

In collaboration with
Boston Consulting Group



Bold Measures to Close the Climate Action Gap: A Call for Systemic Change by Governments and Corporations

FLAGSHIP REPORT

JANUARY 2024



Contents

Foreword	3
Executive summary	4
1 The world needs immediate and systemic change	5
2 Governments need to rewrite the rules – five priorities	7
2.1 Close the 600-plus gigatonne national ambition gap	9
2.2 Recognize and raise the price of carbon	11
2.3 Double financing and incentives for outsized-impact solutions	12
2.4 Remove transition obstacles to accelerate action at least threefold	13
2.5 Prepare for more drastic measures, which may become necessary in an ever-warming world	14
3 Corporates can lead systemic change – five priorities	15
3.1 Accelerate supplier decarbonization	17
3.2 Enable customers to make greener choices	19
3.3 Drive change in your industry	21
3.4 Engage in cross-industry partnerships	22
3.5 Advocate and support bolder policies	23
Conclusion	25
Contributors	26
Endnotes	27

Disclaimer

This document is published by the World Economic Forum as a contribution to a project, insight area or interaction. The findings, interpretations and conclusions expressed herein are a result of a collaborative process facilitated and endorsed by the World Economic Forum but whose results do not necessarily represent the views of the World Economic Forum, nor the entirety of its Members, Partners or other stakeholders.

© 2024 World Economic Forum. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, including photocopying and recording, or by any information storage and retrieval system.

Foreword



Patrick Herhold
Managing Director and Senior
Partner, Boston Consulting Group

As highlighted in our previous report, the window to reaching 1.5°C is narrowing rapidly, and even “well below 2°C” is at high risk. The 1.5°C path now calls for 7% annual emissions reductions, a sharp change in trajectory from the 1.5% annual increase seen in recent years. There has never been a more urgent time to act and avoid the worst of climate change – last year’s record weather events pale in comparison to what lies ahead if we don’t take action.

In this context, we cannot afford to rely on incremental initiatives. Business leaders are too often mired in high costs and interest rates, an actual and perceived lack of willingness to pay or finance, insufficient government support and

knowledge and data gaps. To overcome these, sufficient government ambition and policies, such as carbon pricing and incentives, are critical to creating the economic tailwinds and business cases needed to decarbonize. But corporates should not wait for policy-makers to spearhead systemic change: they can and should take further action. In this report, we outline practical ways companies can operate within their business ecosystems to achieve strong climate impact while containing risks and overcoming the barriers to action. We invite and urge all leaders to explore and pursue such systemic actions, not least to strengthen and build the resilience of their businesses and ecosystems for the decade to come.



Pim Valdre
Head, Climate Ambition Initiatives,
World Economic Forum

The first UN global stocktake and the first part of this report (published in November 2023) have highlighted a large climate action gap that we are not on track to close, despite impactful commitments on several topics at COP28 – for instance, on tripling renewables’ capacity and doubling energy efficiency.¹ As a global collective, we need to urgently shift into delivery mode, focusing on immediate actions with outsized impacts. Enabling these calls for public-private action and system-wide transformations. Corporations can play a leading role in driving such systemic change by taking a multistakeholder approach and going beyond their internal initiatives.

The picture is bleak, but there are actions and solutions that can change the trajectory if we prioritize better and act more boldly. This report highlights some of the high-impact steps companies can take today to trigger ripple effects up and down their supply chains, disrupt their markets and build large-scale pathways and solutions with peers and governments. Such a systemic mindset is also critical to avoid repeating the mistakes of the past – which may result in a winners-and-losers situation – and instead ensure a just transition wherein all countries and sectors can build together the industries and jobs of tomorrow.

Executive summary

Governments and companies must drive bold systemic change for effective climate mitigation.

On the coattails of COP28, humanity's biggest challenge is still far from solved. Noticeable progress has been achieved since the Paris Agreement. Current nationally determined contributions (NDCs) have lowered the median expected 2100 warming to 2.5°C, from a range of 3.7°C to 4.8°C.² COP28 concluded with an unprecedented recognition of the need to transition away from fossil fuels, and new commitments to triple renewable energy and double energy efficiency by 2030, and to raise more funding for loss and damage and mitigation in the Global South among others. Climate policies and financing are also expanding, while wind, solar photovoltaics and electric vehicles (EVs) continue to outperform capacity projections.^{3,4} But much faster execution and implementation is needed to reach these targets, and more commitments have to follow. As things stand, the 1.5°C goal may soon slip out of reach, and adaptation will not be sufficient. Dramatic, immediate action is needed against every tenth of a degree of warming.

How can companies and governments go beyond individual commitments, and instead drive bold systemic change? This is the key question addressed in this report, with a focus on mitigation.

Of course, governments have a large responsibility in deploying mitigation solutions in a just and socially acceptable way. The following priorities are urgently needed:

- **Close the 600-plus gigatonne gap in climate ambition and action,**⁵ by moving up net-zero targets to 2050 or earlier, increasing near-term targets, and raising financial and technical support from higher-income to lower-income nations.
- Put a material price on carbon, maximize incentives and make public procurement green.

- Remove obstacles such as permitting lead times, supply chain bottlenecks, skill gaps and social distrust.
- If progress remains too slow, consider more drastic measures, such as hard technology bans or massive adaptation and removal investments.

Notwithstanding governments' role, the private sector has a major responsibility and opportunity to accelerate. Companies can and should drive systemic impact beyond their internal initiatives. They should:

- Decarbonize their supply chains by committing to offtakes of green products, demanding stronger commitments from suppliers, co-shaping and co-investing with them, and deploying large-scale support programmes.
- Disrupt markets with successful green alternatives that challenge the status quo, and greater emissions transparency.
- Move whole industries by partnering with peers on joint ambitions or initiatives and creating new labelling standards.
- Partner across industries to pool green demand or share investments in new technologies.
- Push governments by advocating for bolder policies and driving large-scale public-private partnerships.

Hopefully, this report can both inspire and serve as a practical guide for decision-makers in government offices and management floors alike. Everyone has a responsibility to overcome this crisis. Let's get to work.

1

The world needs immediate and systemic change

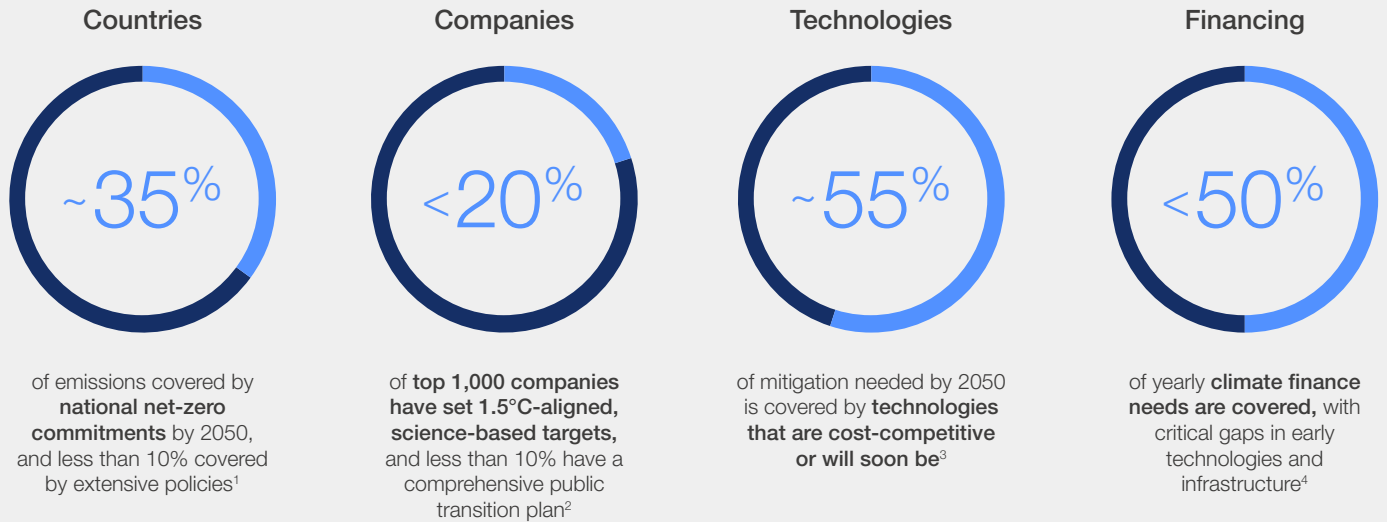
To limit global warming to 1.5°C, annual emissions need a 7% reduction against the current trend of 1.5% annual increase.



The Paris Agreement's ambition to limit global warming to 1.5°C by the end of the century is slipping out of reach. Achieving it would now require an annual emissions reduction of around 7% globally, more than the reduction impact from

COVID-19 in 2020 and against a trend of stubbornly growing emissions (+1.5%). While the path to 1.5°C keeps getting steeper, progress remains widely insufficient in all aspects (see Figure 1).⁶

FIGURE 1 Progress remains insufficient across all major dimensions



Sources: 1 Net Zero Tracker; Climate Watch; Climate Action Tracker; Climate Analytics, 1.5°C National Pathways Explorer; IPCC; IEA; PPCA; Glasgow Declaration; World Bank; EHPA; Climate Policy Database. 2 CDP data, 2018–2021; GFANZ, 2023; Net Zero Tracker, 2023; Refinitiv, 2023; SBTi, 2023. 3 IEA; IPCC; Höglund-Isaksson et al. (2020); desk research. 4 IEA; United Nations Environment Programme; Climate Policy Initiative; SAF Investor.

The world will have to come to terms with the fact that the irreversible changes to the climate triggered by past inaction will require trillions of dollars in adaptation efforts. Yet, humanity cannot adapt itself out of the climate crisis: with every tenth of a degree of warming, the cost of inaction will not only increase, but it will also far exceed the costs of bringing down emissions.

A drastic step-up in emissions-reduction efforts is needed to keep warming at least close to a safe operating space for humans and nature. COP28 showed new impactful steps, such as the recognition of the need to transition away from fossil fuels, and the commitments to triple renewable energy and double energy efficiency by 2030, and to raise

more funding for loss and damage and mitigation in the Global South among others. But significant additional action is required to turn these targets into reality, and more ambitious commitments are needed to reach the Paris goals, for example, on the substitution and abatement of fossil-fuel use at scale.

Much more is needed to match commitments with sufficient action. Policy-makers state that “net zero by 2050” is their goal, in line with the Paris Agreement, but the implications are not broadly understood. For example, reaching net-zero emissions by 2050 would call for ending the installation of new unabated oil, gas and coal-burning industrial assets by around 2030, under the assumption of a 20-year average lifetime.

② Governments need to rewrite the rules – five priorities

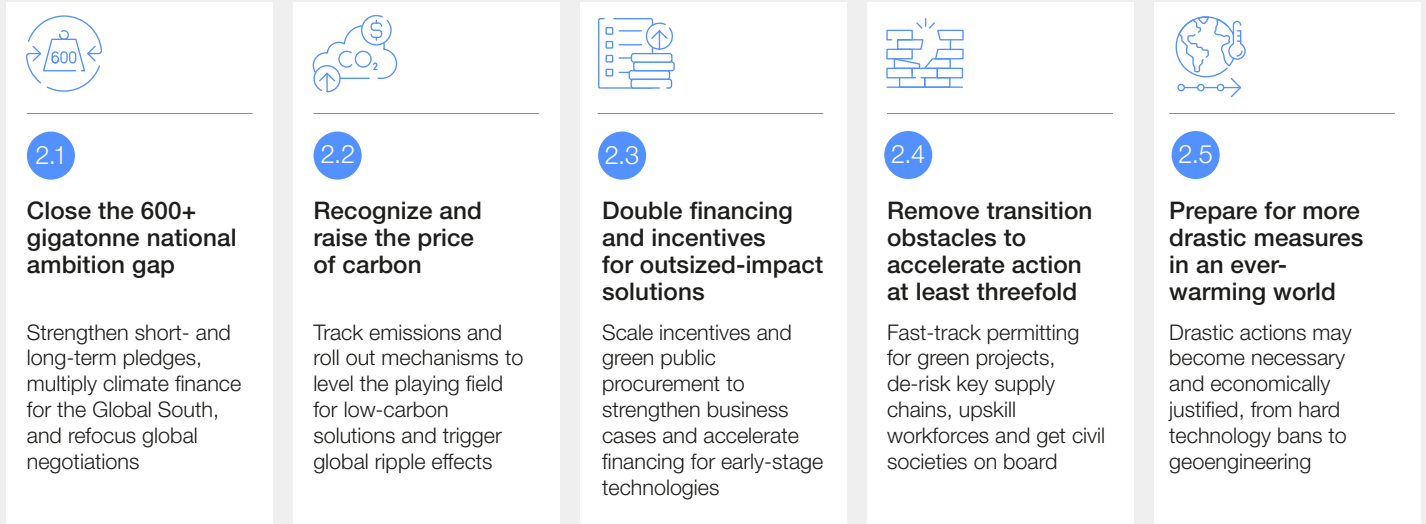
Governments must urgently close the gaps in national ambition and action.



The steps taken by governments thus far have been critically insufficient: there is a global gap in both ambition and action. As of today, only 35% of emissions are covered by national 2050 net-zero commitments and just 20% by 2030 commitments that are at least close to a 1.5°C path. Policy comes up even shorter: only 7% of emissions are covered by sufficient pledges that are underpinned

by robust policies.⁷ Governments must urgently close these two gaps, prioritizing short-term, outsized impacts to ensure a sustainable climate but also to generate substantial social benefits, for instance, by creating the nearly 40 million green jobs needed by 2030. Governments should prioritize the five following actions:

FIGURE 2 Five priorities for government action





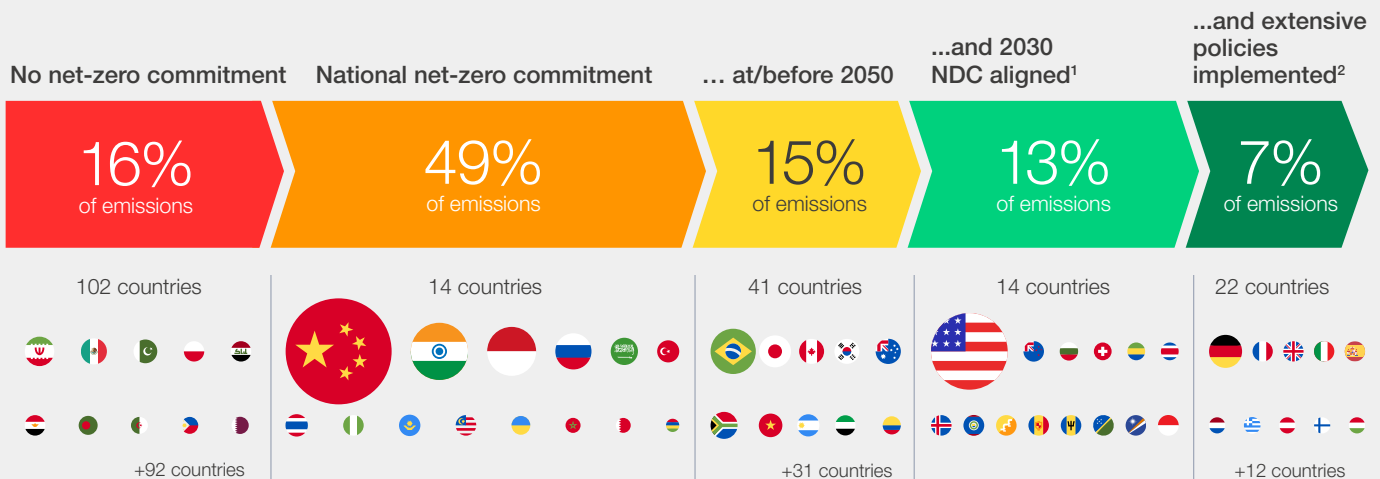
2.1 Close the 600-plus gigatonne national ambition gap

Increase 2030 and 2050 commitments.

Even if all countries achieved their current nationally determined contributions (NDCs) and net-zero targets for the coming decades, humanity would overshoot a 1.5°C-aligned emissions budget by a total of more than 600 gigatonnes between now

and 2050, leading to warming of 2.5°C by the end of the century.⁸ To reduce the ambition gap, as many countries as possible need to move up their net-zero commitments to 2050 or earlier and complement these with much bolder, 1.5°C-aligned reduction commitments until 2030 (see Figure 3).

FIGURE 3 Governments must close the national ambition and action gaps



Relative size of greenhouse gas emissions

Sources: Net Zero Tracker; Climate Watch; Climate Action Tracker; Climate Analytics, 1.5°C National Pathway Explorer; Intergovernmental Panel on Climate Change; International Energy Agency; Powering Past Coal Alliance; Glasgow Declaration; World Bank; European Heat Pump Association; Climate Policy Database; BCG analysis.

Note: Based on 193 UN member countries, excluding emissions from land use, land-use change, forestry, and international aviation and shipping.

¹ NDC aligned = unconditional 2030 nationally determined contribution delivers at least 75% of 1.5°C-compatible reduction. ² Countries that have implemented at least a coal ban, internal combustion engine ban, emissions trading schemes or tax, and one key policy per emission sector.

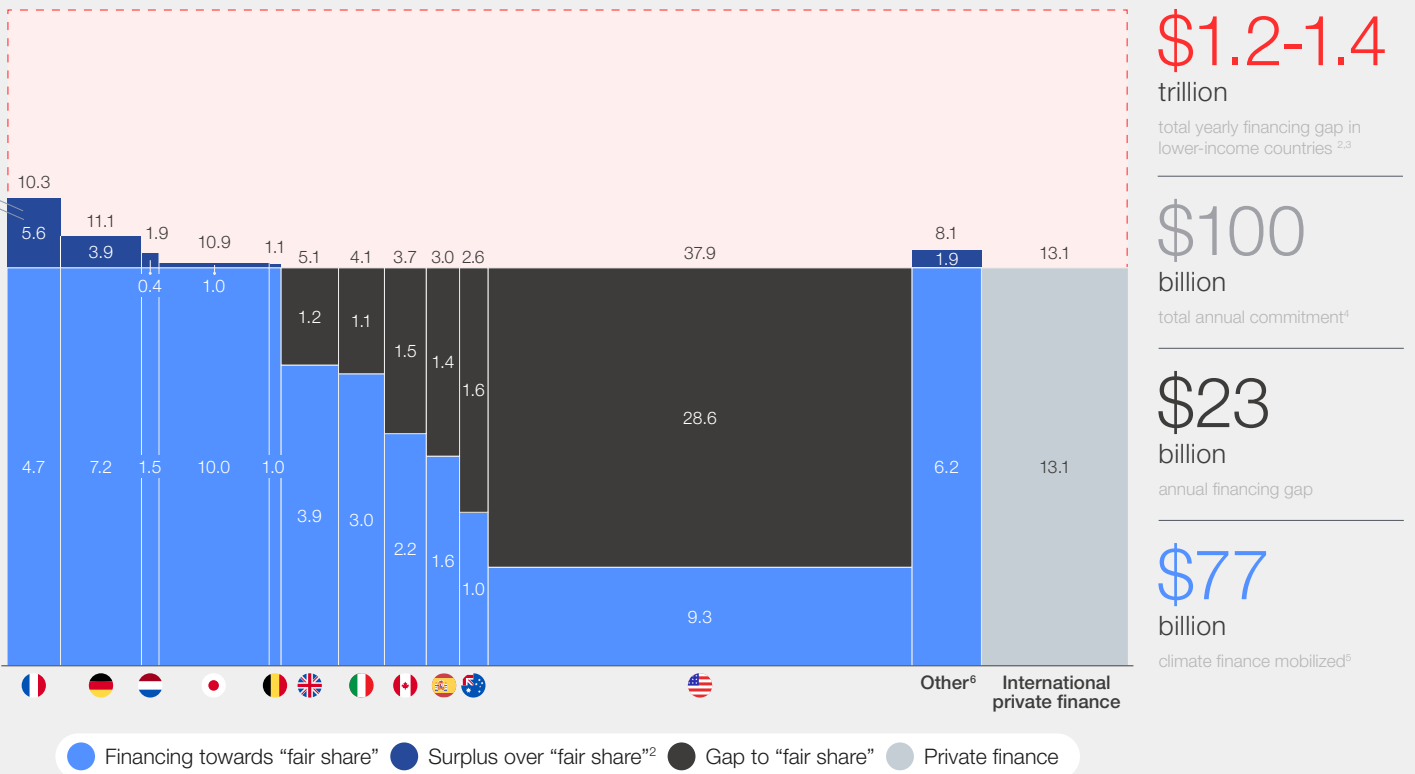
Multiply climate finance for the Global South.

At the same time, a sharp increase in financial and technical support is required from higher-income countries to lower- and middle-income countries, both for mitigation and adaptation. Lower- and middle-income countries are seeing a staggering \$1.2 trillion to \$1.4 trillion climate finance gap, double that of their higher-income peers.⁹

The current \$100 billion climate finance goal – already low, at less than 5% of annual needs – remains unmet (see Figure 4). More effort is needed, especially from the US and Europe, which have accumulated the highest historical responsibility.¹⁰ Mobilizing more blended finance will also be critical, with risk-balancing mechanisms that can draw \$7 of private financing per every \$1 of public funding.¹¹

FIGURE 4 | Many countries fail to provide their fair share of the \$100 billion goal

Public funding¹ contribution vs “fair share”, 2021 (\$, billion/year)



\$1.2-1.4
trillion

total yearly financing gap in lower-income countries^{2,3}

\$100
billion

total annual commitment⁴

\$23
billion

annual financing gap

\$77
billion

climate finance mobilized⁵

Sources: Overseas Development Institute; OECD; International Energy Agency; Climate Policy Initiative; SAF Investor; BCG analysis.

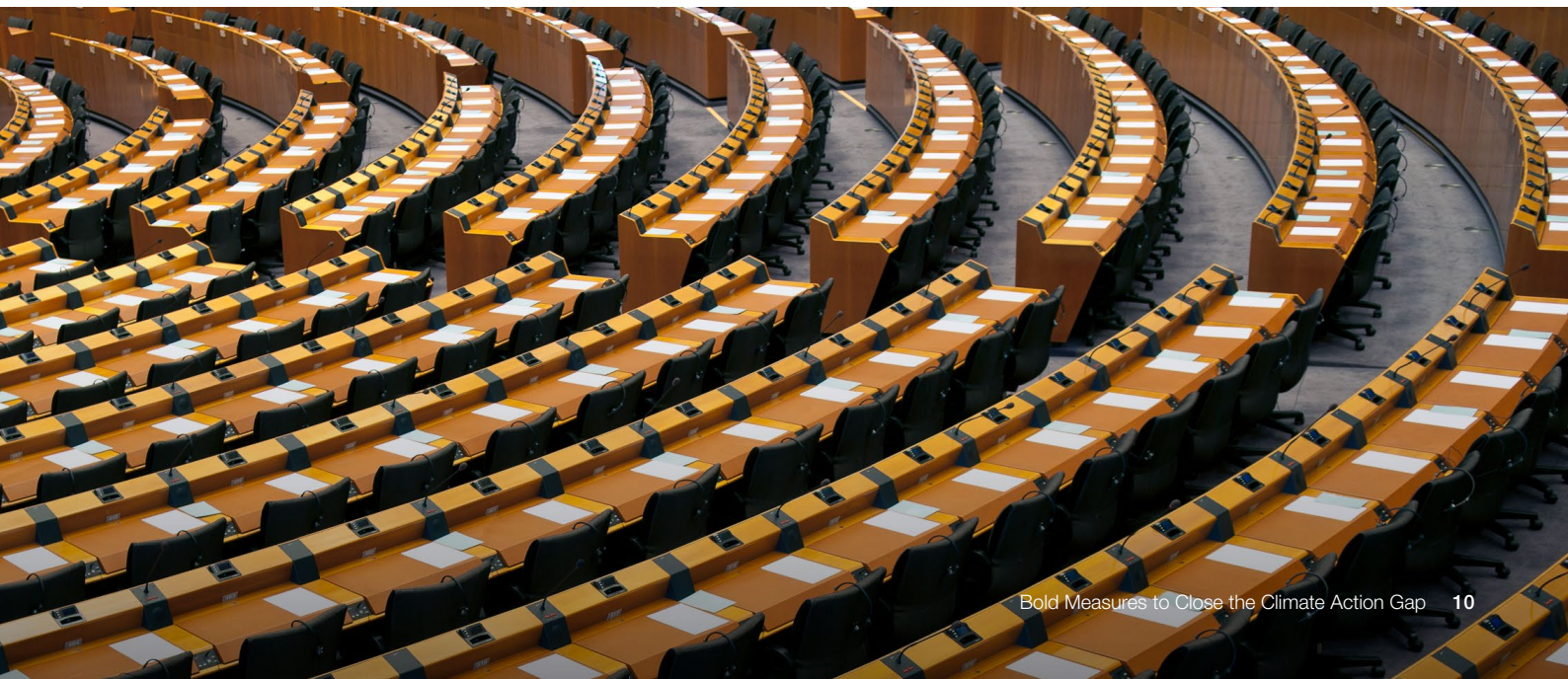
Note: Climate finance data includes mitigation and adaptation. Data based on ODI methodology with “fair share” adjusted to reflect the private finance contribution. Definition of fair share based on GNI, cumulative territorial emissions since 1990, and population size. Countries eligible to provide climate finance defined based on UNFCCC Annex II, consisting primarily of OECD members.

1 Includes finance provided bilaterally, through multilateral climate funds and multilateral development bank outflows; excludes export credits. 2 Not to scale. 3 Excludes nature-based solutions. 4 By higher-income nations. 5 Includes public and private sector financing. 6 Includes Norway, Sweden, Denmark, Switzerland, Luxembourg, Austria, Finland, Iceland, Ireland, New Zealand, Portugal and Greece.

Refocus global negotiations.

Global climate negotiations are not making sufficient progress, and countries are not yet translating their outcomes into policy at a sufficient pace. Several options can be explored to make negotiations more

effective and efficient, for example, complementing NDCs with more multilateral or coalition-level deals on high-impact issues and strengthening transparency and accountability to maximize trust and clarity for decision-makers.





2.2 Recognize and raise the price of carbon

For many applications, low-emission solutions are still struggling to become competitive. Even when they are, pressure to phase out heritage assets is often insufficient. This is in part driven by a lack of transparency for decision-makers but more importantly, by the fact that the external costs of carbon emissions are not adequately integrated into day-to-day decisions.¹² All countries should therefore seek to improve end-to-end visibility on emissions and put a meaningful price on carbon, including through mechanisms that cover traded goods. In many cases, the most economically efficient way to get started may be to replace fossil fuel subsidies with social support schemes that incentivize emissions reductions in a just and equitable way.

Increase end-to-end emissions transparency.

Only two-thirds of the world's 1,000 largest companies publicly disclose emissions to the Carbon Disclosure Project, and hardly any of these companies' products or services come

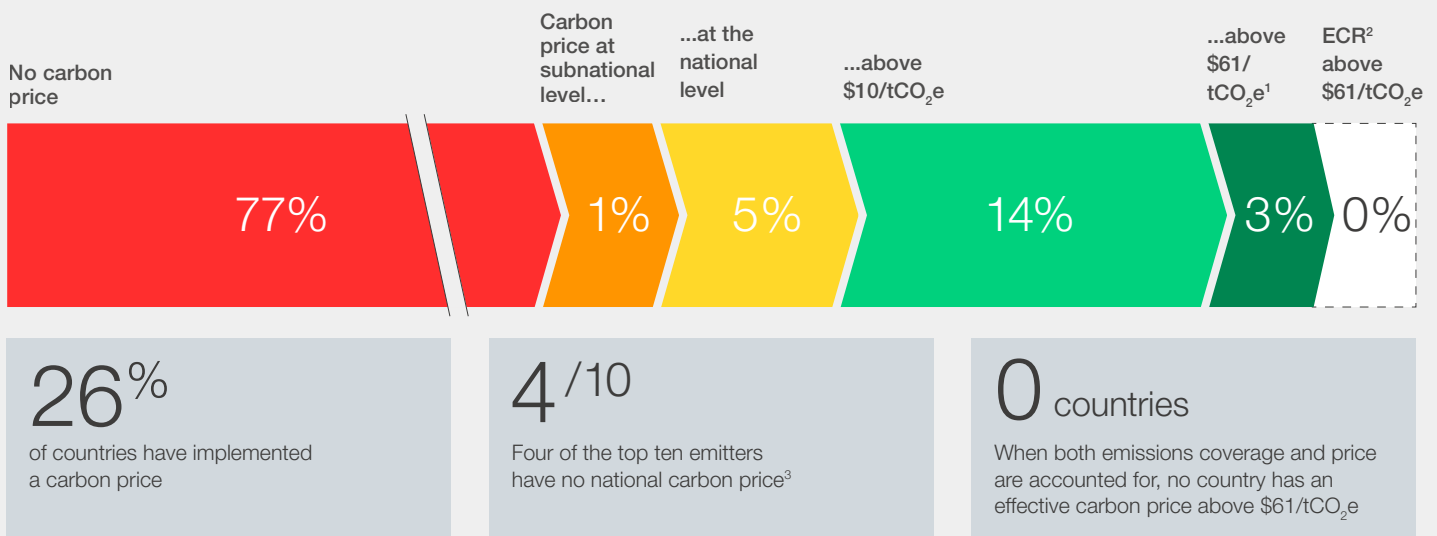
with information about their embedded carbon footprint.¹³ Lacking transparency on emissions data hinders accountability and limits the potential to extend carbon pricing.¹⁴ Harmonizing and simplifying reporting standards and trading rules will be key to spreading consistent emissions disclosure across geographies and reducing the administration burden on companies.

Implement a meaningful price on carbon.

Carbon pricing as a mechanism has made progress in recent years: almost one-quarter of all global emissions are covered by some form of carbon pricing scheme, up from just 5% in 2011. However, only 3% of global emissions are already subject to sufficient pricing, as defined by the High-Level Commission on Carbon Prices (see Figure 5).¹⁵ A price reflecting the true cost of carbon must be complemented by an enabling regulatory environment and more transparent and credible voluntary carbon markets.

FIGURE 5 An opportunity remains to broaden the scope of carbon pricing globally

Percentage of global emissions covered by a carbon tax or emissions trading system



Sources: Intergovernmental Panel on Climate Change; World Bank; High-Level Commission on Carbon Prices; BCG analysis.

¹ Required minimum threshold by 2030 from the High-Level Commission on Carbon Prices, in 2023 USD, adjusted for inflation by the World Bank;

² Effective Carbon Rate (ECR) is calculated by multiplying the share of emissions covered by each scheme with the associated price (countries can have several schemes – e.g., ETS and carbon tax – covering a various number of sectors); ³ India, Russia, Brazil, Iran

Roll out carbon border adjustment mechanisms.

One reason for the limited teeth of most carbon pricing schemes today is the unequal pricing between countries, which increases the risks of carbon leakage (emissions moving to countries with lower or no carbon prices instead of actually being

eliminated).^{16,17} Border taxes can be an effective instrument to address this challenge. In countries with significant imports of goods, such taxes can also trigger massive global ripple effects by directly impacting a large share of global emissions and by encouraging trade partners to set up more ambitious carbon pricing schemes of their own.



2.3 Double financing and incentives for outsized-impact solutions

Stronger efforts are needed to support green business cases as well as funding and demand for green solutions. In particular, key early-stage technologies and infrastructure, which have the potential to create half of the mitigation needed for 1.5°C – such as clean hydrogen, battery storage, biofuels, carbon capture utilization and storage (CCUS), direct air capture, small modular reactors and regenerative agriculture – need much larger public support.¹⁸

Make green business cases viable in all sectors.

During their first ten years on the market, more than 80% of all global wind and solar PV generation was concentrated in two countries: Denmark for wind and the US for solar.¹⁹ The countries' incentives provided the spark required to bring them to market and make them competitive. That same story needs to repeat itself for more than a dozen other technologies, and faster. This requires more step-changing subsidy schemes like the roughly \$400 billion US Inflation Reduction Act and the roughly \$300 billion EU Green Deal Industrial Plan, each geared towards mobilizing a multiple in private capital – or China's 2021-2025 five-year plan, which includes \$840 billion of green investments.^{20,21} It also requires policy continuity to avoid the insecurity of sudden direction changes.²²

Efforts should not only focus on mature technologies like solar, wind, nuclear and EVs; much more support is needed for underfunded technologies that do not yet have a positive business case.²³ One way to help fund these policies can be replacing the more than \$1 trillion of global fossil fuel subsidies with social support that incentivizes emissions reductions in a just and equitable way.^{24,25}

Deploy green public procurement at scale.

Global government-controlled procurement is responsible for around \$11 trillion in annual spending and around 15% of total global emissions.^{26,27} While green public procurement (GPP) policies are already in place in almost 90% of OECD countries, many of them still lack rigour. Only half of the countries with GPP policies have set binding targets, and a mere third have effective reporting mechanisms in place that would allow tracking progress.²⁸ Outside the OECD, uptake remains uneven, despite some good first steps taken by, for example, Brazil and South Africa.²⁹ Implementing more rigorous policies in high-emitting countries would have a fast and dramatic impact.

Available and near-future technologies can achieve

~55%
of the reductions needed for the 1.5°C climate goal.



2.4 Remove transition obstacles to accelerate action at least threefold

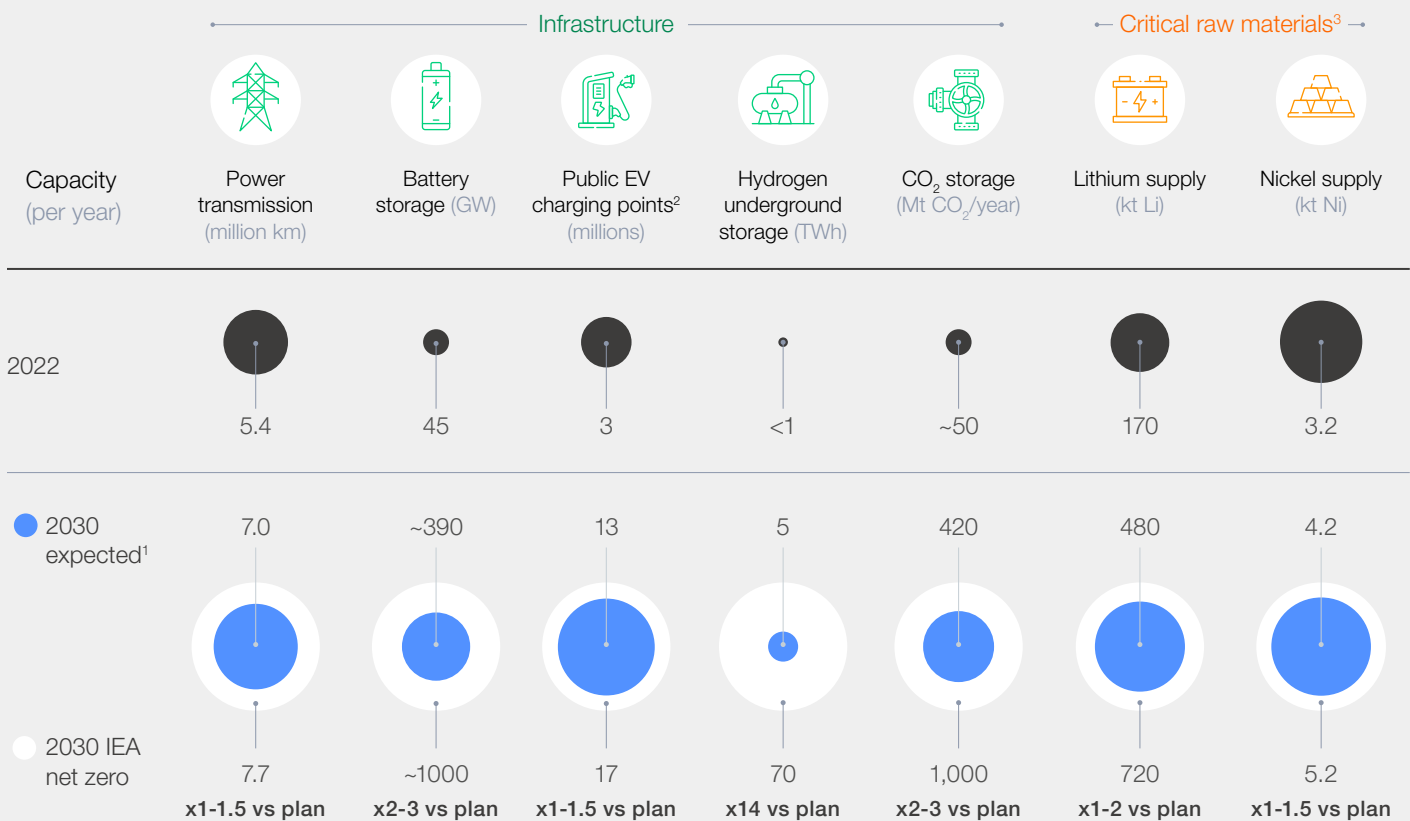
Ramping up subsidies and incentives in favour of the transformation will not achieve sufficient acceleration if other barriers remain in place. With obstacles ranging from long permitting times to supply chain constraints and skill gaps, governments need ambitious and forward-thinking strategies to clear the path to net zero.

Fast-track permitting for green projects.

Long permitting processes are a massive obstacle to the expansion of renewables and major low-carbon infrastructure projects. In the US alone, four times as

much wind and solar PV capacity is currently awaiting regulatory approval as is operational.³⁰ Average development lead times in the US and Europe are currently around nine years for transmission lines and seven and twelve years globally for CO₂ and hydrogen storage, respectively.³¹ With such durations, projects being planned today may not contribute anymore toward 2030 targets. This is all the more disconcerting as the gaps for key low-carbon infrastructure and raw materials are also expected to be massive by 2030 (see Figure 6). Streamlining planning and permitting alone could accelerate timelines by as much as 50% for wind and 75% for solar.³²

FIGURE 6 An urgent need exists for new infrastructure to enable technology scaling



Sources: International Energy Agency; Wood Mackenzie; BCG analysis.

Note: Only net-new additions considered (replacements/refurbishments excluded). 1 Based on announcements or historical trend.

2 For light-duty vehicles only. 3 Anticipated supply includes supply from recycled materials.

De-risk access to raw materials and supply chains.

Demand for several critical minerals could quadruple by 2030, outpacing currently planned supply.³³ A similar risk exists for key components ranging from batteries to power transformers, wind turbines, hydrogen compressors, (hydrogen-ready) gas turbines and more. This situation is aggravated by already existing supply chain vulnerabilities and

various concerns about geopolitical risks.³⁴

To prevent bottlenecks and inflationary pressures, countries can seek to implement regulatory initiatives, such as the EU's Critical Raw Materials Act, that diversify supply networks through dedicated trade agreements and help companies build capacity. Scaling circular economy solutions can further help mitigate supply risks by keeping the value of materials in the system for longer – right now, only 5% of discarded lithium-ion batteries get recycled.^{35,36}



Upskill the workforce for a green transition.

Global clean energy jobs are expected to more than double between 2019 and 2030, from 32 million to over 70 million.³⁷ In many sectors and countries, there is a risk that the supply of available talent will fail to meet this sharp jump in demand. China will lack 9 million jobs in power equipment by 2025 and 1 million in EVs, while the EU needs more than 600,000 new jobs by 2030 to achieve its solar strategy.^{38,39} Governments should launch large-scale upskilling and reskilling programmes, such as India's Skill Council for Green Jobs and the European Skills Agenda. This needs to happen while ensuring a just transition by retaining, retraining and redeploying fossil fuel industry workers and by ensuring that the new jobs created are fair and adhere to core labour and safety standards.⁴⁰

Get civil societies on board, broadly and credibly.

Climate misinformation is still rampant in too many countries. About 40% of US and UK citizens deny anthropogenic warming, and between 55% and 85% of people in the US, India, Brazil, Germany, the UK and Australia have at least one false belief about climate change.^{41,42} Governments can be ambiguous in their messaging and actions about climate, held back by fears of political backlash. Clearer, simpler, fact-based communication is needed to debunk irrational myths about climate change and to inform citizens of the most effective measures to counter it. Governments should also seek to design climate policies in a socially acceptable way, including benefits for local communities, such as job creation and energy affordability. Companies need to be mindful of their corporate climate-policy footprint, and they should avoid undermining progressive regulation and legislation and negatively influencing Paris-aligned climate policy.



2.5 Prepare for more drastic measures, which may become necessary in an ever-warming world

Despite the urgency, chances seem slim that all the above will be implemented globally and at the pace required. Persistent underestimation of the looming threat, misaligned interests, geopolitical tensions, economic challenges such as inflation and interest rates, the “tragedy of the commons” – the list of reasons for insufficient action is long. Yet, the rising costs of inaction may soon require far more drastic measures. Policy-makers may soon be forced to consider the following:

- **Implementing hard technology bans** and decarbonization mandates
- **Redirecting hundreds of billions of dollars per year into adaptation** to cushion the impact of increasingly dramatic climate fallout and investing in early-warning systems to quickly direct resources to populations in need, especially in the most vulnerable countries in the Global South.
- **Scaling removal solutions even faster.** Carbon removal will be an essential part of the decarbonization journey by the 2040s, but given the costs of these technologies, the difference between removing two to four gigatonnes and more than five gigatonnes per year is substantial. The further the world falls behind in reductions, the more it must prepare to increase the scale of removals.
- **Exploring further geoengineering solutions as a last-resort lever**, such as aerosol scattering or cloud brightening. This likely would require substantial investments in solutions with unclear promise and would create risks of second-order impacts that are hard to foresee, which could impact particular geographies or communities in different ways.

3

Corporates can lead systemic change – five priorities

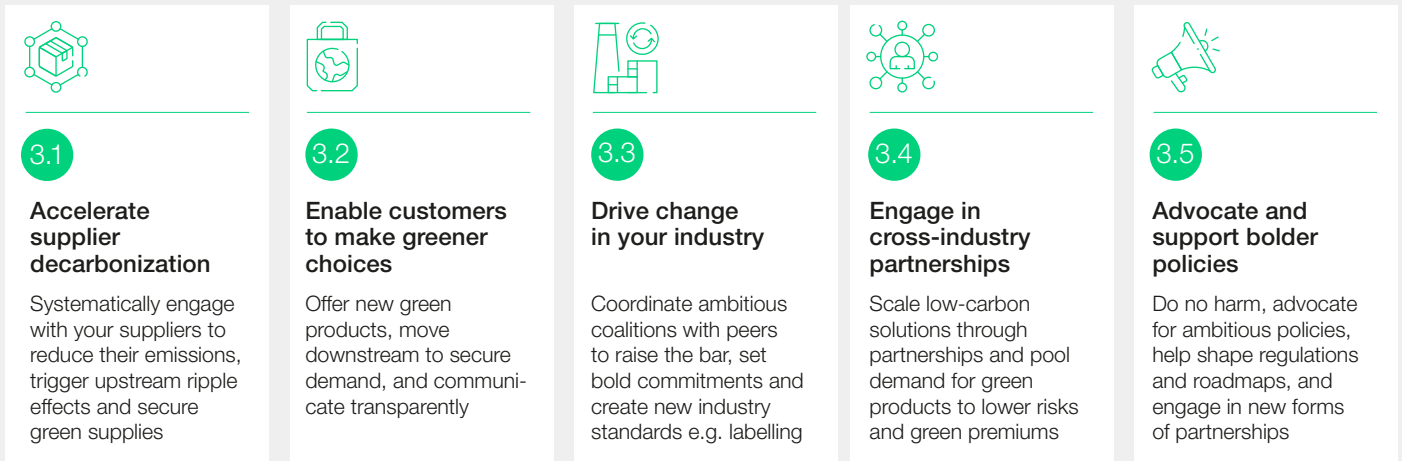
The private sector has a major responsibility and opportunity to unlock systemic impact, beyond internal initiatives.



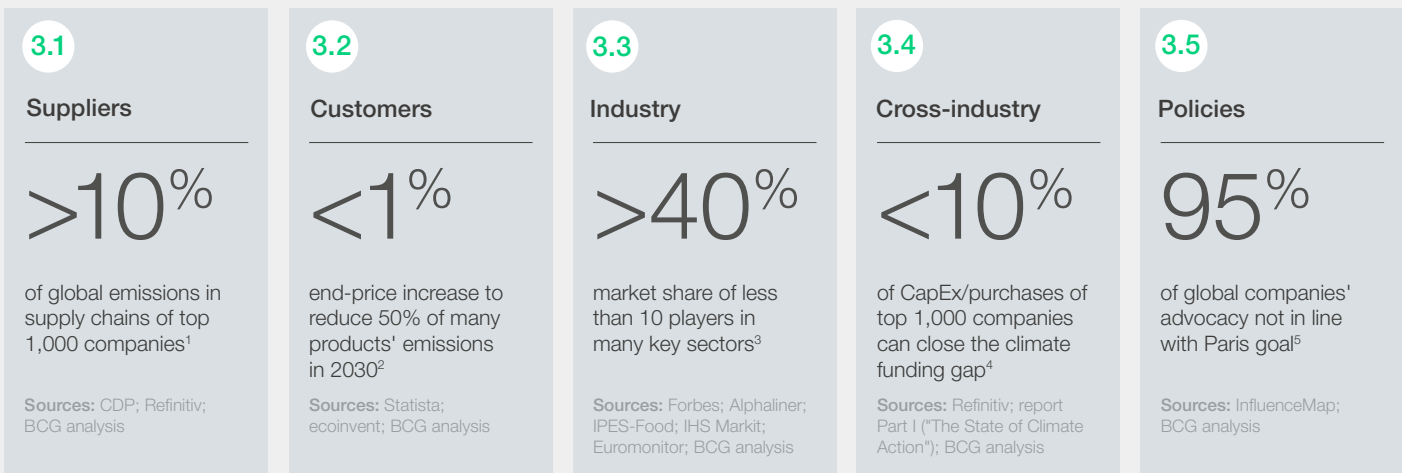
None of the drastic options outlined above would be as economical as bringing down emissions today. It is therefore humanity's collective responsibility – and each individual's as well – to accelerate mitigation action. There is both a strong opportunity and imperative for companies to do so. Many are already acting internally to set ambitious internal goals and accelerate action, including members of the Alliance of CEO Climate Leaders,

for whom this report is written. However, the sum of these individual actions is inadequate to achieve broader goals. Companies should look beyond their own operations and seek ways to bring about systemic impact by reshaping value chains, industries and policies. There are five ways in which corporates can step up global climate action far beyond their immediate sphere of control, with the potential for dramatic impact:

FIGURE 7 Five priorities for corporates to achieve outsized systemic impact



Corporates can achieve outsized impact on their systems



Notes: **1** Largest companies by revenue. Excluding non-disclosed data. Including overlaps between companies' scopes of disclosure; **2** E.g. EVs, packaged food, home & beauty; **3** E.g. aircraft manufacturing, grain and soy trading, container ship operators, automotive OEMs, express deliveries, restaurant chains; **4** Largest companies by revenue. Excluding non-disclosed data; **5** Based on a sample of 350 companies, among the largest globally, across various sectors. ~50% misaligned and ~45% mixed alignment



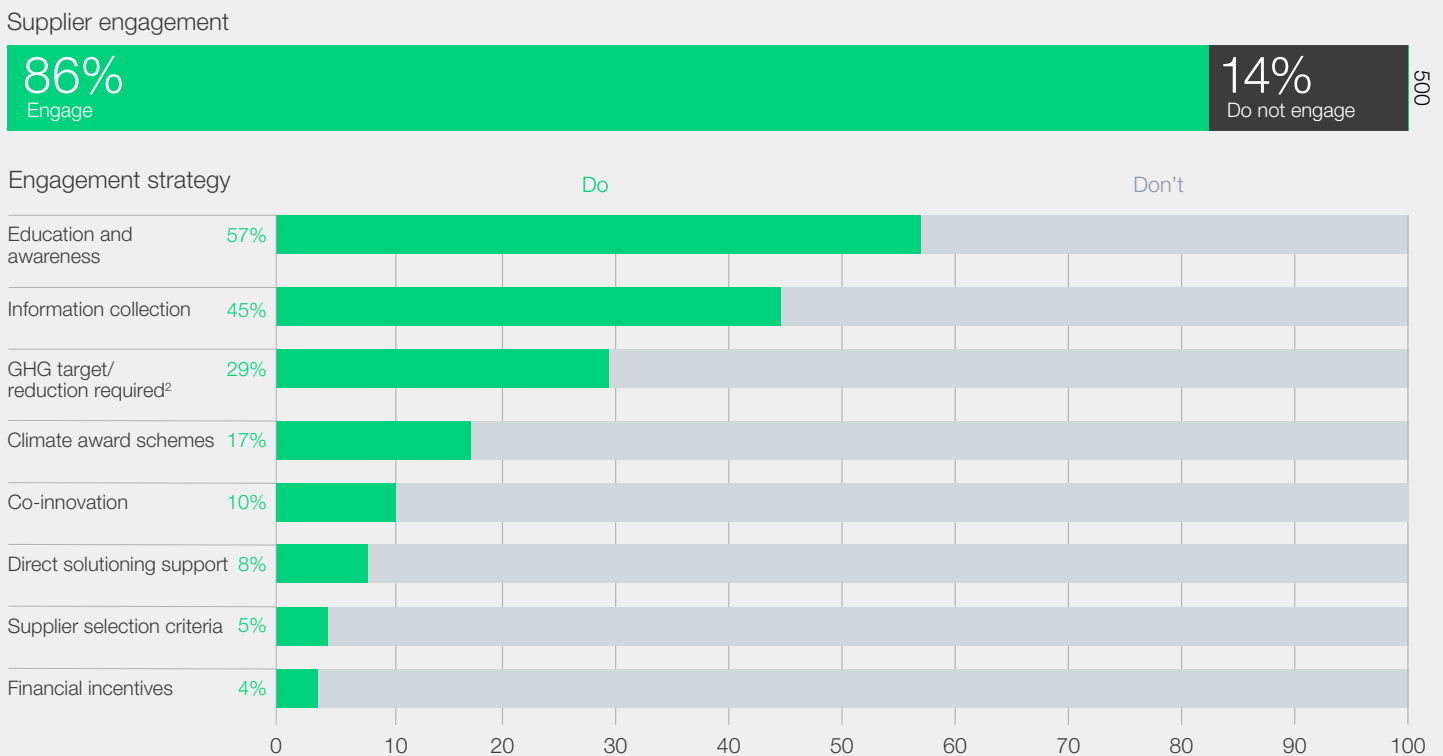
3.1 Accelerate supplier decarbonization

Companies that engage their supply chains to drive decarbonization can have an outsized climate impact. For the largest 1,000 global companies by revenue, upstream scope 3 emissions are roughly as high as their own footprints, and for many,

it can be five times more or higher. Even more impressively, when including their upstream supply chains, the top 1,000 global companies can impact more than a quarter of all global emissions.⁴³

FIGURE 8 Top companies engage suppliers, but most have taken only first steps

Share of top global companies engaging with suppliers, per type of engagement strategy
Public responses from 2022 CDP data, 500 largest respondents by revenue¹



Sources: CDP 2022 data; BCG analysis.

Notes: ¹ Includes only companies that made their responses public. All 500 are also among the 1,000 largest companies globally by revenue. ² Requirements to set a science-based target, launch initiatives, or commit to quantified KPI goals; excluding requirements to comply with regulations or disclose data.

Engaging suppliers in decarbonization has become a lot more common in recent years. More than 7,000 CDP respondents in 2021 (around 39%; and close to 90% among the 500 largest in 2022) claim to have done so.^{44,45} But most are still only taking the first steps, focusing on establishing transparency, educating and raising awareness (see Figure 8). By emboldening their engagements, companies, especially larger ones, can achieve a much greater impact at scale.

Align suppliers to 1.5°C.

As of today, less than 30% of the 500 largest CDP respondents require suppliers to set decarbonization targets, start decarbonization initiatives, or commit to a predefined level of

emissions reduction or renewable energy (see Figure 8). The bar should be much higher, even if timelines are set to give suppliers reasonable time to adjust. By requiring suppliers to disclose emissions, set science-based emission reduction targets and continuously track their progress, most of these companies could have an outsized impact on global emissions. And many successful examples show that bold requirements work (see Figure 9).

To avoid unnecessary complexities, supplier requirements should be aligned across industries, for example, by aligning with large-scale initiatives like the CO2 AI Product Ecosystem, enabling seamless carbon data exchange between companies, or the World Business Council for Sustainable Development's Partnership for Carbon Transparency.⁴⁶

“ Insufficient resources, financing and knowledge are among the key obstacles to decarbonization, especially for smaller suppliers.

Commit to green offtakes.

One of the largest obstacles to bolder decarbonization in emission-intensive material industries is the uncertainty about whether green solutions will find sufficient demand and willingness to pay to cover their cost. Producing low-carbon steel, chemicals, cement and other base materials still comes at a significant price premium, which makes high-investment, high-cost decisions to decarbonize a risky pursuit. On the other hand, the material scope 3 commitments made by companies in end-consumer-facing industries currently indicate that green markets might actually become undersupplied through the course of this decade, increasing the risk that offtakers might not be able to achieve their reduction targets.⁴⁷

Offtake commitments are a strong instrument against both risks. While many companies still stick to a “wait and learn” approach, early movers, such as Scania and Schaeffler, which committed to purchases of green steel, and DHL, which secured over 800 million litres of sustainable aviation fuel until 2026, are already sealing strategic deals for green supplies (see Figure 9). Many more – and much bigger – examples are needed.

Move upstream to scale supply.

Where market supply is not available, some companies also choose to integrate backwards to “make” rather than “buy”. Maersk, for example, faced with a gap in e-methanol projects able to supply future fuel to its growing low-carbon fleet,

copies by developing its own projects. Dow is also collaborating with X-energy to bring advanced small modular nuclear reactors to a US site (see Figure 9).

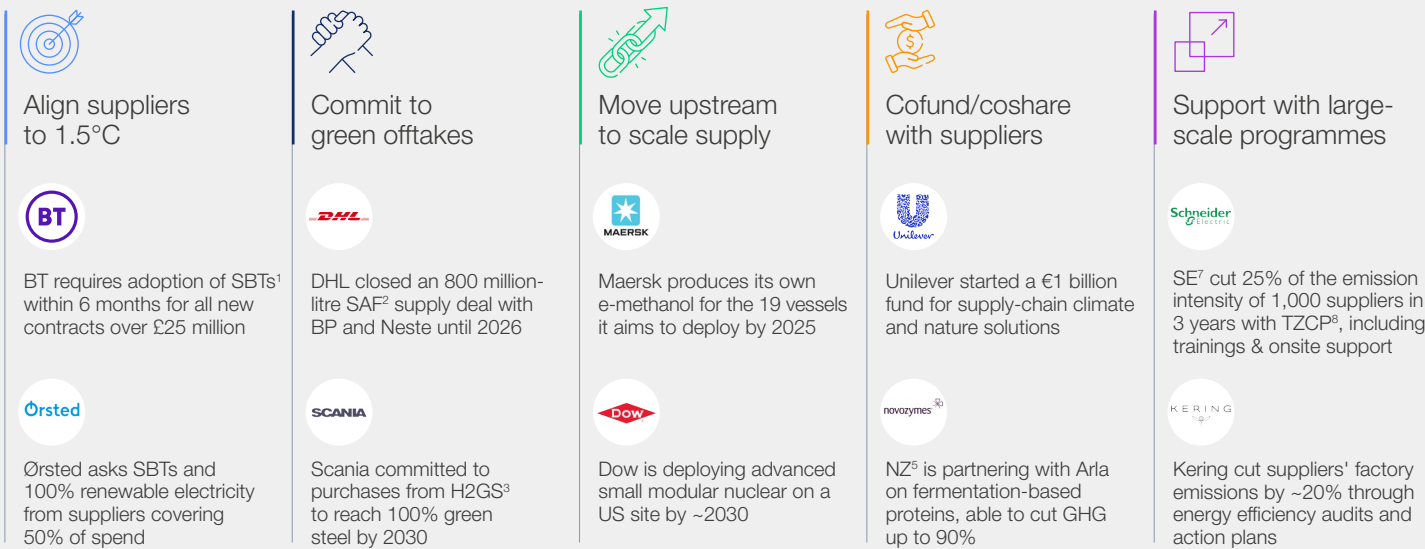
Co-fund and co-shape supplier decarbonization.

Insufficient resources, financing and knowledge are among the key obstacles to decarbonization, especially for smaller suppliers. To overcome these obstacles, several companies have chosen to co-invest and share knowledge to strengthen suppliers’ decarbonization efforts. Many also bet on co-innovation, with close R&D collaboration. Impactful examples include Unilever’s billion-euro fund for supply chain decarbonization programmes, Novozymes’s partnership with Arla on precision fermentation and IKEA’s initiative to supply value chain partners with renewable power (see Figure 9).⁴⁸

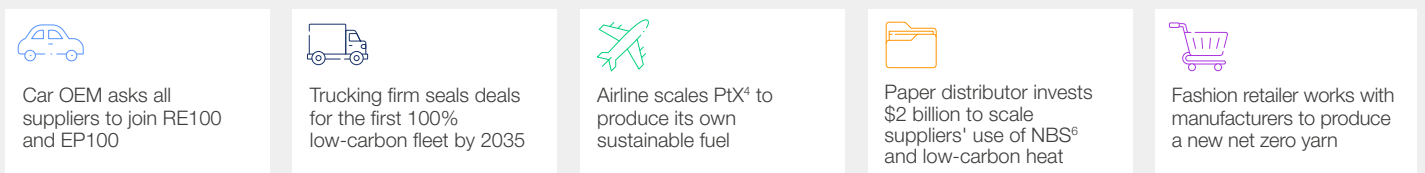
Support suppliers with large-scale programmes.

Direct support in implementing low-carbon solutions can also generate a massive impact by closing suppliers’ skill and resource gaps. This includes investing in capacity building for suppliers in low- and middle-income countries, particularly on data transparency and decarbonization levers. So far, only around 8% of the largest companies already offer direct solutioning support to their suppliers (see Figure 8). Examples generating strong impact include Schneider Electric, with its Zero Carbon Project to engage 1,000 suppliers and Kering’s energy efficiency programme (see Figure 9).

FIGURE 9 Examples of supplier decarbonization initiatives



Aspirational examples



Sources: BT Group; Ørsted; DHL; Scania; Maersk; Dow; Unilever; Novozymes; Arla; Schneider Electric; Kering; BCG analysis.

Notes: 1 Science-based targets. 2 Sustainable aviation fuel. 3 H₂ Green Steel. 4 Power-to-X. 5 Novozymes. 6 Nature-based solutions.

7 Schneider Electric. 8 The Zero Carbon Project



3.2 Enable customers to make greener choices

Corporates often cite fear of higher costs as a reason to shy away from ambitious decarbonization, as most customers are not willing to pay a significant premium for sustainable solutions with no additional value, especially in most price-sensitive markets and countries. But in some industries and geographies, there actually is a nascent – and growing – market for green products.⁴⁹ Where that is not the case, companies need to better communicate to convert the “mainstream” audience, or they need to strengthen innovation efforts to build up demand for sustainable offerings, embedding other benefits as well.⁵⁰ Either way, those that introduce a new level of transparency and that provide greener choices that match their customers’ needs can change the market, and the chances are high that they will harvest the initial benefit and put pressure on peers to follow.

Provide customers with low-carbon alternatives.

For many products, the options for consumers to make sustainable decisions are still far too scarce, and the market environment remains difficult. But there are already ways for companies to disrupt their markets with greener alternatives. Three models work (see examples in Figure 10):

- Promote at-scale circularity. Companies can bring down demand for primary products by creating business models that enable at-scale

reuse, repair and recycling of existing goods. Cemex’s circular processes and Ikea’s buyback programme are already making headway. A similar impact can be achieved by investing to differentiate with higher product durability.

- Introduce net-zero products. The alliance and BCG’s 2021 report, [Net Zero Challenge: The Supply Chain Opportunity](#), shows that the economic impact of bringing down supply chain emissions for end-consumer products is far lower than most people expect. Since the share of emissions-intensive base material costs makes up only a small portion of most products’ end-customer prices, even full decarbonization would only add costs at 1% to 4% of end prices in 2030.⁵¹ For many products, reducing the first 50% of emissions can even be achieved with an end-price impact well under 1%.⁵² Many customers’ willingness to pay is far larger than that.⁵³ Companies should fast-track net-zero versions of their products to market, giving customers a truly sustainable choice.
- Disrupt high-emission markets. Companies such as Tesla (with EVs), Rügenwalder Mühle (with vegan meat alternatives) and Northvolt (with batteries) have successfully disrupted their markets by making greener alternatives appealing to customers. There are more traditionally high-emitting industries ripe for disruption in industry, buildings, other foods and more.

<1%
end-price increase
to reduce 50%
of many products’
emissions in
2030

Unlock nascent green downstream demand.

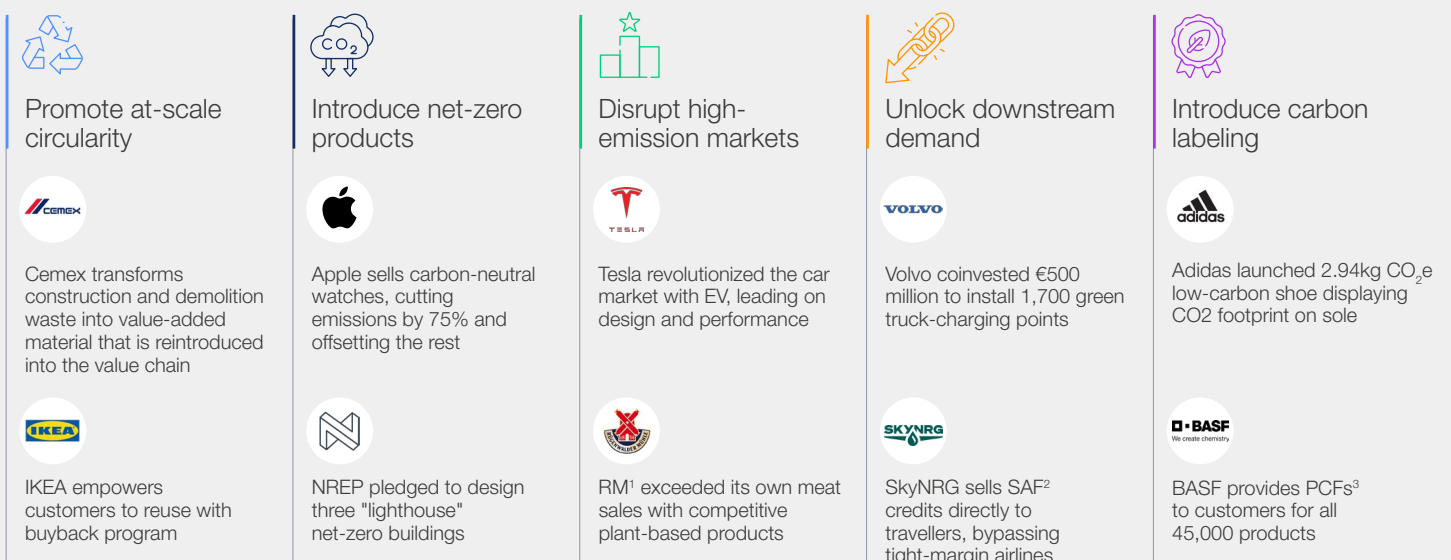
There may currently only be a limited direct market for low-carbon cement, but many people would want to live in low-carbon buildings. Especially for companies at early stages in the value chain, the route to market for green products can be deadlocked despite end-consumer interest. These companies should explore moving downstream to create a green offering where it has the most appeal. Early examples, such as Volvo's truck-charging venture with Daimler and Traton, and SkyNRG's sustainable aviation fuel credit programme, need to spread and scale (see Figure 10).

Introduce carbon labelling.

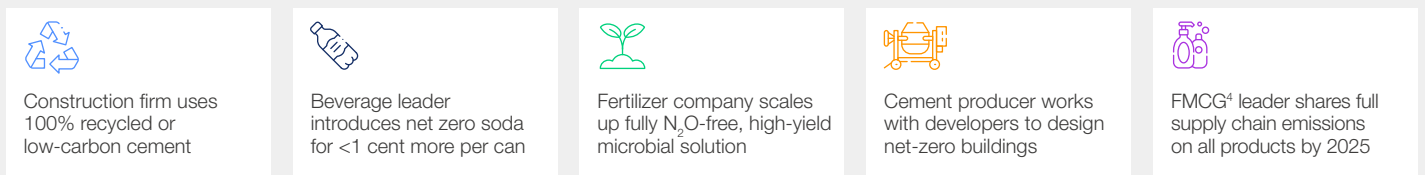
A prerequisite for enabling customers to make better demand choices, especially in business-to-

business segments, is creating transparency about their consequences. In this regard, initiatives like carbon labelling are becoming a differentiator. After all, who do you trust to take carbon emissions seriously, the company that discloses the impact of their products or the one that does not? Similarly, emissions transparency is a prerequisite for base material producers who want to secure a green premium. Companies should push bold transparency initiatives, measure emissions across their value chains and disclose the carbon footprints of their products, as done today by BASF, which shares the carbon footprint of all its products with customers (see Figure 10). The more companies that do this, the more others will be pressured to follow. To avoid the proliferation of inconsistent or misleading labels, regulators or industry groups should ensure that common standards are followed.⁵⁴

FIGURE 10 Examples of sustainable strategies with customers



Aspirational examples



Sources: Cemex; Ikea; Apple; NREP; Reuters; Vegconomist; Volvo Group; SkyNRG; Adidas; BASFs; BCG analysis.

Notes: 1 Rügenwalder Mühle. 2 Sustainable aviation fuel. 3 Product carbon footprint. 4 Fast-moving consumer goods.





3.3 Drive change in your industry

Corporates exploring ambitious climate action often fear a “first-mover disadvantage”, be it real or perceived. Cooperating to raise the bar instead of competing on decarbonization is a powerful instrument for overcoming this fear.

Align high commitments with major peers.

Over the past few years, there has been an increasing number of large-scale commitments seeking industry-wide impact. The potential is particularly substantial in supply chain “pinch points,” where a few players combine sufficient market share to jointly reshape the “new normal” of an entire sector. Examples include the Glasgow Financial Alliance for Net Zero, whose members control over \$130 trillion in private capital, including more than half of all global assets under management.^{55,56}

Alliances are most impactful where they aspire to a more concrete level of alignment than just a minimum level of commitment. For example, the seven Mission Possible sectoral roadmaps or Sustainable Markets Initiative’s Health Systems Task Force attempt to align members around concrete roadmaps and initiatives. The Forum’s Alliance of CEO Climate Leaders has also aligned disclosure and targets among members, and its members have achieved an overall 10% emissions reduction between 2019 and 2021 across its more than 120 member companies, including a 32% scope 2 reduction thanks to a bold uptake of levers such as power-purchase agreements. All alliances must look at how to maximize concrete impact while seeking to build a larger membership

base, especially beyond higher-income economies. For instance, 20 agricultural traders could align to stop a large share of global deforestation – among them, four players alone control 70% to 90% of global grain and soy trading (see Figure 11).

To defend against anti-trust lawsuits from parties opposing climate action, corporates should align with governments or other non-industry initiatives and build legal resilience, including by writing transparent and publicly available codes of conduct, leveraging legal advice, educating members about legal red lines and highlighting both the climate change objectives and benefits generated for consumers.⁵⁷

Create a new industry standard.

Peers should also cooperate on building common industry standards, for example, on transparency, data exchange practices along the value chain, or objective definitions of what constitutes a “green” product. In 2022, Kloeckner, a global steel distributor, introduced the world’s first “green steel” standard. Its methodology, which divides steel products into six categories based on their carbon footprint, immediately unlocked nascent demand and willingness to pay for less emission-intensive steel products. This is a strong example of an individual company’s ability to drive behaviour change among producers. Similar initiatives are needed in sectors ranging from mined commodities to other metals, chemicals, building materials and even consumer goods (see Figure 11).

FIGURE 11 Examples of moving industries through green alliances



Align high commitments with major peers



Mission Possible drives decarbonization in seven of the world’s highest-emitting sectors by designing net-zero action plans with industry leaders



SMI Health Systems Taskforce gathers seven pharma firms committing to reach net zero with shared targets and actions on supply chains, patient care and clinical trials



Create a new industry standard



Kloeckner Metals developed a six-category universal definition of green steel, based on emissions levels, to eliminate customer confusion



Henkel teamed with around 70 industry peers for a common ecological impact score for the beauty industry

Aspirational examples



20 buyers, trading 70%–90% of global oilseeds and grain and South American beef, which cause together more than 60% of deforestation, align to stop deforestation by 2030



Leading specialty chemical producer creates standards for green base chemicals, which account for ~2% of global emissions

Sources: [Mission Possible Partnership](#); [Sustainable Markets Initiative](#); [Kloeckner Metals](#); [Henkel](#); [EcoBeautyScore Consortium](#); Our World in Data; ResearchGate; Institute for Agriculture and Trade Policy; ESS-Feed; Bloomberg; International Energy Agency; BCG analysis.



3.4 Engage in cross-industry partnerships

All companies depend on partners in other sectors to fully decarbonize their value chains. Many also require new technologies to scale that are very far from their own core business, such as hydrogen or carbon capture, usage and storage (CCUS). Cooperating across industries to maximize the scale of buying power, share risks and reduce the green premium is an impactful lever to accelerate green-tech innovators' scaling, especially high-potential start-ups and build-ups.

Aggregate green demand to scale solutions and lower risks.

Many decarbonization technologies need to grow at a non-linear pace but nonetheless, face offtake risks given the limited scale they have today. Most, such as biofuels, hydrogen, or CCUS, are needed in many different industries. For technologies like these, cross-industry buying groups can send strong demand signals that are critical to accelerate innovation and give upstream developers stronger confidence in their business case. Several impactful examples show the possible magnitude of this model: the First Movers Coalition gathers more

than 90 companies, with a total of \$15 billion in purchasing power, to build early demand by 2030 for key technologies in seven hard-to-abate sectors; meanwhile, NextGen and Frontier have pooled financing for carbon removal (see Figure 12).

Scale new technologies in joint initiatives.

Several technologies that are currently still in the piloting stage need to be brought to market at a much faster pace than historical equivalents. Common infrastructure for technologies like EVs needs to be scaled while the market is still ramping up. Joint initiatives allow companies to pool resources and share scaling risks. Successful examples range from joint ventures, such as Volvo's electric van partnership with Renault and CMA CGM, to large partnerships with dozens of contributors, such as Breakthrough Energy's Catalyst, which pools funds from companies across sectors to scale potentially high-impact low-carbon technologies. More such partnerships could help scale early-stage technologies sector-wide, for instance, if major airlines partnered to accelerate the industrial-scale production of e-kerosene (see Figure 12).

FIGURE 12 Examples of joint efforts across industries



Aggregate green demand to scale solutions and lower risks



FMC¹ gathers more than 90 companies that committed \$15 billion of purchasing to build early demand by 2030 for key green technologies in seven hard-to-abate sectors (e.g. aviation, steel, and shipping) representing more than 30% of global emissions



NextGen and Frontier pool funding from firms across industries to buy high-quality carbon removal (e.g. \$1 billion pooled by Frontier)



Scale new technologies in joint initiatives



Volvo contributed €300 million to a €720 million joint venture with Renault and CMA CGM to produce fully electric vans, starting in 2026



Breakthrough Energy pools investments into Catalyst, a fund focused on cross-cutting technologies such as clean hydrogen, SAF,² DAC³ and long-duration energy storage

Aspirational examples



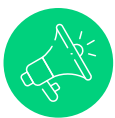
Players across transport industry and energy sectors commit \$10 billion for long-term green hydrogen offtake deals



IATA⁴ gathers \$20 billion from 20 airlines to finance a much faster scaling of bio- and e-fuels, with a goal of achieving net-zero aviation by 2040

Sources: [World Economic Forum](#); [NextGen](#); [Frontier](#); [Volvo Group](#); [Breakthrough Energy](#); BCG analysis.

Notes: **1** First Movers Coalition. **2** Sustainable aviation fuel. **3** Direct air capture. **4** International Air Transport Association.



3.5 Advocate and support bolder policies

As shown in Section 2, much more ambitious government policies might be the single most important driver for accelerating decarbonization. Whether corporates demand or obstruct these policies can make an enormous difference in regulatory progress.

Do no harm and advocate for net-zero policies.

95% of the 500 largest CDP respondents were involved in some form of climate advocacy in 2022.⁵⁸ But some companies still send contradictory messages from one country or one business unit to another, either as part of industry associations or actively lobbying against ambitious regulations themselves. 95% of the companies assessed by InfluenceMap in 2021 were either misaligned with the Paris goals or sending mixed signals.⁵⁹ Today's advocacy could also focus more on lagging countries. Of the CDP's 500 largest respondents in 2022, 40% advocated for policy action in the US, EU, and/or Japan, versus just 3% for China and 4% for all other top 10 emitters.^{60,61}

Help shape regulation and pathways.

Beyond traditional advocacy, corporates can seek to collaborate with governments on policies and

sectoral roadmaps. This can help ensure policy certainty and stronger industry-wide ambitions. Successful examples such as Denmark's Climate Partnerships and the Fossil Free Sweden initiative were both initiated by governments. Where this does not happen, corporates should seek to be proactive (see Figure 13).

Engage in new forms of partnerships.

Public-private partnerships (PPPs) have proven strong potential to de-risk massive investments, such as Indonesia's \$20 billion Just energy transition partnership. It can also be a lever to accelerate project lead times, as permitting processes are among key obstacles. Countless similar megaprojects will be needed to accelerate renewables, scale up hydrogen production and roll out new infrastructure for power, hydrogen and CO₂ transport and storage (see Figure 13). Partnering with philanthropic players is also a key opportunity. At \$7.5 billion to \$12.5 billion annually, climate mitigation now represents less than 2% of total philanthropic spending.⁶² Public-private and philanthropic partnerships (PPPP) are new constellations on the rise that can help drive more creative ways to de-risk capital and build new pathways to unlocking additional funding.

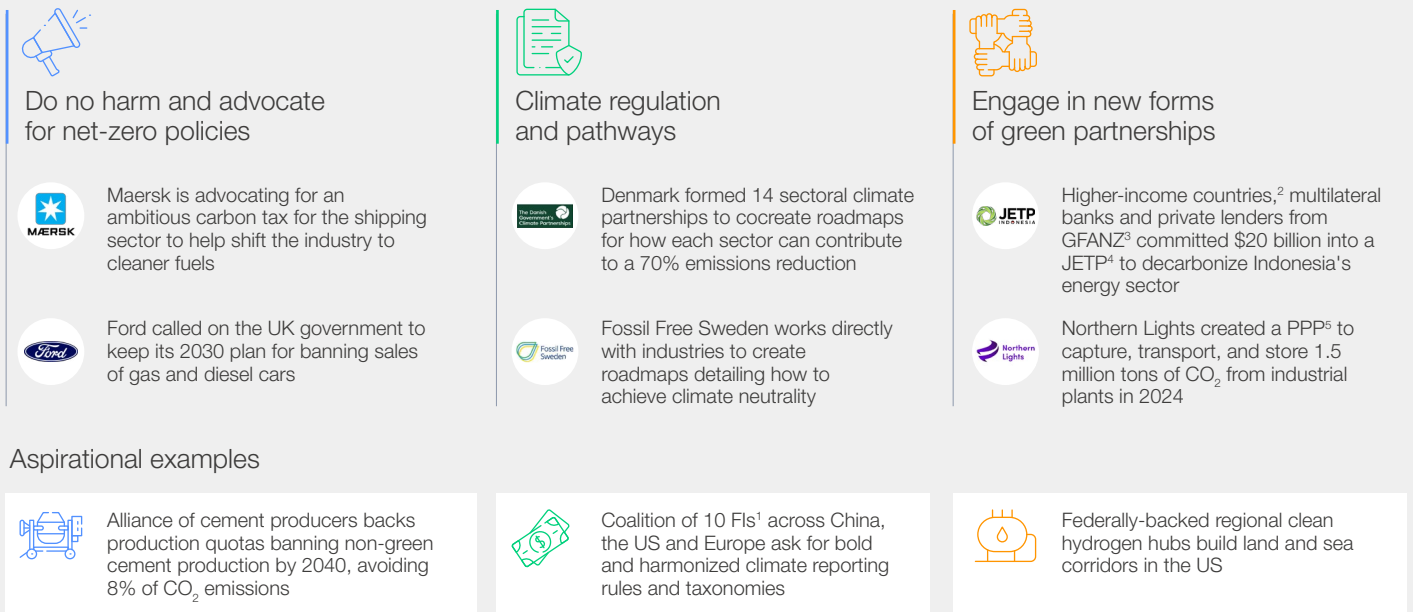
95%
of global companies' advocacy not in line with Paris goal

BOX 1 | We Mean Business Coalition recommends five advocacy best practices

The Responsible Policy Framework, developed by the We Mean Business Coalition, Ceres, and partners, contains case studies of best practices across five areas:⁶³

- **Commit to speaking up** by publicly promoting your support for ambitious climate policy and putting in place governance and review processes on climate lobbying.
- **Make your voice heard** by engaging directly with policy-makers and mobilizing your networks, peers, and suppliers.
- **Align your trade associations** with the 1.5°C pathway, urging them to participate in positive climate advocacy.
- **Allocate advocacy spending** behind climate causes and stop harmful investments.
- **Disclose your advocacy** by issuing a review of the 1.5°C alignment of your organization's advocacy, disclosing relevant memberships, lobbying efforts and investments, as well as its ability to meet its own climate targets.

FIGURE 13 | Examples of advocacy and public-private partnerships



Sources: : [Bloomberg](#); [Reuters](#); [The Danish Climate Partnerships](#); [Fossil Free Sweden](#); [Northern Lights](#); [Indonesia's Just Energy Transition Partnership](#); Chatham House; BCG analysis.

Notes: 1 Financial institutions; 2 G7 countries, EU, Denmark and Norway; 3 Glasgow Financial Alliance for Net Zero; 4 Just Energy Transition Partnership; 5 Public-private partnership

Conclusion

The narrative may sound stale, but it is nonetheless true: the clock is ticking, and time is running out to avert disaster. The world urgently needs more Paris moments and a collective mindset shift that reflects the urgency of the situation. And it needs at-scale decarbonization everywhere.

Governments of the world have a large responsibility to get closer to net-zero emissions while also ensuring a just transition that can benefit the most vulnerable. They can set bolder and more near-term ambitions. They have the power to support leaders and penalize laggards. They can change the context for companies – and entire societies – with smart policies and better purchasing, and through pricing externalities, supporting the Global South, and incentivizing new technology. Alternatively, they can add bureaucracy, permitting delays, subsidies for fossil fuels and outdated procurement practices. Supporting governments to move in better directions faster is a collective responsibility, including leaders in the business community.

But companies cannot wait for the public sector to act. They can – and should – lead systemic impact to accelerate progress. They can drive decarbonization across their supply chains. They can move whole markets by deploying successful green alternatives. They can partner within and across industries to massively accelerate technology development and decarbonization. And they can change their stance on advocacy, pushing for smarter, bolder policies rather than preserving the status quo.

To readers, hopefully this report can inspire and serve as a catalyst and guide for broader action. Focusing solely on individual agendas is not resulting in nearly enough progress. Public and private leaders must also become system players to support and accelerate change across industries and societies. This is not a moment for asking **if** it can be done but for finding out **how**.

Contributors

World Economic Forum

Pedro Gomez

Head of Climate; Member of the Executive Committee

Pim Valdre

Head of Climate Ambition Initiatives

Boston Consulting Group

Jens Burchardt

Managing Director and Partner

Trine Filtenborg de Nully

Project Leader, World Economic Forum Fellow

Patrick Herhold

Managing Director and Senior Partner

Edmond Rhys Jones

Partner and Associate Director

Rich Lesser

Global Chair

Natalia Mrówczyńska

Consultant

Cornelius Pieper

Managing Director and Senior Partner

Galaad Préau

Consultant

Acknowledgements

Marisa Drew

Chief Sustainability Officer, Standard Chartered Bank

Alexandra Kamerling

Competition Partner, DLA Piper; Competition Law Adviser, Net Zero Lawyers Alliance

Lisa Lindqvist

Public Affairs Manager, Partnerships, Scania

Agustin Lopez Diaz

Chief Sustainability, Customer Satisfaction and Quality Officer

Per Norgren

Business Development Manager, Supply Chain Decarbonization, Scania

Karen Pflug

Chief Sustainability Officer, Ingka Group (IKEA)

Morten Enggaard Rasmussen

Executive Vice-President, People, Sustainability and Brand, Novozymes

Ankit Todi

Lead, Sustainability Strategy and Partnerships, Mahindra Group

Juliette White

Vice-President, Global Safety, Health, Environment and Sustainability, AstraZeneca

The authors would like to thank the Alliance of CEO Climate Leaders at the World Economic Forum for their valuable input.

Production

Laurence Denmark

Creative Director, Studio Miko

Sophie Ebbage

Designer, Studio Miko

Jools Bond

Editor, Studio Miko

Endnotes

1. Cf. Part I. World Economic Forum and Boston Consulting Group, *The State of Climate Action: Major Course Correction Needed from +1.5% to -7% Annual Emissions*, 2023.
2. The 2.5°C figure is the latest median projection by Climate Action Tracker: <https://climateactiontracker.org/global/cathermometer/>; The 3.7°C to 4.8°C range is IPCC's median projection in the *Climate Change 2014: Synthesis Report*: <https://www.ipcc.ch/report/ar5/syr/synthesis-report/>.
3. International Energy Agency (IEA), *World Energy Investment 2023*, 2023.
4. The Wall Street Journal and Boston Consulting Group, "Now for Some Good News About Climate: Costs for renewables have plummeted and growth is exceeding expectations", 27 November 2023: https://www.wsj.com/business/energy-oil/now-for-some-good-news-about-climate-27236f56?mod=hp_lead_pos7.
5. Cf. Part I. World Economic Forum and Boston Consulting Group, *The State of Climate Action: Major Course Correction Needed from +1.5% to -7% Annual Emissions*, 2023: This calculation is based on the Climate Action Tracker's estimated global path from committed NDCs and long-term pledges, including land use, land-use change and forestry.
6. Cf. Part I. World Economic Forum and Boston Consulting Group, *The State of Climate Action: Major Course Correction Needed from +1.5% to -7% Annual Emissions*, 2023
7. Ibid.
8. Ibid; the 2.5°C figure is the latest median projection by Climate Action Tracker: <https://climateactiontracker.org/global/cathermometer/>.
9. Ibid.
10. A country's "fair share" is based on its gross national income (GNI) in current US dollars for 2020, cumulative territorial carbon dioxide emissions between 1990-2020, and population size in 2020. See: Overseas Development Institute, *A Fair Share of Climate Finance? The Adaptation Edition*, 2023: <https://odi.org/en/publications/a-fair-share-of-climate-finance-the-adaptation-edition/>.
11. IEA and International Finance Corporation, *Scaling up Private Finance for Clean Energy in Emerging and Developing Economies*, 2023: <https://www.iea.org/reports/scaling-up-private-finance-for-clean-energy-in-emerging-and-developing-economies>.
12. Google Cloud, *2023 Sustainability Survey*, 2023: <https://cloud.google.com/blog/transform/2023-google-cloud-sustainability-survey>.
13. BCG analysis of 2022 CDP data.
14. Boston Consulting Group, *To Inspire Action on Net Zero, Set a Price for Carbon*, 2023: <https://www.bcg.com/publications/2023/benefits-of-carbon-pricing-to-inspire-net-zero>.
15. Required minimum threshold by 2030 from the High-Level Commission on Carbon Prices, in 2023 USD, adjusted for inflation by the World Bank. See: World Bank, *State and Trends of Carbon Pricing 2023*, 2023: <https://openknowledge.worldbank.org/entities/publication/58f2a409-9bb7-4ee6-899d-be47835c838f>.
16. Kleinman Center for Energy Policy, *East Meets West: Linking the China and EU ETS's*, 2022: <https://kleinmanenergy.upenn.edu/research/publications/east-meets-west-linking-the-china-and-eu-ets/>.
17. You Xiaoying, "How Will EU's 'Green Tariff' Impact China's Carbon Market?" China Dialogue, February 6, 2023: <https://chinadialogue.net/en/climate/how-will-eus-green-tariff-impact-chinas-carbon-market/>.
18. Cf. Part I. World Economic Forum and Boston Consulting Group, *The State of Climate Action: Major Course Correction Needed from +1.5% to -7% Annual Emissions*, 2023.
19. Denmark accounted for, on average, 88% of global wind generation between 1983-1992; the US accounted for, on average, 93% of global solar PV generation between 1983-1992. BCG analysis based on Energy Institute "Statistical Review of World Energy" data, 2023.
20. Sarah Braverman, Thaddeus Wood and Zara Ahmed, "The Impact of the Inflation Reduction Act, One Year Later", *Carbon Direct*, 23 August 2023: <https://www.carbon-direct.com/insights/the-impact-of-the-inflation-reduction-act-one-year-later>.
21. Goldman Sachs, "The US is Poised for an Energy Revolution", 17 April 2023: <https://www.goldmansachs.com/intelligence/pages/the-us-is-poised-for-an-energy-revolution.html>.
22. Policy uncertainty can derail existing decarbonization strategies, as shown by the UK's recent U-turn on the internal combustion engines ban, sparking a backlash from car manufacturers. See: Reuters, "UK Car Industry Says 'Confusion' on Climate Policy will Hinder Transition to EVs," 20 September 2023: <https://www.reuters.com/business/autos-transportation/uk-car-industry-says-confusion-climate-policy-will-hinder-transition-evs-2023-09-20/>.
23. Example: The Inflation Reduction Act will reduce green hydrogen costs by ~70%, eliminating the gap to grey hydrogen almost entirely. See: World Economic Forum and Boston Consulting Group, *Winning in Green Markets: Scaling Products for a Net Zero World*, 2023, <https://www.weforum.org/whitepapers/winning-in-green-markets-scaling-products-for-a-net-zero-world/>.
24. FossilFuelSubsidyTracker.org, "Country Trends in Fossil-Fuel Subsidies", 2021: <https://fossilfuelsubsidytracker.org/country/>.
25. IEA, *Fossil Fuels Consumption Subsidies 2022*, 2023: <https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022>.

26. Tanya Filer, “How Governments Can Turn Procurement into a Climate Innovation Tool”, *Brookings*, 16 September 2021 <https://www.brookings.edu/articles/how-governments-can-turn-procurement-into-a-climate-innovation-tool/>.
27. International Institute for Sustainable Development, “Advancing Green Public Procurement and Low-Carbon Procurement in Europe: Insights”, 2 March 2022: <https://www.iisd.org/articles/deep-dive/advancing-green-public-procurement-and-low-carbon-procurement-europe-insights>.
28. Organisation for Economic Co-operation and Development, “Strategic Public Procurement”, *Government at a Glance 2019*, 2019: <https://www.oecd-ilibrary.org/sites/baa2f403-en/index.html?itemId=/content/component/baa2f403-en>.
29. World Bank, *Green Public Procurement: An Overview of Green Reforms in Country Procurement Systems*, 2021: <https://openknowledge.worldbank.org/server/api/core/bitstreams/5ee88e6e-a161-58b6-8126-e8a885e3acef/content>.
30. IEA, *World Energy Investment 2023*, 2023: <https://iea.blob.core.windows.net/assets/54a781e5-05ab-4d43-bb7f-752c27495680/WorldEnergyInvestment2023.pdf>.
31. Figures for transmission lines lead times based on data from the United States and Europe; figures for CO₂ transport and storage and hydrogen underground storage projects based on global data. See: IEA, *Energy Technology Perspectives 2023*, 2023: <https://www.iea.org/reports/energy-technology-perspectives-2023>.
32. Energy Transitions Commission, *Streamlining Planning and Permitting Can Accelerate Wind and Solar Deployment*, 2023: https://www.energy-transitions.org/wp-content/uploads/2023/01/Barriers_PlanningAndPermitting_vFinal.pdf.
33. IEA, *Critical Minerals Market Review 2023*, 2023: <https://www.iea.org/news/critical-minerals-market-sees-unprecedented-growth-as-clean-energy-demand-drives-strong-increase-in-investment>.
34. For example, Australia, Chile and China alone control about 90% of the world’s lithium supply. See: IEA, *Critical Minerals Market Review 2023*, 2023: <https://www.iea.org/news/critical-minerals-market-sees-unprecedented-growth-as-clean-energy-demand-drives-strong-increase-in-investment>.
35. CLG Europe’s Materials and Products Taskforce, *Embracing Circularity: A Pathway for Strengthening the Critical Raw Materials Act*, 2023: <https://www.corporateleadersgroup.com/reports-evidence-and-insights/collections/reports/report-embracing-circularity-pathway-strengthening>.
36. CAS Science Team, “Lithium Ion Battery Recycling”, 22 September 2022: <https://www.cas.org/resources/cas-insights/sustainability/lithium-ion-battery-recycling#:~:text=Today%2C%20only%205%25%20of%20the,8%20million%20tons%20of%20waste>.
37. IEA, *Energy Technology Perspectives 2023*, 2023: <https://www.iea.org/reports/energy-technology-perspectives-2023>.
38. Ibid.
39. SolarPower Europe, *EU Market Outlook for Solar Power 2022-2026*, 2022: <https://www.solarpowereurope.org/insights/market-outlooks/eu-market-outlook-for-solar-power-2022-2026-2>.
40. Council for Inclusive Capitalism, *Just Transition Framework for Company Action*, 2021: <https://www.inclusivecapitalism.com/just-energy-transition-company-framework>.
41. Pew Research Center, *Why Some Americans Do Not See Urgency on Climate Change*, 2023: <https://www.pewresearch.org/science/2023/08/09/why-some-americans-do-not-see-urgency-on-climate-change/>.
42. Climate Action Against Disinformation, *The Impacts of Climate Disinformation on Public Perception*, 2022: <https://caad.info/analysis/reports/the-impacts-of-climate-disinformation-on-public-perception-2/>.
43. BCG analysis on data from CDP 2022 and Refinitiv 2022, including overlaps between companies’ scopes of disclosure; excluding nondisclosed data (114 companies among top 1,000 not disclosing scope 1 in either source, 128 for scope 2, 315 for scope 3).
44. CDP, *Scoping Out: Tracking Nature Across the Supply Chain: Global Supply Chain Report 2022*, 2023: https://www.cdp.net/en/research/global-reports/scoping-out-tracking-nature-across-the-supply-chain?utm_source=d365&utm_medium=email&utm_campaign=ser-23&utm_content=report-page.
45. 500 largest CDP respondents by revenue; all 500 companies are also among the 1,000 largest companies globally.
46. CDP: https://www.cdp.net/en/supply-chain/co2_ai-product-ecosystem.
47. World Economic Forum and Boston Consulting Group, *Winning in Green Markets: Scaling Products for a Net Zero World*, 2023: <https://www.weforum.org/whitepapers/winning-in-green-markets-scaling-products-for-a-net-zero-world/>.
48. Ingka, “Ingka Investments Expands Its Renewable Energy Portfolio”, 31 May 2022: <https://www.ingka.com/news/ingka-investments-expands-its-renewable-energy-portfolio/>.
49. World Economic Forum and Boston Consulting Group, *Winning in Green Markets: Scaling Products for a Net Zero World*, 2023: <https://www.weforum.org/whitepapers/winning-in-green-markets-scaling-products-for-a-net-zero-world/>.
50. Boston Consulting Group, *Consumer Companies Must Innovate to Drive Impact on Climate*, 2023: <https://www.bcg.com/publications/2023/consumer-companies-need-innovative-climate-change-solutions-to-drive-impact>.
51. World Economic Forum and Boston Consulting Group, *Net Zero Challenge: The Supply Chain Opportunity*, 2021: <https://www.weforum.org/reports/net-zero-challenge-the-supply-chain-opportunity/>.
52. Statista, n.d.: <https://www.statista.com>; ecoinvent, n.d.: <https://ecoinvent.org>; BCG analysis
53. World Economic Forum and Boston Consulting Group, *Winning in Green Markets: Scaling Products for a Net Zero World*, 2023: <https://www.weforum.org/whitepapers/winning-in-green-markets-scaling-products-for-a-net-zero-world/>.

54. Daniel Dawson, "Europe Cracks Down on Eco-Labels in Effort to Curb Greenwashing", Olive Oil Times, 3 April 2023: <https://www.oliveoiltimes.com/business/europe-cracks-down-on-eco-labels-in-effort-to-curb-greenwashing/118230>.
55. Glasgow Financial Alliance for Net Zero, *2022 Progress Report*, 2022: <chrome-extension://efaidnbnmnibpcajpcglclefindmkaj/https://assets.bbhub.io/company/sites/63/2022/10/GFANZ-2022-Progress-Report.pdf>.
56. Thinking Ahead Institute, *The World's Largest Asset Managers 2022*, 2022: <https://www.thinkingaheadinstitute.org/research-papers/the-worlds-largest-asset-managers-2022/>.
57. Recommendations based on advice from the Net Zero Lawyers Alliance.
58. 500 largest CDP respondents by revenue; all 500 companies are also among the 1,000 largest companies globally.
59. InfluenceMap, *Corporate Climate Policy Footprint*, 2021: <https://influencemap.org/report/The-Carbon-Policy-Footprint-Report-2021-670f36863e7859e1ad7848ec601dda97>.
60. India, Indonesia, Brazil, Russia, Mexico and Iran.
61. BCG analysis on 2022 CDP data, focusing on the 500 largest respondents in the survey by revenue.
62. ClimateWorks, *Funding trends 2022: Climate Change Mitigation Philanthropy*, 2022: <https://climateworks.org/report/funding-trends-2022/>.
63. We Mean Business Coalition, *Climate Ambition to Advocacy: A Framework for Responsible Policy Engagement*, 2022: <https://www.wemeanbusinesscoalition.org/rpe/>.



COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

The World Economic Forum, committed to improving the state of the world, is the International Organization for Public-Private Cooperation.

The Forum engages the foremost political, business and other leaders of society to shape global, regional and industry agendas.

World Economic Forum
91–93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel.: +41 (0) 22 869 1212
Fax: +41 (0) 22 786 2744
contact@weforum.org
www.weforum.org