addition to the financing gaps, anecdotal evidence suggests that many countries also do not have the capacity to properly develop new industries and take advantage of climate opportunities. Those that are not currently establishing the policy and regulatory frameworks to aid in developing these industries within their borders, attract capital, or train workers are at risk of falling behind. Importantly, countries which fall behind may have difficulty attracting private capital for investments for the energy transition. It can be helpful to include various policy indicators to help gain an understanding of the level of policy development in specific countries, which may be tied to their ability to attract capital from both the public and private sectors.

The relationship between the public and private sectors with respect to funding the transition will be unique in each country, and the policies set by governments will in many cases influence corporate spending on energy transition. We recognize that individual data points will be important to determine the materiality of each issue and will vary by each country.

Preliminary Proposed Approach

Step 1: Use NGFS data to map a country’s emissions trajectories under various scenarios, which could be compared to the benchmark. Given that governments are responsible for balancing decarbonization efforts with other development needs, it is important to consider emissions per capita at the sovereign level compared to absolute emissions levels at the country level when considering decarbonization rates for corporates in a given country.

Step 2: Develop a sovereign Net Zero Transition (NZT) score. We believe it is necessary to look across several indicators that aim to represent 1) a country's willingness to transition (i.e., policies and regulatory frameworks in place, employment impacted, etc.) and 2) a country's ability to transition (i.e., quality and abundance of natural resources related to the transition, fossil fuel production etc.). This methodology can aid in assessing the likelihood, the cost (i.e., impact on budgets, current accounts, employment etc.) and the credit risks associated with the transition. Variables can come from a wide range of publicly available sources including: the World Bank, IMF, MIT, IEA, International Renewable Energy Agency, the International Labour Organization, several international financial institutions, non-governmental organizations, and academic institutions. These scores can provide a solid foundation for assessing sovereign transition risk but acknowledge the need for fundamental research given the continuously evolving policy environment.

Portfolio implications

For potential net zero aligned portfolios, we believe that given the potential credit impact of energy transition, the NZT score should be considered in conjunction with sovereign ESG risk assessments as part of the investment process.

Proposed thoughts on potential sovereign net-zero transition-aligned portfolios

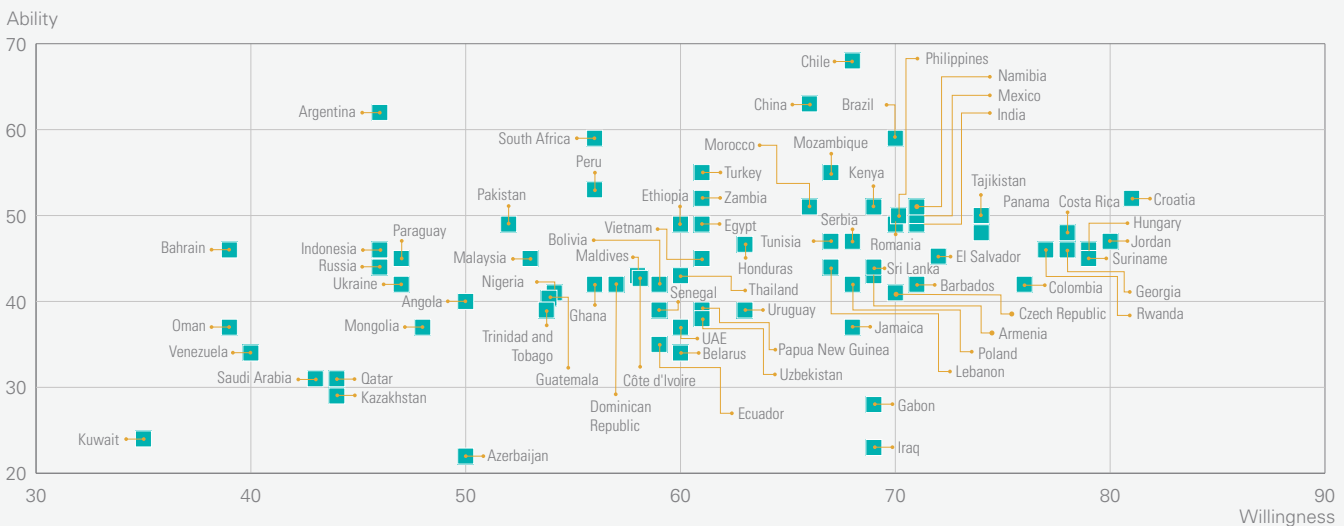
We believe that these potential portfolios should meet several criteria since the universe of sovereign issuers is significantly

smaller than that of corporate issuers. For the world to reach net zero, it will require almost every country to reduce its carbon footprint, which will require substantial capital investments globally. As such, we do not believe an exclusionary approach is one that will ultimately achieve global net zero goals. However, we do think overweighting and underweighting countries will be a component in building a net zero transition-aligned sovereign portfolio, and therefore, one aspect of portfolio positioning will depend on how countries score in a NZT assessment as well as the views of sovereign analysts.

Engagement with sovereigns is at a very early stage and less well practiced by investors, but we believe, it can be an important component of a framework for sovereign net zero. Engagement should be an ongoing effort in many cases, not a one-time event. Engagement in EM for corporates and sovereigns should focus on the following priorities, where appropriate:

1. Increased disclosure of GHG emissions metrics (in cases where disclosure is currently lacking or lagging DM peers).
2. Strengthening decarbonization targets or strategies that align with a net zero trajectory appropriate for the country or at a minimum the Paris Agreement Nationally Determined Contributions (NDCs).
3. Company or country plans for implementing and executing on the strategy, including funding and capital expenditure. For sovereigns, this can also include engaging on regulatory issues
4. Progress over time in achieving these targets

Figure 11
Willingness vs Ability Scores – EM Universe



As of July 2022
Source: Lazard, FTSE Russell, Global Forest Watch, Global Solar Atlas, Global Wind Atlas, IEA, ILO, IMF, IRENA, MIT, NGFS, UN, WHO, World Bank

Sovereign Engagement

We believe policies and regulatory frameworks at the national level influence, and in some cases dictate, the extent to which corporates will set and accomplish their decarbonization targets. National policies are also likely to impact the ambition of corporate targets and whether these targets align with the global goals of the Paris Agreement. Policy impacts may materialize in several ways: required phase out of certain technologies (i.e., coal-fired power plants, new sales of internal combustion vehicles, etc.), increased efficiency standards (fuel, buildings, etc.), carbon pricing schemes, subsidies for producers, and subsidies for consumers to increase demand for lower-carbon products. Additionally, governments regulate and issue land-use and water-use permits required for many of the investments and projects corporates need to decarbonize. These processes dictate not only the pace of decarbonization for downstream industries such as automobile original equipment manufacturers, airlines, and utilities, but influence the full value chain of industries that support decarbonization (metals & mining, chemicals, etc.). In addition to investing in the necessary technologies and equipment needed to achieve decarbonization, companies should make significant human capital investments. Executives globally point to policy uncertainty as one of the biggest barriers to capital investments. Elections and changes in government policy can also complicate the analysis of sovereign transition, although this challenge is not unique for EM countries. The link between sovereign and corporate decarbonization is stronger in EM countries where the government is a significant stakeholder or receives significant revenues by taxing particular industries.

We believe sovereign engagement can be especially important in EM, where the policy and legal frameworks surrounding decarbonization are generally less advanced. To see just how much policy support for decarbonization exists in DMs, we examine the UK as a case study for what needs to be re-created in EM countries.

Sovereign engagement is difficult because governments are accountable to significantly more stakeholders with more varied interests than are corporates. Additionally, the required cooperation between political parties, branches of governments, and departments or ministries to get policies implemented is complex and nuanced, making the road to achieving positive outcomes with sovereign engagements longer and more difficult.

We have joined the Emerging Markets Investors Alliance (EMIA), a collaborative investor initiative. EMIA's initial engagement activities have addressed several topics, including the phase-out of coal, the effectiveness and ambition of carbon tax policies on real world emissions and company investments, regulatory changes that are required to decarbonize the electricity grid, green bond frameworks and improved disclosures, and diversification of the economy away from fossil fuels. We believe that to be most effective, sovereign engagements should be extremely focused.

We believe an approach that considers past emissions, levels of economic development, and financing gaps is important in determining the appropriate decarbonization pathway for a country and the operating companies within it. Multiple inputs could help prioritize the countries with which to engage. CAT's

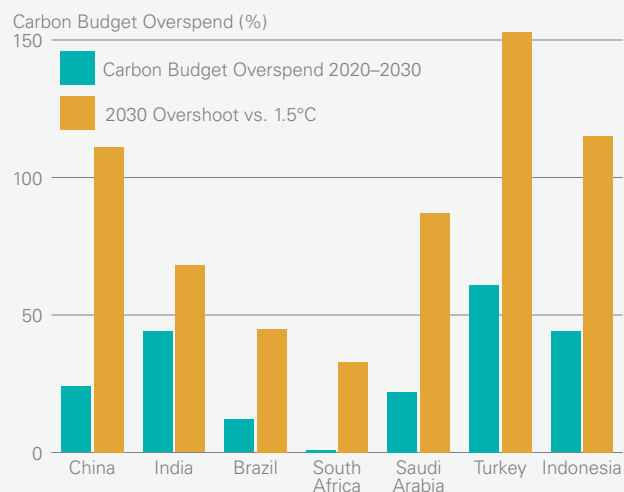
UK Case Study on Climate Policy

The Climate Change Act 2008, the first of its kind globally, means that the UK's emissions reductions targets are legally binding. The Climate Change Act was updated in 2019 to reflect the UK's net zero target for 2050, increasing the ambition beyond the previous target of an 80% emission reduction in 2050 on a 1990 base. The targets for the UK government, and the pathways needed to deliver them, are informed by the Climate Change Committee, an independent advisory body also established under the Climate Change Act. The Climate Change Committee publishes guidance on the UK's carbon budget and reviews government performance against these objectives. More recently, the UK High Court has ruled in favor of climate groups in determining that the UK government is not meeting its commitments under the Climate Change Act, forcing the government to present a new report showing how they will deliver against the objectives of the Climate Change Act by April 2023. Supporting these high-level targets are a series of policy mechanisms supporting emissions reductions.

A UK Emissions Trading Scheme launched in 2002 as a pilot to the EU ETS, re-started again in 2021 following the UK's departure from the EU. The UK has also operated a carbon price floor since 2013 to guard against the risk of low prices in the EU Emissions Trading System. From 2002 to 2017, the UK operated the Renewables Obligation scheme that sets mandatory targets for the portion of generation capacity coming from renewable sources at UK operators. In short, the UK has provided 20-years of policy support for emissions reductions and the expansion of low carbon energy generation. Climate Action Tracker rates the UK's climate policies as <2°C aligned and their domestic emissions reduction target as 1.5°C compatible as, further evidence that sovereign policy needs to be considered as an enabler of corporate decarbonization.

At COP21 in November 2021, India committed to a 2070 net zero target and to deliver 500 GW of renewable capacity by 2030, from ~150 GW in 2021. Similar to the UK, India's emissions reductions targets will become law, through an amendment to the Energy Conservation Act. It will also include the establishment of a national carbon pricing mechanism, although this legislation was only introduced to India's parliament in August 2022. A climate policy gap of multiple decades exists between many DM and EM countries.

Figure 12
EM Sovereign Policy Gaps



As of 4 October 2022

Forecasted or estimated results do not represent a promise or guarantee of future results and are subject to change. For illustrative purposes only.

Source: Lazard, Climate Action Tracker

data on fair-share emissions helps to identify and monitor a country's necessary and fair decarbonization pathway and it is also important to consider the feasibility of a successful engagement when choosing which countries and which topics to engage. Country-specific expertise is integral to tailoring engagements since transition and physical risks from climate change vary considerably across countries. This work, along with the ND-GAIN Index, which includes data on a country's vulnerability to and readiness for the physical risks of climate change, can also help to identify countries and topics for engagement.

Initial engagements, especially at the corporate level, will need to focus on better disclosure, since a significant gap still exists between DM and EM corporate ESG disclosures.

The Emerging Markets Disclosure Gap

At the heart of any approach to net zero investing in EM should be an upfront acknowledgement of the limitations imposed by data availability. Lazard Asset Management currently manages relevant net zero portfolios using two main methodologies—via a top-down emissions trajectory, using a metric such as Weighted Average Carbon Intensity (WACI), or using penetration of Science-Based Targets (SBT's) in the portfolio. In both methodologies, Lazard Asset Management is a proponent of Net Zero Investment Framework's Climate Alignment Assessment.

Given the reliance of these methodologies on emissions and emissions-reductions target data, it will be necessary to engage not only with EM corporates, but also local accounting bodies and regulatory authorities, to replicate the mandatory reporting

structures that exist in certain DMs. It is also necessary to prevent an assessment of a corporate in an EM from becoming binary in terms of climate ambition, and instead to provide an on-ramp spectrum, by which a corporation can increase disclosures and target ambition over time.

Although the Greenhouse Gas Protocol's Corporate Standard and Corporate Value Chain (Scope 3) Standard have existed for more than 20 years and 10 years, respectively, and CDP (formerly the Carbon Disclosure Project) has existed since 2000, corporate reporting of GHG emissions is still not universal. This is especially apparent in EMs, as illustrated in Table 9.

Table 8
Emissions Disclosures by Index

	# Companies	% Reporting Scope 1 and 2	% Reporting Scope 3
MSCI World	1515	68%	53%
MSCI EM	1386	55%	21%
CEMBI	973	54%	29%

As of 1 September 2022

Source: Lazard, Bloomberg, JP Morgan, MSCI

Table 9
EM vs. DM Split of Major Climate Initiatives

	MSCI World		MSCI EM	
	# Companies	% Total	# Companies	% Total
CDP Disclosure ^a	1032	70	348	29
SBTi Targets ^b	372	25	34	3
CA100 ^c	107	7	28	2
Net Zero Tracker ^d	859	58	312	26

a Companies that submitted their 2021 CDP Climate Questionnaire. As of June 2022.

b Companies with set short-term science-based targets. As of June 2022.

c Companies captured by the Climate Action 100+ Net Zero Company Benchmark. As of March 2022.

d Companies captured by the Net Zero Tracker. As of August 2022

Source: Lazard, CA100+, CDP, MSCI, Net Zero Tracker, SBTi

Environmental disclosures and target setting have historically followed a pattern of voluntary early adoption, followed by a gradual shift to a mandated or regulated requirement for participation. A look at the history of GHG emissions reporting, the TCFD and net zero, or emissions reductions plans confirms this pattern. The SBTi references this concept as the Diffusion of Innovation Theory in their discussion of rates of target setting within sectors or countries.³³ As regulation exists largely on a national or regional level (i.e., the EU), patterns of adoption also show regional disparity.

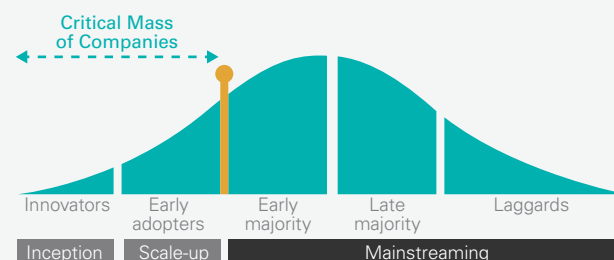
Table 10
Emissions Disclosures by Country

	Reporting Scope 1 and 2 (%)	Reporting Scope 3 (%)
Japan	80	60
United Kingdom	98	79
United States	48	35
India	60	29
China	50	7
Brazil	63	60

As of 1 September 2022

Source: Lazard, Bloomberg, MSCI

Figure 13
SBTi's Theory of Diffusion of Innovation



For illustrative purposes only

Source: SBTi

Table 11
Decomposition of Carbon Intensity by Reported and Estimated Data

	Reported Emissions Data 2021			Estimated Emissions Data 2021		
	# Companies	% Financed Emissions	% WACI	# Companies	% Financed Emissions	% WACI
Sample Portfolio	33	28%	47%	31	72%	53%

As of 1 September 2022

Source: Lazard, Bloomberg

Japan for example has a long history of GHG reporting requirements, developed under the Act on Promotion of Global Warming Countermeasures (1998)³⁴ and implemented by its Mandatory Greenhouse Gas Accounting and Reporting System.³⁵ In the UK, the Companies Act has evolved over time to include increasingly stringent emissions reporting requirements.³⁶ Similarly, although the TCFD was only formed in 2015, it has already become a mandatory reporting requirement in the UK.³⁷ At COP26, the UK government announced new legislation that will require listed UK corporations to show how they are aligned with the UK's 2050 net zero target by 2023.³⁸ By contrast, in the US, the Securities and Exchange Commission has only recently proposed mandatory reporting requirements for GHG emissions.³⁹ In EMs, without an equivalent policy impetus, disclosure is more reliant on factors such as voluntary compliance and pressure from capital markets.

The Proposal for an Emerging Markets On-Ramp

Although some of the frameworks in use seem to be incompatible with EMs, they could be adapted in a way that makes it possible to encourage further EM participation through simpler, "on-ramp" standards. The purpose of an "on-ramp" is to provide a way in which an entity can access a series of standards or objectives, in a way that would not be possible if the entity were to try to fully comply with the full standard at a first attempt.

In environmental planning, on-ramps exist with the SBTi in the form of a streamlined small and medium-sized enterprise standard, as an acknowledgement that they might lack "skills or capacity" to deliver a full SBTi target.⁴⁰ The Voluntary Carbon Markets Integrity Initiative (VCMI) has also proposed an on-ramp for entities that wish to begin their use of carbon credits and then "move up the hierarchy of claims" over time.⁴¹

Both of these approaches acknowledge the benefit to having entities engage with a process or standard at an early stage and encourage increased ambition over time. An example of how additional "on-ramp" support could be provided exists in the SBTi's guidance for Scope 3 inclusion in target setting. Currently, the SBTi requires near-term targets to cover 95% of Scope 1 and 2 emissions, and 67% of Scope 3 emissions where Scope 3 is at least 40% of total emissions. Long-term targets must cover 90% of Scope 3 emissions.⁴² In the case of EM companies who are yet to report Scope 3 emissions, it could be preferable to allow those companies to set a Scope 1 and Scope 2 target, alongside a strict timetable for disclosing Scope 3 emissions and setting an associated Scope 3 target. This could allow the SBTi to become more accessible to certain EM corporations and encourage 1.5°C-aligned action on Scope 1 and Scope 2 emissions while corporations develop their Scope 3 inventories, and arguably help develop the SBTi's position as the defacto global standard. Another approach would be to allow certain companies and sectors in EM countries to continue setting well-below 2°C targets, again with a strict timetable for an increase in ambition to 1.5°C.

We believe rather than simply using 1.5°C-aligned SBTs, the process should incorporate wider information from data sources such as the Net Zero Tracker and CDP Survey, allowing the ability to evaluate a broader universe of emissions targets than simply those that are SBTi validated, with different criteria used for scoring DM and EM corporations. The below responses to the CDP questionnaire show that there might be six types of target setting to which a company may respond, even though only one, the first, is a validated SBT.

We have started to engage with standard-setting agencies and industry associations in order to collaborate on the development of EM-specific standards. Lazard Asset Management raised the issues with the GFANZ consultation on portfolio alignment, we have shared our thinking with the SBTi, and have also engaged with the IIGCC, in which Lazard Asset Management is a member. We have also had bilateral discussions with the Transition Pathway Initiative given their publication of regional benchmarks.

We believe using country-level decarbonization pathways from the NGFS in assessments of EM emissions performance and adjusting the assessment of emissions disclosures so that an EM corporate can score positively on disclosure for disclosing only Scope 1 and 2 emissions, with Scope 3 disclosures attached to a specific timetable are appropriate. On this basis, three of the six major fields in an overall Climate Alignment Assessment can be adjusted to offer an EM-specific standard.

The output of these two different standards of assessment is shown below in Figure 14 illustrating an intuitive increase in net zero alignment.

Table 12
CDP Survey Net Zero Answers

Question	Response
C4.2c C5 Provide details of your net-zero target(s). Is this a science-based target?	Yes, and this target has been approved by the Science-Based Targets initiative
	Yes, and we have committed to seek validation of this target by the Science-Based Targets initiative in the next two years
	Yes, but we have not committed to seek validation of this target by the Science Based Targets initiative in the next two years
	No, but we are reporting another target that is science-based
	No, but we anticipate setting one in the next two years
	No, and we do not anticipate setting one in the next two years

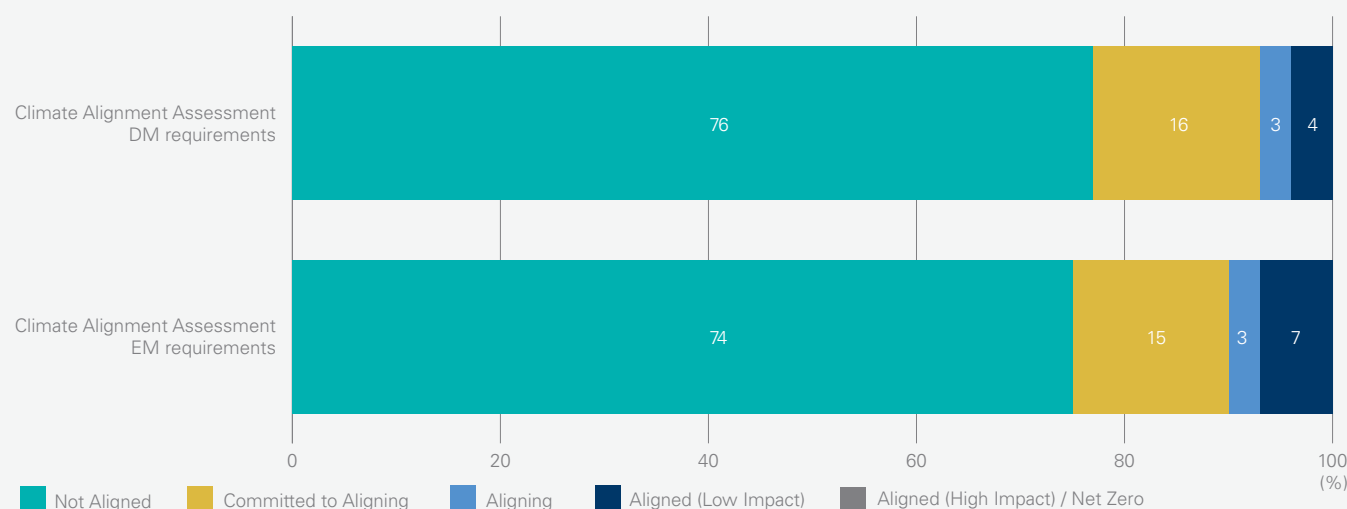
As of 4 October 2022
Source: Lazard, CDP

Table 13
Lazard's DM and EM Iterations of the Net Zero Investment Framework

	DM Standard	EM Standard
Targets	SBTi and all other SBTs (CDP)	All net zero targets (CDP)
Emissions Performance	SBTi or IEA DM rate	IEA EM rate or NGFS country rate
Disclosure	Scope 1, 2, and 3 emissions	Scope 1 and 2 emissions

As of 4 October 2022
Source: Lazard, Bloomberg, MSCI

Figure 14
MSCI EM Portfolio Analysis under Lazard's Climate Alignment Assessment



As of 31 October 2022
Source: Lazard, PAII, MSCI

Lazard Asset Management's Perspectives on Emerging Markets Net Zero Investing

Lazard's research suggests that a different approach should be available for allocations to EMs:

1. Global investment benchmarks for climate change do not make sufficient allowances for a differentiated pace of change in EMs.

Proposal: The industry should develop and implement EM-specific equity and corporate debt benchmarks derived from IEA, TPI, and NGFS pathways.

2. Major third-party assessments of sovereign-level climate performance do not cover large parts of the sovereign issuer universe.

Proposal: The industry should develop and implement standalone net zero methodology for EM sovereigns.

3. Major global climate initiatives are inaccessible to smaller or EM corporates.

Proposal: The industry should allow an "on-ramp" process for EM corporates to adopt major climate initiatives at an appropriate pace, supported by EM-specific engagement and escalation policy.

4. Policy and institutional support for climate change in EM is often lower than in DM countries.

Proposal: The industry should as a whole extend climate engagement to EM sovereign issuers, standard-setting agencies, accounting bodies, and regulators.

5. A major climate change financing gap exists in EM across both the public and private sectors.

Proposal: Advocate for a strategy that encourages investments in countries and companies in need of additional capital to pursue a "just transition" rather than a strategy that encourages divestments from countries or companies that are currently underperforming.

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Important Information

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