

THE EXPONENTIAL BUSINESS PLAYBOOK

For companies building a competitive
advantage by contributing to an
Earth-aligned economy



2026

EXPONENTIAL
ROADMAP INITIATIVE

RACE TO ZERO

The Exponential Business Playbook is supported by some of the world's most influential and innovative companies.

Companies in our ecosystem represent more than US\$1 trillion in combined annual revenue and around 2 million employees.

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www.exponentialroadmap.org

INTRODUCTION

The world is at a critical turning point. A clear breakthrough is under way: renewables and electrification have crossed positive tipping points*, out-competing fossil options in many markets, and other solutions are following on steep S-curves (storage, EVs, energy efficient heat pumps and circular models). In several economies and companies, growth has already decoupled from emissions. Companies that act now can convert this momentum into competitive advantage and the growth of climate solutions while contributing to solving the climate crisis.

This point in time is defined by two truths: exponential progress on solutions and a rapidly intensifying climate threat we must now outrun.

2025 was one of the warmest years on record, at 1.44°C above pre-industrial temperatures.^{1,2} Scientists are deeply concerned by the sharp rise in global temperature. Scientific evidence shows that humanity is taking grave risks with the stability of Earth's life-support systems if the global average temperature continues to rise. A sustained rise in temperature is likely to trigger negative tipping points for rainforests, ice sheets, ocean circulations and more.³

Mobilising the entire business sector is now critical to keep warming as close as possible to 1.5°C, limit the scale and duration of overshoot, and preserve the

possibility of returning to a safer operating space for humanity. For companies, climate action is both strategy and responsibility. It is a driver of competitiveness, through innovation-led growth, cost and risk reduction, regulatory readiness, supply chain resilience and strengthened reputation. This Playbook translates that imperative into action through the updated Exponential Framework, focusing business efforts on five pillars:

1. rapidly reducing operational emissions†
2. reducing emissions across value chains
3. developing and scaling climate and nature solutions
4. mobilising finance and investment into climate action
5. shaping policy and public narratives to enable transformation.

This Playbook applies to all organisations, but expectations differ. Large companies in developed economies should move first and fastest. Small and medium-sized firms, especially in low- and middle-income countries, should grow by leapfrogging to clean solutions, cutting emissions intensity sharply and peaking total emissions early. Climate-solution companies should scale solutions exponentially, set firm Scope 1, 2 & 3 intensity targets and peak absolute emissions as soon as possible. All organisations still contribute to the same global goal.

* Positive tipping points are self-reinforcing shifts in social, technological or ecological systems that can accelerate beneficial transformation.⁴

† GHG emissions are also referred to as "emissions" in the Exponential Business Playbook.

ABOUT THIS PLAYBOOK

The Exponential Business Playbook is a practical handbook for the C-suite and for business and sustainability leaders who want to participate in, and accelerate, the fastest economic transition in history. Developed by the Exponential Roadmap Initiative, a science-based collaboration of leading companies, scientists and experts worldwide, it provides a strategic framework for target-setting, transition planning, implementation and disclosure. The Playbook emphasises simplicity and speed and is compatible with widely used standards and criteria.*

The Playbook underpins ERI's Climate Performance Review, which benchmarks companies' targets, transition plans, actions and performance against 70+ action criteria across the five pillars to surface gaps and priority opportunities to accelerate progress.

What's new in version 5.1:

Version 5.0 introduced the updated five-pillar Exponential Framework: Operations, Value Chain, Climate & Nature Solutions, Finance & Investment, and Policy & Narrative. This evolved the previous four-pillar structure by adding dedicated pillars for finance and investment, and for policy and narrative. It also strengthened guidance on carbon removals and climate solutions, and placed sharper emphasis on competitiveness: how climate action can drive growth, cut costs and build resilience.

Version 5.1 further develops the Exponential Framework by introducing Action Blocks: specific areas within each pillar where companies can set targets, take action and measure progress.

The first Exponential Business Playbook launched in 2020 with contributions from multiple experts and supporting organisations. It is updated regularly to reflect the latest science, evolving standards and user feedback.

All companies and organisations are encouraged to use the Playbook. We welcome feedback and endorsements to accelerate scaling. The Playbook is backed by companies in the Exponential Roadmap Initiative ecosystem representing more than US\$1 trillion in combined annual revenue and around 2 million employees.

* For example criteria and standards used by the following: the GHG Protocol; the Science Based Targets initiative (SBTi); EU frameworks (eg CSRD/CBAM); the International Sustainability Standards Board (ISSB); the UN Secretary-General's High-Level Expert Group (HLEG) on net zero commitments; ISO Net Zero Guidelines (IWA 42:2022); CDP; and Mission Innovation.

CARBON LAW AND THE 1.5°C AMBITION

The Carbon Law states that the world must halve global carbon emissions by 2030, and halve them again and again by 2040 and 2050, to reduce the risk of dangerous climate destabilisation. This exponential trajectory, halving every decade, was proposed in 2017 as a simple guide for rapid decarbonisation.⁵

Global emissions have not followed the original Carbon Law trajectory. Emissions remain near record levels and the remaining carbon budget for limiting warming to 1.5°C is nearly exhausted. The task is now to limit the scale and duration of overshoot while preserving the possibility of bringing warming back below 1.5°C over time.

IPCC AR6 pathways that limit warming to 1.5°C with no or limited overshoot require global greenhouse gas emissions to fall by around 43% by 2030 and 60% by 2035, relative to 2019.⁶ UNEP's latest Emissions Gap Report similarly points to a 55% reduction by 2035 for 1.5°C pathways. The near-term milestone is therefore to bend emissions immediately and deliver at least a first global halving by around 2035, with faster action from those with the greatest capability, responsibility and value-chain leverage.⁷

Recent highest-possible-ambition analysis by Climate Analytics and PIK shows that rapid transformation from today's delayed starting point could still limit peak warming to around 1.7°C and bring temperatures back below 1.5°C by 2100.⁸

The Carbon Law therefore remains useful as a minimum rate-of-change guide — not as a guarantee that overshoot can be avoided.

Companies should set science-aligned 2030 and 2035 milestones, reach net zero by 2050 at the latest, and move faster where feasible. Leading companies and those in high-income markets should aim for net zero by 2040 or earlier.

A complementary Carbon Law for Nature calls for food, land and agriculture systems to halt deforestation and land conversion, accelerate ecosystem restoration, sharply reduce agricultural emissions and transform the land sector from a net source into an expanding carbon sink.⁹

Therefore, we stand firm on the 1.5°C ambition.

1.5°C is more than a target. It marks the boundary between climate stability and growing instability, the edge of the safe operating space for humanity within Earth's life-support systems.

Our commitment is to keep warming as close to 1.5°C as possible and limit any overshoot, in order to return to the safe operating space for humanity. This requires (1) the rapid, orderly phaseout of fossil fuels and deep cuts in other greenhouse gases; (2) scaling high-integrity carbon-dioxide removals; and (3) safeguarding biosphere resilience by respecting all planetary boundaries.¹⁰

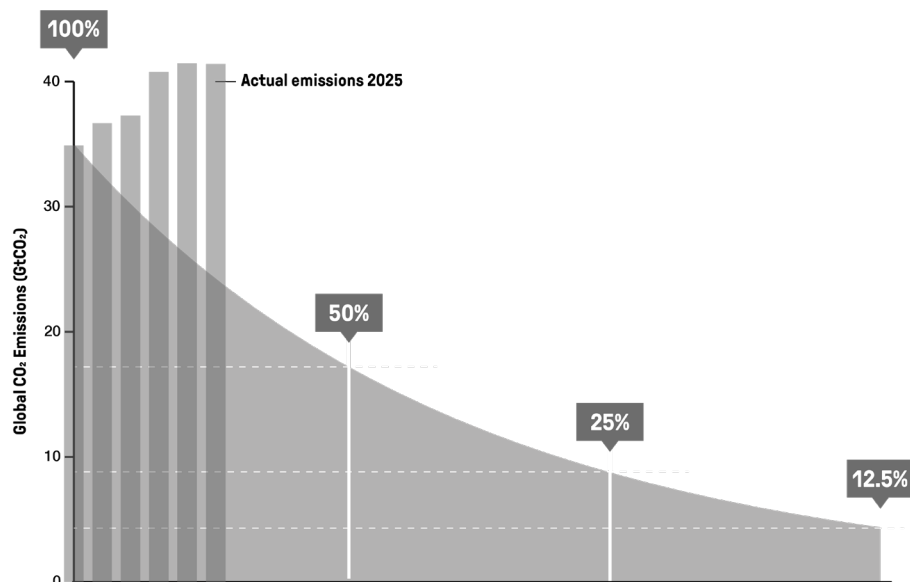


Figure 1. The Carbon Law and actual emissions. The original Carbon Law calls for global CO₂ emissions to halve about every decade. Because emissions have not fallen as assumed, the remaining 1.5°C carbon budget is now nearly exhausted. Global Carbon Budget 2025 estimates total anthropogenic CO₂ emissions at ~42.4 GtCO₂ in 2024 and ~42.2 GtCO₂ in 2025¹¹, marginally below the 2024 level, while fossil CO₂ emissions reached a record ~38.1 GtCO₂ in 2025. An adjusted rule-of-thumb from 2025 implies cuts of about 12% per year, roughly halving every five years, to stay close to a 1.5°C carbon budget.^{12,13}.

Definition of net zero for organisations

An organisation reaches net zero at organisational level* when it has: **(i)** reduced Scope 1, 2 & 3 greenhouse gas emissions in line with a 1.5°C-aligned, science-based pathway, reaching a very low residual level† as close to zero as possible; and **(ii)** neutralises those residual emissions with durable CO₂ removals that are exclusively claimed by the organisation.

* Based on ISO Net Zero Guidelines (IWA 42:2022), the SBTi Corporate Net-Zero Standard.

† In practice, most credible frameworks expect at least ~90% absolute reduction in an organisation's emissions before neutralisation. "Residual emissions" are those remaining after all technically and economically feasible abatement. Only durable (century-scale) CO₂ removals qualify for neutralisation at net zero; reduction credits, avoidance credits or removals with high reversal risk do not. Science-based levels of emissions per unit that are compatible with reaching net zero at the global level via 1.5°C-aligned pathways have been established for activities in some sectors (e.g. energy and steel production). The target level of emissions for net zero at the organisational level should be the level at which all technically feasible GHG reduction actions have been taken.

EXPONENTIAL SOLUTIONS ARE SCALING

From the Carbon Law imperative to halve emissions, we shift to delivery: proven solutions are now scaling on S-curves – and competitiveness is shifting with them.

Clean power is scaling exponentially: at 2025 growth rates, global renewable capacity is on a roughly five-year doubling path and solar on roughly three. Renewables reached 5.15 TW in 2025 after a record 692 GW of additions, while low-emissions electricity now supplies 43% of global generation, with renewables alone at 34% – enough for clean generation growth to outpace demand and begin pushing fossil generation down.^{14, 15}

This is a race to the top: competing to scale solutions, not a burden-sharing exercise.

Why does it matter for business? Scope 1 & 2 fall fastest as grids clean, electrification spreads and renewable procurement scales; Scope 3 is where an advantage is won, via product and material choices, procurement standards, supplier programmes, transparent data and new service models, with capital used selectively to remove bottlenecks (eg supplier/customer finance, near/zero-carbon offtakes). Policy and public narrative then remove external blockers so that adoption can accelerate further.

Across dozens of countries and companies, growth and emissions are now moving in opposite directions – GDP and revenue rising as emissions fall. This is crocodile economics: a new model of prosperity where value creation and decarbonisation advance together.

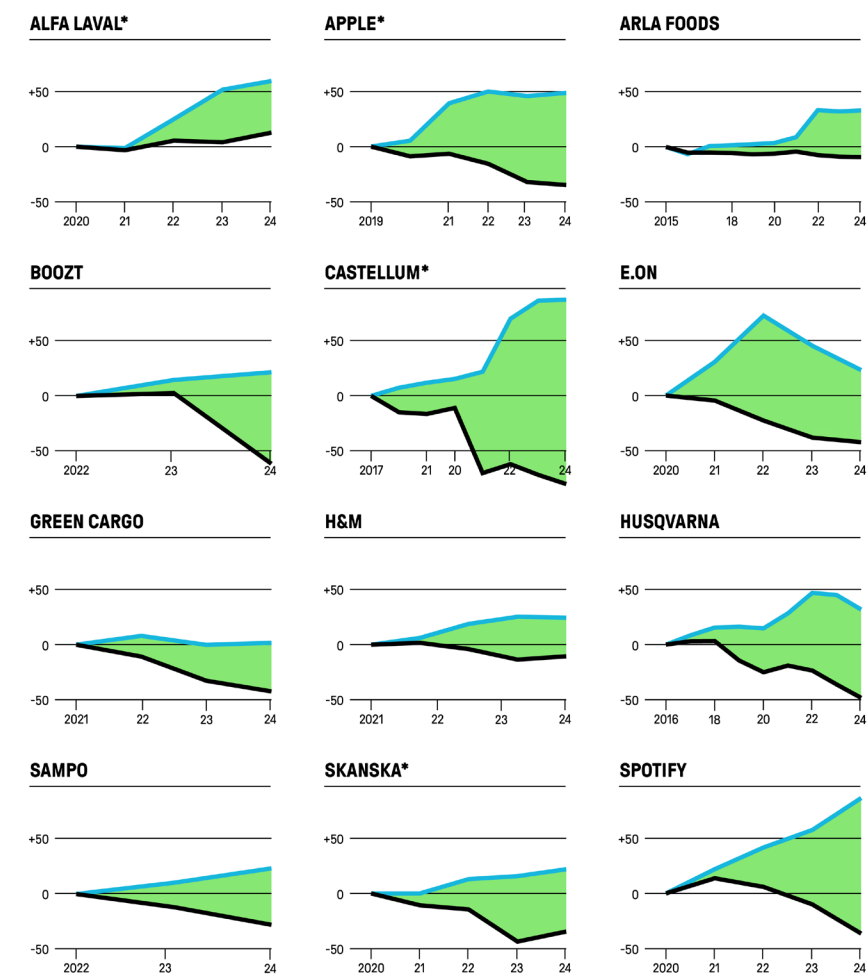
What's next? To keep warming as close to 1.5°C as possible, we must bend the curve. We must halve emissions and double solutions fast, doubling deployment of clean power, electrification, efficiency, circular business models and plant-rich, regenerative food systems every two to three years.

Companies should be incentivised to invest in Pillar 3 (Build & scale solutions) and Pillar 4 (Mobilise finance & investment), and to use Pillar 5 (Shape policy & narrative) to remove systemic barriers, so that sustainable, low-carbon technologies and enabling infrastructure can scale rapidly across sectors and value chains – receiving clear recognition for credible action and investments beyond direct operations that enable future direct mitigation.

The next pages illustrate how some leaders are beginning to separate emissions from growth, and why early movers may gain advantages in cost, resilience and innovation-led growth.

CROCODILE ECONOMICS

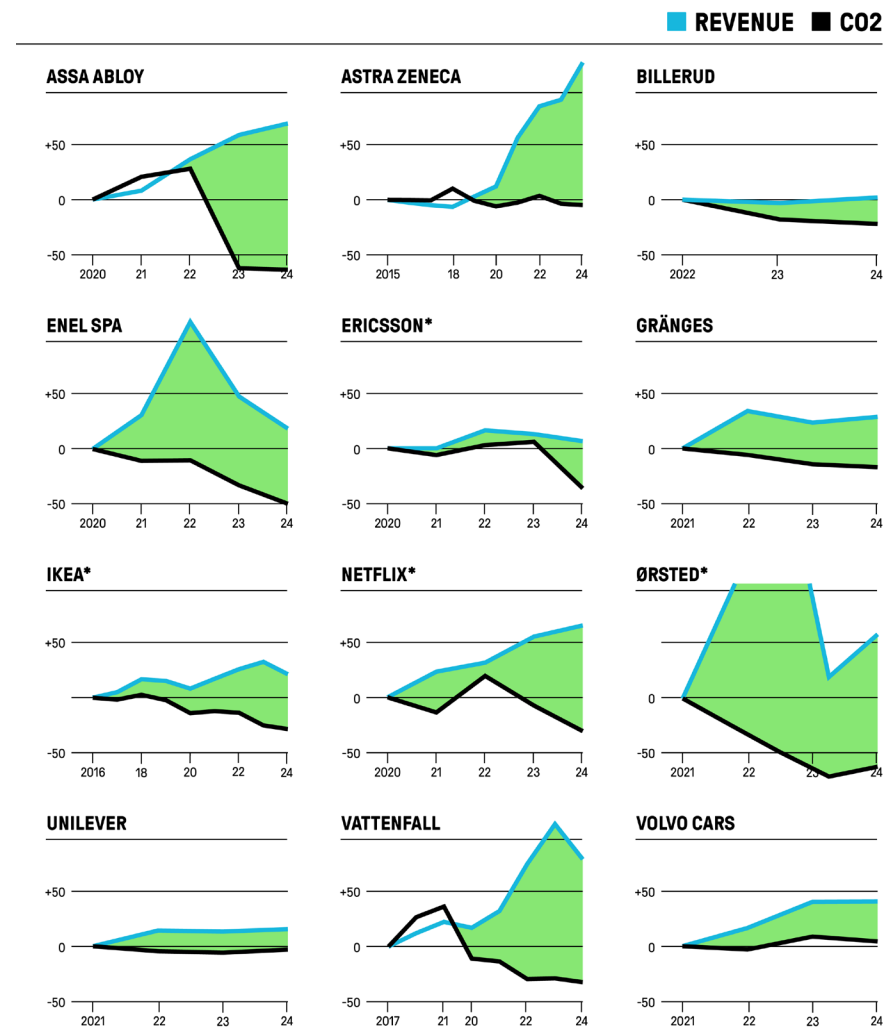
Company scope 1, 2&3 from target base year



Data source: ERI and Klimatkollen.

*Companies using scope 2 location-based emissions, and others using scope 2 market-based data.

Figure 2 shows a subset of companies where reported total Scope 1, 2 and 3 emissions appear to be decoupling from revenue. Revenue is presented in nominal terms and has not been adjusted for inflation. The analysis draws on CDP disclosures, Klimatkollen, the Global Legal Entity Identifier Foundation (GLEIF), Yahoo Finance, and publicly available annual and sustainability reports reviewed by Klimatkollen and the Exponential Roadmap Initiative. The companies selected span energy, technology, entertainment, industry, fashion, banking, furniture, food and consumer goods.



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The findings should be interpreted as early indications. Compared with evidence from leading countries, company-level time series are shorter, data availability is more limited, and the current sample is weighted towards Swedish firms. Some companies in the sample appear to show absolute decoupling, while others show relative decoupling. Future analysis will broaden the sample beyond Sweden.

THE EXPONENTIAL FRAMEWORK

The Exponential Framework is a strategic implementation guide for the 1.5°C ambition. The five-pillar climate strategy helps companies set targets, build transition plans, prioritise action where impact is greatest, and disclose progress. In practice, it means exponentially scaling the solutions, capital flows, and enabling conditions that drive tomorrow's growth and maximise contribution to global net zero while cutting today's footprint across operations and value chains.

Fragmented standards and heavy reporting can pull effort toward compliance rather than transformation. The Frame-

work provides a simple, action-centred structure that connects ambition to execution, aligns capital with innovation, and enables credible, comparable claims about companies' net zero impact. Developed with leading companies and experts since 2020 and regularly updated with the latest science, standards and user feedback, it aligns with and complements major standards.*

* Compatible with GHG Protocol, SBTi, ISSB/CSRD, ISO Net Zero Guidelines (IWA 42:2022) and aiming to align with the forthcoming ISO net-zero standard and [Spheres of Influence](#). It connects with ERI tools such as the [Climate Solutions Framework](#) and [Professional Services Matrix](#) to operationalise Pillar 3.



Figure 3. The five pillars. Visual design by TND: Christina Rüegg Grässli and Jakob Trollbäck (designer of the Sustainable Development Goals).

SETTING A FIVE-PILLAR STRATEGY

This guide sets out five action pillars for integrating climate and nature into corporate strategy, future-proofing performance and aligning with the 1.5°C ambition.

Pillar 1 – Operations. Actions to reduce emissions and nature-related impacts from the company's own operations.

Pillar 2 – Value chain. Actions to decarbonise the value chain and reduce nature-related impacts across upstream and downstream activities.*

Pillar 3 – Climate and nature solutions. Actions to innovate, scale and mainstream climate and nature solutions through products, services, technologies, business models, customer engagement and lifestyle shifts.

* Value-chain emissions correspond to Scope 3 (upstream and downstream) under the GHG Protocol.

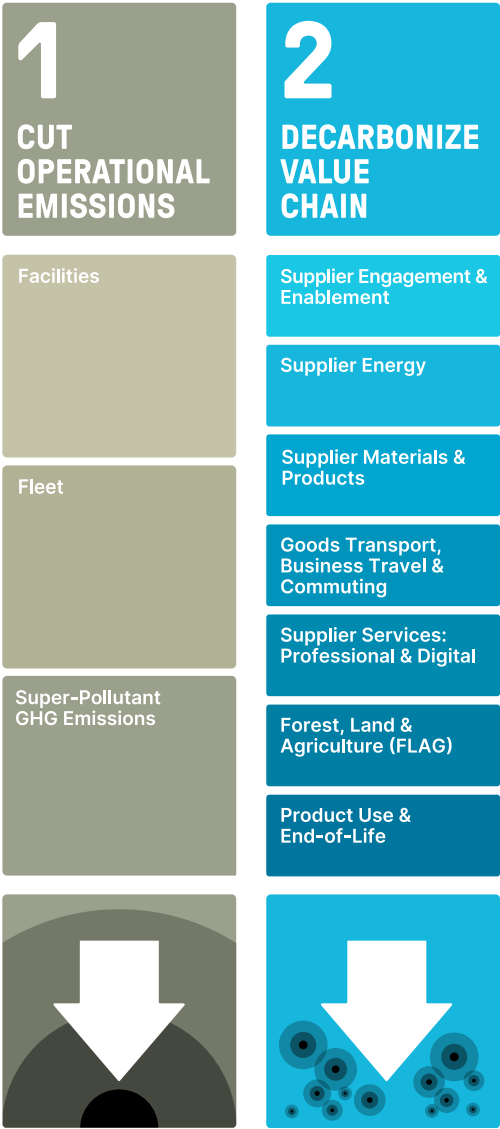
Pillar 4 – Finance and investment. Actions to mobilise capital into climate and nature solutions, including clean technologies, high-integrity carbon removals and nature-positive investments, to accelerate action within and beyond the value chain.

Pillar 5 – Policy and narrative. Actions to shape public policy, market conditions and narratives that enable system-wide, 1.5°C-aligned and nature-positive transformation.

For each pillar, companies are expected to set targets, develop and implement transition plans, take action, and report progress. The emphasis will vary by sector, geography and value chain to maximise business outcomes and contribution to global net zero and nature-positive transformation.

THE ACTION BLOCKS

Figure 4. The Action Blocks of the Exponential Framework. Each pillar is organised into specific Action Blocks: practical areas where companies can set targets, take action and measure progress. Not every Action Block will be equally material for every company, and no company needs to move at the same pace across all of them from day one. The task is to identify where the company has the greatest emissions impact, business opportunity and system leverage, prioritise accordingly, and expand ambition over time.



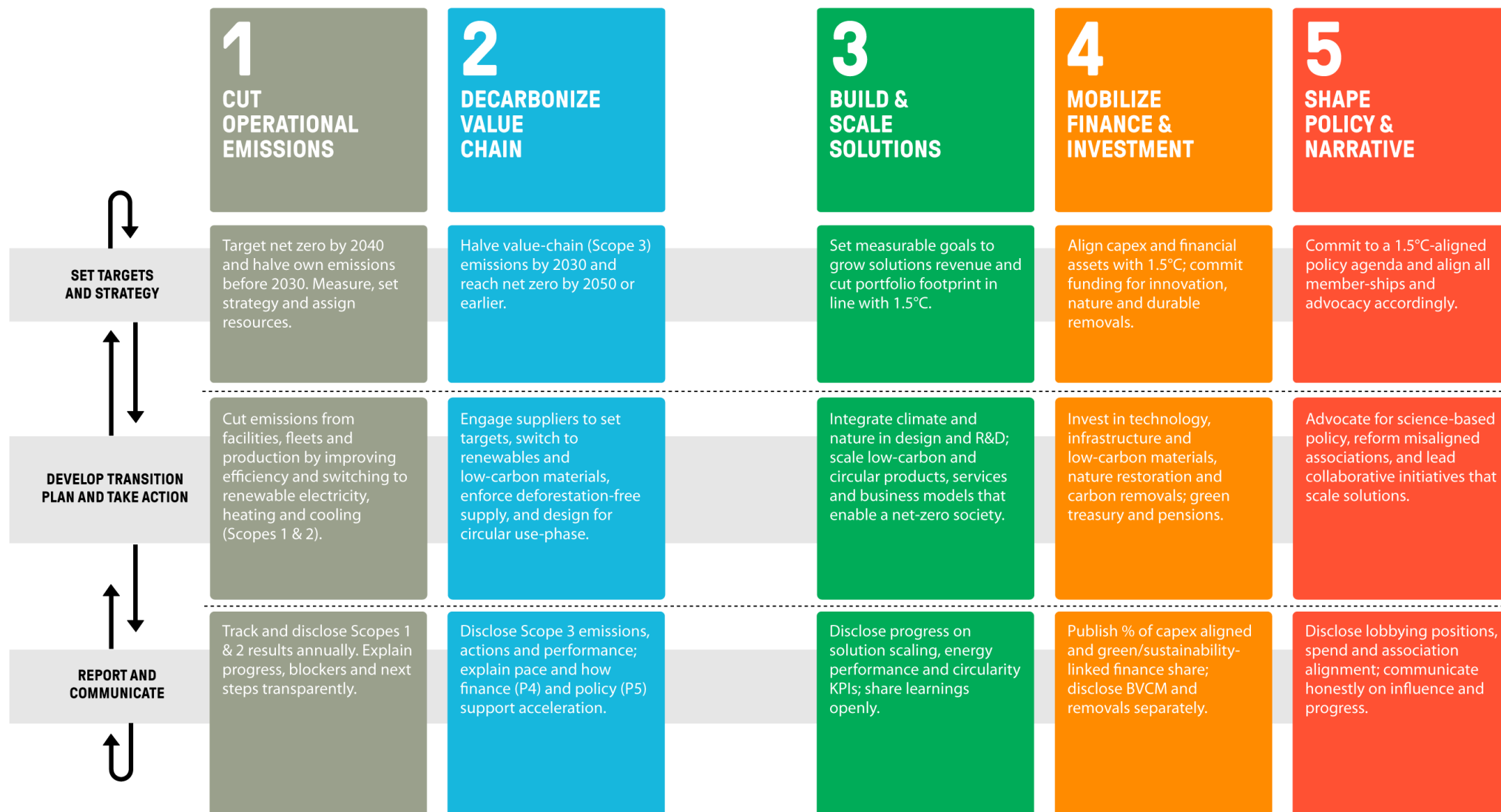


Figure 5. The five-pillar framework. Strategic framework for companies to align with the 1.5°C ambition.

COMMITMENT AND GOVERNANCE

To compete, grow and innovate in an Earth-aligned economy*, companies must lead from the top and embed climate and nature action across their core functions, from strategy, research, product development, supply chain management, operations, finance, HR and communications.

Commitments must translate into clear targets, capital allocation, incentives and an operating rhythm fully integrated with performance management and financial decision-making.

At the same time, companies must acknowledge the planetary crisis and their responsibility to act. Each company should publicly commit to a trajectory to net zero, setting short-term and long-term targets and allocating resources to deliver on them. This transformation depends on engaged employees at every level, supported by a clear, positive mission: to help build a safe, fair future for humanity, especially for the next generation.

* An Earth-aligned economy is an economy whose rules, incentives and institutions align production, consumption, finance and innovation with planetary stability and stewardship for the benefit of humankind.

ACTIONS – COMMITMENT AND GOVERNANCE

 = Link to guidance

- Set targets, approved at board level, to halve emissions across your operations and value chain by 2030.
- Commit publicly, at board level, to do your utmost to reach net zero emissions* by latest 2050, preferably earlier. 
- Set a long-term science-based pathway for reducing emissions towards net zero, with interim targets along the way. 
- Commit to a trajectory for high-quality carbon removals, towards the anticipated volume needed at net zero, within and/or beyond the value chain, with interim milestones along the way.† See section: *Integrating Carbon Removals into Corporate Actions*. 
- Set targets for phasing out the use of fossil fuels for energy use and processes in own operations and the value chain.‡

* See definition of a net zero organisation on page 6.

† Investments in removals should be considered and reported separately from progress towards emissions reduction goals. Within the value chain, removals cannot count towards both net emissions targets and removals targets.

‡ Including electricity, heating, steam, cooling, transportation and manufacturing processes.

- Integrate climate and nature action into the company's articles of association and shareholder agreements.
- Update your company's vision and mission statements to reflect your commitment to contributing to the global 1.5°C ambition, including protecting and restoring nature and ecosystems, to contribute to a safe, fair future for humanity.
- Develop and publish your just* transition plan for achieving your climate targets and delivering on business results. Include information about allocation of responsibilities; resourcing of planned actions; key challenges, innovation and policy gaps; and when the plan will be updated. 
- Assign responsibilities, mandates and resources for implementing climate action across the organisation, with a direct line of governance to the top leadership and board.
- Ensure the company board has sufficient competence to drive a 1.5°C-aligned strategy, which includes managing climate risks and ensuring the climate transition plan is integrated into business strategy.
- Assess climate-related risks and opportunities, and incorporate the assessment outcomes into strategic planning processes.
- Assess your company's impact on nature (eg using the ESRS standards in the EU or the TNFD framework in other regions) and incorporate the assessment into strategic planning processes. 
- Incorporate climate into your financial decisions (eg using internal carbon pricing or marginal cost of abatement thresholds). 
- Establish KPIs for climate and report on them alongside financial indicators.†
- Connect remuneration for executive management and employees with relevant decision-making authority to climate-related KPIs. 
- Educate and empower your employees to integrate climate and nature into all processes and decisions in their daily work.

* Include how your transition will protect jobs and health, reskill and redeploy people, support small suppliers, and avoid burden-shifting (eg energy poverty). Include targets, budget, roles, timeline and update cadence. (See the BSR [Just Transition Planning Toolkit](#) and the We Mean Business/BSR/The B Team [resource platform](#).)

† See list of proposed KPIs on page 40. Third-party auditing of progress against climate KPIs is recommended.

Exponential Roadmap Initiative

The [Exponential Roadmap Initiative](#) is a global climate initiative that brings together innovators, disruptors and transformers taking action in line with 1.5°C ambition.

The initiative gathers leading companies and organisations representing more than US\$1 trillion in combined annual revenue and around 2 million employees. Its purpose is to accelerate exponential climate action and solutions through ground-breaking innovation projects, with the mission to contribute to halving global GHG emissions by 2030.

SME Climate Hub

The [SME Climate Hub](#) is a global initiative that empowers small- and medium-sized enterprises (SMEs) to take climate action and build resilient businesses for the future. The SME Climate Hub provides SMEs with access to free tools and resources to support their net zero journeys.

With tools for climate education, emissions calculations and reporting, SMEs can make strategic and impactful reductions, track their progress and demonstrate climate leadership. Funded by the We Mean Business Coalition, Exponential Roadmap Initiative, the SME Climate Hub has over 10,000 committed SMEs.

Science Based Targets Initiative (SBTi)

The [Science Based Targets Initiative \(SBTi\)](#) is a voluntary initiative that provides standards and validation for companies' net zero pathways.

TRANSITION PLANS FOR TRANSFORMATION TOWARDS NET ZERO

Climate transition plans should be integrated into companies' business plans, not a side programme. They align overall strategy with climate and nature targets, clarify roles and accountability, and link growth and innovation to emissions reduction and contribution to global net zero.

A credible plan sets out the actions an organisation will take across all five pillars: decarbonising operations and the value chain; building and scaling solutions that are positive for climate and nature; mobilising finance and investment within and beyond the value chain; and shaping policy and public narratives that support a 1.5°C-aligned transition. [The Exponential Roadmap Initiative's transition-plan template](#) is available for use.

A good starting point is a double materiality assessment* to evaluate the company's impact on people and the planet, and how that impact intersects with the financial wellbeing of the company. Alongside stepwise emissions reductions towards GHG targets, leaders should set a clear vision for the future value chain and business model in a net zero world, to secure resilience and capture growth.

In a net zero economy, value chains provide products and services that meet human needs while operating within planetary boundaries. Four conditions should be met: operations and value chains are circular, optimised, renewable and regenerative.† These conditions reflect the breakthroughs identified by the IPCC, the High-Level Climate Champions, Project Drawdown and others.

* See [EFRAG IG 1 Materiality Assessment](#) for further guidance on double materiality assessments.

† For further explanation on the four conditions, see Exponential Roadmap Initiative's paper on the [net zero operating space for business](#).

PILLAR 1. CUT OPERATIONAL EMISSIONS



To be aligned with the 1.5°C ambition, a requirement is to do your utmost to halve your own emissions every 5 years.* These emissions are referred to as Scope 1 and 2 emissions in the [GHG Protocol Corporate Standard](#). They include direct emissions from owned facilities, vehicles and internal production processes, as well as emissions from purchased electricity, cooling, heating and steam.

Scope 1 and 2 emissions may represent only a small proportion of your company's total GHG footprint[†], but these emissions are often the most straightforward to reduce. This can generate an immediate business advantage, contributing to the global transformation towards net-zero while maintaining credibility.

Reducing these emissions can enhance climate competitiveness through:

- 💰 Lowering operational costs and exposure to price volatility of energy;
- 🔗 Strengthening energy supply chain resilience;
- 🏛️ Improving readiness and alignment to anticipated climate regulations and disclosure requirements

Successfully reducing Scope 1 and 2 emissions often reduces costs and builds internal momentum, signalling climate leadership to investors and customers.

Since global temperature rise is dependent on cumulative emissions, reductions must start today. Action towards interim targets should be “front-loaded”, with emissions decreasing exponentially.

* Climate-solution companies must scale solutions exponentially while peaking total emissions as early as possible and driving steep, time-bound intensity targets across Scopes 1, 2 & 3
[†] For certain industries such as heavy industry, mining and energy, Scope 1 & 2 are substantial.

PLAN

- Map your company's emissions.* Identify the main sources of emissions – your hotspots – and make sure your plans focus on how to mitigate these.
- Decide on your base year. A base year will be used for comparison to measure progress towards emissions reduction goals.
 - » The base year is normally the earliest year for which good enough[†] emissions data is available.[‡]
 - » Reductions achieved prior to the base year deserve acknowledgement and can be highlighted, but they cannot be counted towards the next halving of emissions.
- Set your reduction targets, both short-term and long-term, including a net zero target by 2050 at the latest, and interim targets not more than five years apart.
 - » The recommended pace of reduction should be a halving of absolute operational emissions every 5 years.
- Decide on the timelines for reducing emissions from different sources and develop a transition plan for how to reach your targets.
 - » Start immediately with the “low-hanging fruit” – that is, economically attractive changes that bring other co-benefits, such as energy efficiency, optimising office space and travel.
 - » Set specific targets and KPIs for your emissions hotspots, such as “100% renewable energy by 2028”.
- Disclose your company's Scope 1 and 2 emissions, targets and reduction plans as part of your annual public reporting. Clearly explain if emissions are being reduced at a slower rate than halving every 5 years and which actions are taken to remove blockers in pillars 4 and 5.[§]
- Evaluate results, take corrective actions and update your plan on a yearly basis.

* The mapping should include emissions associated with subsidiary companies.

[†] “Good enough” in terms of both coverage (eg all categories of Scope 3 emissions) and quality (including good enough estimates).

[‡] In case of fluctuations that make such a base year non-representative (eg during the pandemic), companies may use the year before or a representative average over several years.

[§] Companies that provide climate solutions may apply intensity targets. See page 38 for further guidance.

ACTIONS – CUT OPERATIONAL EMISSIONS

🔗 = Link to guidance

- Improve energy efficiency in owned and leased buildings, eg through retrofitting, insulation and digital automation. 💰 🔗
- Improve energy efficiency in own processes and machines, eg by investing in new technologies and digital automation. 💰
- Install new on-site renewable energy production and storage* for own processes and owned buildings wherever possible. 🔗 🔗
- When sourcing energy enter into agreements (eg PPAs) that will contribute to increased production of renewable energy. If renewable electricity is not available in a particular market, work with other stakeholders to increase supply. 🔗
- Monitor and match supply and consumption of renewable energy, across both geography and time. 🔗
- Require low-energy buildings, whether owned or leased, when expanding operations or establishing new businesses or new locations. 💰
- Optimise the use of building space in own operations to reduce emissions and costs. 💰
- Move towards a low-emission vehicle fleet by requiring 100% electric or other low-emission owned and leased vehicles. 🔗 🔗
- Implement a plan to halve methane emissions in Scopes 1 and 2 by 2030 at the latest. 🏠
- Implement plans to phase out fluorinated GHGs† in own operations at the earliest opportunity. 🏠

* For all energy uses – namely, electricity, cooling, heating, steam and ventilation.

† Eg hydrofluorocarbon refrigerants, which should be phased out by 2030 at the latest, and process gases in the semiconductor industry.



PILLAR 2. DECARBONIZE VALUE CHAIN

2

Value-chain emissions, largely outside a company's direct control, often dominate corporate footprints. Under the GHG Protocol, these are Scope 3 emissions and include materials extraction and purchased goods and services, transportation and logistics, professional services, forest, land and agriculture (FLAG) impacts, and product use and end-of-life.

Decarbonising the value chain often requires proactive value chain transformation – not only one-to-one supplier work – and close collaboration with product/R&D and procurement. In many sectors, most Scope 3 sits with Tier 2+ suppliers, so progress can depend on coalition-building and partnerships – for example buyer alliances, pooled demand and offtake commitments, and shared low-carbon specifications – alongside targeted supplier engagement.*

Taking action in the value chain is not only a climate necessity; it also builds **climate competitiveness** by:

- 💰 Lowering input costs and reducing price volatility for energy and materials
- 🔗 Strengthening supply chain resilience
- 🏛️ Readiness for evolving policy, standards and disclosure
- ★ Greater credibility with customers, investors and regulators

* See the [Supplier Engagement Guide](#) for practical 1.5°C-aligned requirements and action.

PLAN

- Map the emissions associated with your value chain to understand which are the most significant and start tracking them systematically. Quantify or estimate (if good data is not available) all Scope 3 emissions categories.
- Set a target for halving of absolute value chain emissions by 2030* and a target to reach net zero by 2050, and preferably earlier.
- Assess which emissions can be eliminated in the near-term and work out how the necessary investments will be financed. For longer-term reductions, set up research, development and innovation projects.
- Develop a plan† for how to reach emissions reduction targets and carbon dioxide removals commitments. Break down the near-term plan into yearly targets and milestones.
- Disclose value chain emissions, targets and reduction plans as part of your annual public reporting. Clearly explain if the pace of reductions is slower than halving each decade, and the actions you are taking in order to accelerate e.g. in Pillars 4 and 5.
- Evaluate results and update your plans if reductions are not on track or if new opportunities for reductions arise.

* Companies that provide climate solutions may apply intensity targets. See page 38 for further guidance.

† Integrated into the overall climate transition and business plan.

ACTIONS – DECARBONIZE VALUE CHAIN

→ = Link to guidance

- Integrate climate action into sourcing and purchasing functions. For example, include evaluation of suppliers' climate targets and performance in your procurement criteria and encourage your suppliers to join the Race to Zero campaign.*    

- Reduce emissions from your supply chain by working systematically to reduce material use, to reduce waste and increase efficiency, and by shifting to recycled and low-emission materials and products. You should specifically target: 
 - » Steel, cement/concrete, aluminium, chemicals and plastics.   
 - » Food, agricultural and forest commodities.   
 - » IT equipment. 

- Reduce emissions from transport of goods by switching to low-emission transportation modes and optimised fleet management.   

- Support your suppliers in reducing energy emissions, eg through energy efficiency measures, installing on-site renewables or procuring renewable energy. 

- Take action immediately to stop any deforestation and land degradation in your value chain.   

- Set targets and take action towards regenerative agriculture and sustainable forestry practices throughout your value chain.†   

* Corporates are strongly encouraged to incentivise their small suppliers to take climate action so they can stay competitive, e.g. by using the [SME Climate Hub](#) (providing free tools, guidance and reporting).

† Mainly relevant for food, land and agriculture sectors.

- Ask your professional services providers to assess and report on the alignment of their customers and projects with the 1.5°C ambition, for example by using the Professional Services Matrix.  

- Act to reduce emissions from business travel, eg by shifting to low-carbon alternatives and reducing air travel.   

- Reduce emissions from commuting by promoting and sponsoring low-carbon travel and enabling employees to work from local green office hubs or at home.  

PILLAR 3. BUILD & SCALE SOLUTIONS

3

Competitive advantage is built by the value you create and how fast you scale it. To lead in a 1.5°C-aligned economy, organisations – whether product makers, service providers or digital platforms – must go beyond cutting their own and value chain emissions. They need to become solutions businesses or shift portfolios towards offerings that reduce or avoid emissions, restore nature and drive regeneration.

Build for circular, energy-light use. Minimise virgin inputs, extend lifetimes and keep components/materials in high-value circulation; pair near-zero materials, electrification and high efficiency with lifetime energy budgets and low-energy defaults; and, where relevant, bundle clean-energy supply/management so that customers run solutions on renewables.

Scaling solutions is essential for global net zero. Rapidly expand low-carbon materials and manufacturing, regenerative agriculture and plant-based food, and shared or service-based models that reshape systems and markets. The business proposition – what a company sells and how – is now the strongest test of its net zero alignment and growth potential.

Professional and digital service providers – platforms, media, travel, data, auditing and consulting – can act as planetary stewards by steering clients and users towards positive climate choices using tools such as the Professional Services Matrix (PSM).*

This pillar is where climate competitiveness is most visible to markets:

-  Early adaptation to regulation for future-proof growth
-  Differentiated products and relevance in fast-changing markets
-  Aligned partners and stronger innovation ecosystems

Pillar 3 is ultimately about creating the future, ensuring that business growth and climate action advance together.

* See [Professional Services Matrix \(PSM\)](#), a tool for professional services providers to assess client and project portfolios against climate criteria.

ACTIONS – BUILD & SCALE SOLUTIONS

 = Link to guidance

- Integrate climate and nature into business development, product and service portfolio management and R&D.   
- Make qualitative and quantitative assessments of the full climate impact of your products and services. This should be done in a structured and transparent way, following robust frameworks and assessment principles.  
- Set measurable goals (KPIs) for accelerating the development and scaling of climate solutions.  
- Start transforming your portfolio of products/services towards climate solutions compatible with a net zero world.   
- Evaluate and improve the energy efficiency of your own products and services in use. 
- Encourage and facilitate purchasing decisions by customers and end-consumers that are in line with a sustainable net zero future (eg in marketing materials and making sustainable and low-carbon choices the default).  
- Put circularity at the heart of all your processes in order to extend product lifespans, reduce material use, switch to low-carbon materials and secure end-of-life material recycling.[†]   

* See page 38 for detailed guidance on climate solutions.

† For food/land: deforestation-free supply, regenerative farming, low waste, safe biogenic returns.

PILLAR 4. MOBILIZE FINANCE & INVESTMENT

4

To compete and align with global net zero, companies must deploy capital beyond operational cuts to actively support the transition.

This includes financing technology, infrastructure, low-carbon fuels and materials (eg through market-making instruments such as Environmental Attribute Certificates), carbon removals, and nature protection and restoration, as well as aligning treasury, cash, deposits and pensions with net zero pathways.

Climate-aligned finance enhances climate competitiveness by:

-  Secured access to future-critical inputs through faster innovation and market readiness.
-  Strengthened investor confidence and positioning with credible, 1.5°C-aligned capital allocation.
-  Lowered risk and cost of capital by reducing exposure to volatile fossil inputs and transition risk.

As financial institutions shift their portfolios and expectations, companies that lead in climate-aligned investment are more likely to retain investor confidence and secure access to future capital. This pillar embeds climate action as a core business and investment strategy.

When Scope 3 progress is difficult, double down on Pillar 3 (Build & scale solutions) and Pillar 4 (Finance & investment), and use Pillar 5 (Policy & narrative) to remove external blockers across the value chain.

ACTIONS – MOBILIZE FINANCE & INVESTMENT

 = Link to guidance

- Enable development and scaling of key climate solutions† through funding of innovations, joining/starting buyers' alliances for low-carbon products, and making advance market commitments.*  
- Invest in carbon dioxide removals.  
- Invest in the protection and restoration of natural ecosystems on land and in oceans, beyond your value chain. 
- Evaluate and take action to reduce the emissions footprint of your financial assets upstream – your cash, investments and pension funds – and ensure their management is 1.5°C aligned.  

† Key climate solutions are those listed in the latest [IPCC synthesis report 2023 \(AR6\)](#), Race to Zero's report [2030 Breakthroughs](#) and in the [Exponential Roadmap](#).

* Re-allocate CAPEX to the 1.5°C transition plan and report % CAPEX aligned; use an internal carbon price to gate decisions. Finance bottlenecks across the value chain (eg supplier/customer financing, aggregated PPAs/VPPAs, offtake for near/zero-carbon materials and green fuels).

FUNDING NATURE PROJECTS BEYOND THE VALUE CHAIN

Natural climate solutions are cost-effective mitigation options, but they are critically under-funded. Businesses should take responsibility for their present emissions by investing in nature projects.

Funding of nature projects beyond the value chain should complement actions to reduce value chain emissions in line with the Carbon Law and not serve as a substitute for reductions. Companies are encouraged to create financial mechanisms to support projects, for example, by using internal carbon pricing schemes to gather funds.

Purchasing high-quality carbon credits^{*} is one way of supporting projects in nature. Other options include funding NGOs and grassroots organisations, and supporting research and development into new methods of carbon sequestration in soils, vegetation and oceans.

Projects to which investments are directed must contribute to local livelihoods and SDGs, conserve or enhance biodiversity and other ecosystem services, and preserve the rights of indigenous peoples and local communities. Moreover, measures must be taken to ensure project impacts are aligned with human rights sustained in the long-term.

Companies should disclose details of external nature projects supported, annual spending in relation to revenue, and volumes of carbon credits purchased in relation to unabated value chain emissions.

* It should be noted that many credits issued in the past have been shown to be ineffective. Ratings agencies and organisations such as the ICVCM report on quality.

INTEGRATING CARBON REMOVALS INTO CORPORATE ACTION

While reducing emissions is the top priority, removing carbon dioxide from the atmosphere is also essential for keeping global warming close to 1.5°C, and companies have a vital role to play.

Removals can be within the company's value chain, beyond it, or both. Companies should set and publicly disclose targets for annual removals, and these should remain separate from reduction targets. Removals commitments should be included in transition plans, with interim milestones. A company's long-term removals commitment should correspond, at a minimum, to the anticipated level of residual emissions in its net zero target commitment. Companies will therefore have twin targets, for emissions reductions and removals.

Investments in removals need to start now. Every company should develop a portfolio of high-quality carbon removals, following the principles below. The investments should include high-durability carbon removal projects, so that the supply of affordable and effective carbon removals is financially supported and scaled. See the [Carbon Removals Action Guide](#) for key actions to integrate removals into corporate climate action.

Principles for removals track

- Companies should start investing in carbon removals now, and the volume should rise each year to reach the level required to counterbalance any remaining emissions from the company's net zero year; interim milestones should be set along the way.
- Initially companies can invest in a mix of different types of removals, each with its own range of expected time to drawdown, storage duration and risk of reversal.
- Carbon storage durability levels in portfolios overall should rise over time so that residual emissions at net zero are counterbalanced appropriately and the net zero balance is maintained.
- All removals should be quantified according to robust methodologies, and companies should have robust mechanisms for monitoring their removal portfolio and managing reversal risk.
- Companies should publicly report the types, drawdown dates, expected durability, potential reversal risks, any co-benefits and retirement dates of the removals they invest in.
- Companies should be recognised and celebrated for their extra commitment if they invest in more removals than required on this separate track; front load investment to secure access to earlier removals; or use long-term offtake agreements to support carbon removal scale-up.

PILLAR 5. SHAPE POLICY & NARRATIVE

5

Achieving the 1.5°C ambition depends on the rules and norms that shape markets. Companies can accelerate system change by advocating for science-aligned policy, aligning industry associations, and shaping the public narrative so that low-carbon, circular choices become the default.

Done with transparency and integrity, this reduces regulatory, legal and reputational risk, builds an enabling environment for long-term success, and strengthens credibility with stakeholders.

Why it matters for competitiveness:

-  An enabling environment for long-term business success
-  Stakeholder perception of credibility and consistency across corporate climate commitments; and reduced reputational risk and avoidance of accusations of green-washing or policy obstruction

Align your lobbying and memberships with 1.5°C, and you'll help set the rules of the new economy.

ACTIONS – SHAPE POLICY & NARRATIVE = Link to guidance

- Evaluate how your organisation can contribute most effectively to accelerating climate action in wider society and decide on strategy.   
- Integrate a 1.5°C climate commitment into the public affairs activities of your company.  
- Lobby for 1.5°C-aligned policies* at the local, national and international levels, including a stop to all fossil subsidies. This can be done by your company alone but preferably will be done in collaboration with other organisations (eg trade associations) for maximum impact.  
- Publicly support the inclusion of ecocide in legislation at all levels (global, regional, national, local).   
- Ensure that all the trade and business associations of which you are a member are working in alignment with the 1.5°C ambition, or leave them.    
- Share expertise, best practices, tools and roadmaps widely, to inform, inspire and accelerate climate action taken by others.  
- Use your communications to influence the public narrative to support climate action.  
- Join collaborative climate initiatives and orchestration campaigns.  

* For example, those that discontinue fossil-fuel subsidies, apply moratoriums on [deep sea mining](#), refuse permission for the expansion and development of new coal mines and oil and gas fields, stop deforestation, finance the restoration of natural ecosystems, enable the scaling up of climate solutions, and expand the scope of carbon pricing.

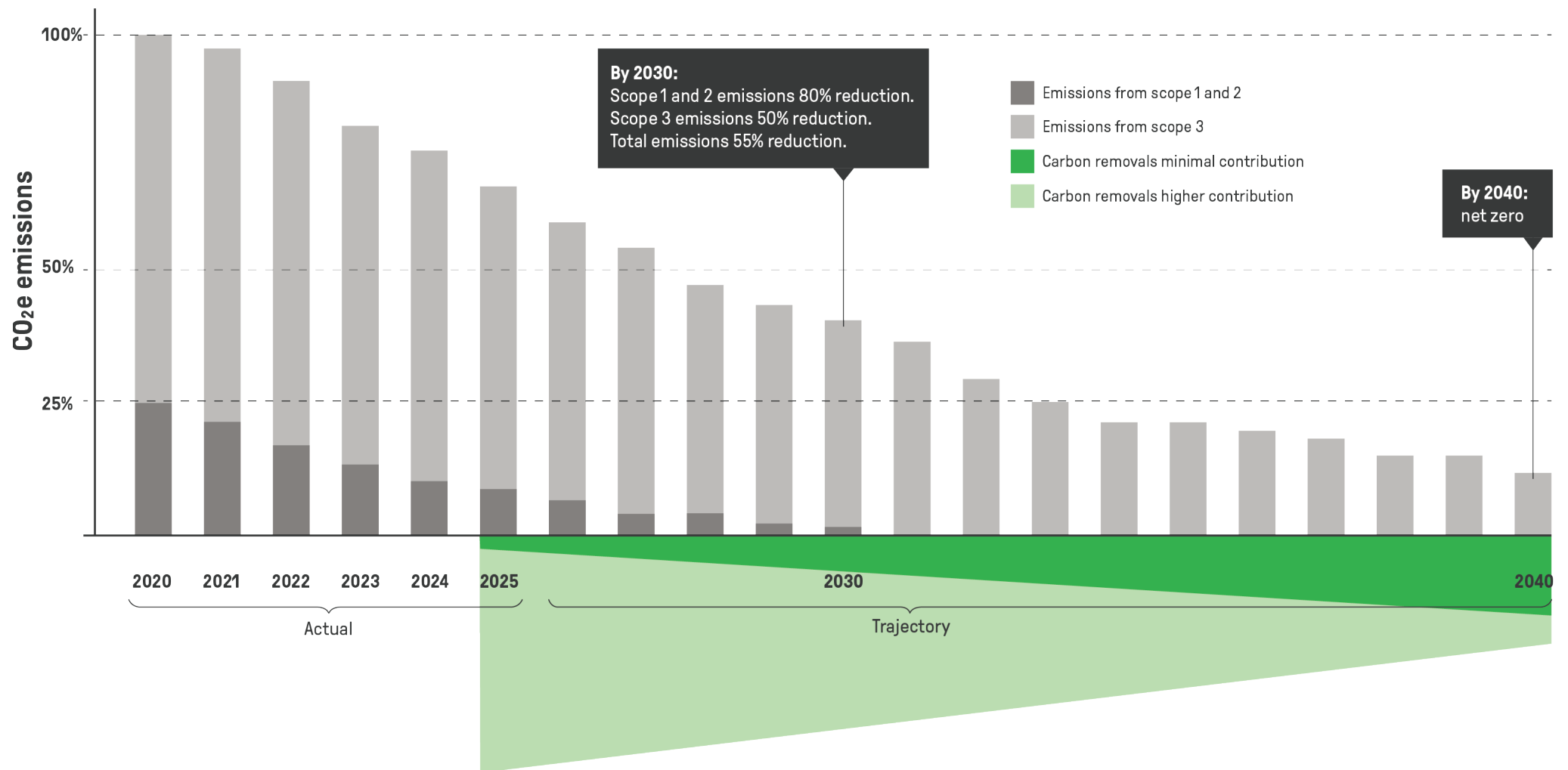


Figure 6. Company example. The diagram presents the pathway of a fictional example company which has applied 2020 as a base year. It shows actual emissions, near-term and net zero emissions targets, target trajectory and carbon removals. Two examples of scaling of carbon removals are depicted: the minimum recommended level and a higher level (light green), matching the unabated Scope 1, 2 & 3 emissions from 2025 onwards. Within a portfolio of removals, durable removals are expected to be scaled up over time.

CLIMATE SOLUTIONS QUALIFICATION FRAMEWORK

Developing and scaling climate solutions is central to any company's action. As well as developing and scaling their own climate solutions, companies should be contributing to the scaling of climate solutions that are being provided by others to transform their value chains towards net zero.

Climate solutions contribute to emissions reductions at a global level by producing significantly lower emissions than current market options. Production and consumption of climate solutions is compatible with the global 1.5°C ambition and will accelerate the transition towards a net zero carbon economy. The Exponential Roadmap Initiative and Oxford Net Zero have developed a framework for qualifying physical products and services as climate solutions.*

The [Climate Solutions Framework](#) applies the following criteria to qualify products and services as climate solutions:

- have a carbon footprint that is at least 50% lower than the relevant market weighted average for the current products/services being replaced.†

AND/OR

- fulfil a credible intensity threshold per functional unit for a net zero world, as set out in a robust taxonomy or other science-based paper.

In addition, the product or service must meet the following safeguarding criteria:

- not contribute to extending the life of technologies that depend solely on fossil fuels.
- not have a significant impact on the following:‡
 - » sustainable use and protection of water and marine resources.
 - » pollution prevention and control regarding use and presence of chemicals.
 - » protection and restoration of biodiversity and ecosystems.

* This framework can be expanded or complemented to (i) recognise enabling solutions that unlock abatement by others (eg grids and storage, data/software, finance models); (ii) use sector taxonomies/"whitelists" to support procurement and disclosure; and (iii) include professional and digital services (eg via the Professional Services Matrix) so that service-led solutions are recognised. Scope and method should be transparent and appropriate to the sector.

† The threshold of a 50% lower carbon footprint means that climate solutions can be considered ahead of the Carbon Law by at least 10 years. Ideally, the carbon footprints of climate solutions are at least 90% lower than the relevant market comparisons.

‡ The "do no significant harm" safeguards are taken from the EU Taxonomy legislation.

The framework defines a climate solutions company as one that:

- Derives >90% of the company's revenues from Climate Solutions.
- Has a public near-term GHG target, a net zero target covering all emissions (Scopes 1, 2 & 3), a long-term climate action plan and discloses progress annually.
- Is working more broadly to transform its sector.

To enable exponential scaling of climate solutions, these companies are recommended to set emissions intensity targets instead of absolute targets.

For companies that have not yet reached the 90% revenue threshold, targets for raising the percentage of revenue from climate solutions, complemented by emissions intensity targets, should be used to drive the scaling of the climate solutions parts of their business.

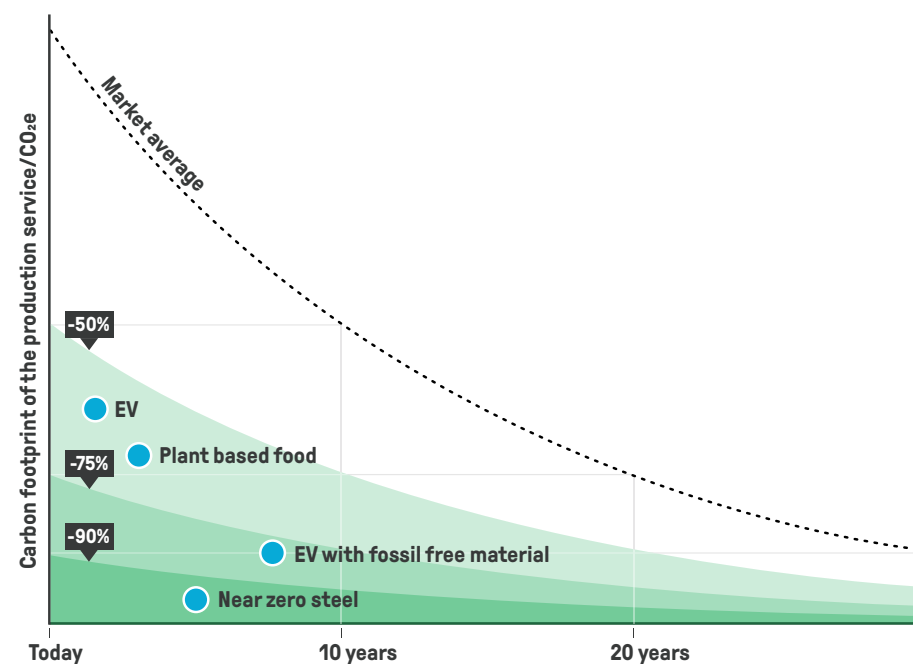


Figure 7. Climate Solutions. Example of climate solutions and thresholds over time for qualifying climate solutions.

KEY PERFORMANCE INDICATORS

Anchor KPIs in business outcomes. The KPI set should drive competitiveness – lower cost and risk, build resilience and unlock growth – while cutting the footprint in line with the 1.5°C ambition and, where material, deliver nature-positive outcomes. This section provides examples across the five pillars; each company should select the vital few that are material to its value chain (ideally via a double-materiality assessment) and embed them in core performance management to steer strategy, capital and incentives.*

Table 1. Selected key performance indicators.

KPI focus	As measured by (examples)	Pillars				
		1	2	3	4	5
Total GHG emissions	% absolute reduction in total CO ₂ e					
GHG emissions intensity on organisational level	tCO ₂ e per US dollar revenue					
Product & service emission intensity	kgCO ₂ e emissions per functional unit (eg per product or service sold)					
Total energy use	Annual total energy consumption					
Purchased renewable energy ⁱ	% renewable of total energy					
Own renewable energy generation	% of annual energy use from own renewable generation					
Phase out coal in purchased energy	% electricity purchased from grids producing <5% of total electricity from coal					
Suppliers' alignment with the 1.5°C ambition	% of suppliers/emissions/spend from companies that are aligned with 1.5°C					
Suppliers' use of renewable energy	% of suppliers' energy that is renewable, or by number of suppliers; % of value chain energy from renewable electricity					
Impact from material extraction	GHG emissions per kilo material purchased; no. of hectares of virgin landscape converted for extraction; deforestation (hectares) per material unit					
Zero deforestation in supply chain 🌿	Commodity deforestation exposure measure					
Sustainable forestry in supply chain 🌿	% hectares forest sustainably managed					
Regenerative agriculture in product's supply chain 🌿	% of agricultural product tonnage produced regeneratively; % of total purchased agricultural commodity weight produced on farms implementing regenerative agriculture according to science-defined criteria					

* Define unit, scope boundary, baseline year, target trajectory, owner, data source, data-quality grade and assurance; report absolute and intensity metrics (no netting with offsets); disaggregate by Scopes 1, 2 & 3; show Scope 2 (location- and market-based); report beyond-value-chain mitigation and removals separately from the footprint.

[†] When purchasing renewable energy, prioritise additionality by using long-term contracts such as PPAs or VPPAs.

KPI focus	As measured by (examples)	Pillars				
		1	2	3	4	5
Low-emission logistics	tCO ₂ e per ton km					
Products designed for circularity	% of sales revenue or weight from products that fulfil circular design principles					
Product material use	% of circular material use (eg recycled, reused and secondary materials, and components which are recyclable) by weight/volume; weight/volume of raw material use per product					
Fossil-free material use	% of product from near-zero or non-fossil-based materials by weight or volume					
Regeneration of materials	% of material recirculated or safely returned to nature at end of life					
Climate solutions transformation*	% of revenue from climate solutions					
Product durability	No. of meaningful uses (eg wears/hours/years)					
Product energy efficiency	Avg product-lifetime kWh usage					
End-of-life takeback	% of material/component/product that is bought back or recollected from customers/consumers					
Climate solutions R&D and CAPEX	R&D spending on climate solutions as % of CAPEX					
Customers' alignment with the 1.5°C ambition	% customers by revenue that are aligned with 1.5°C					
Customer projects' alignment with the 1.5°C ambition	% customer projects by revenue that are aligned with 1.5°C					
Rate of marketing promoting sustainable lifestyles	% of marketing & sales budget used to support sustainable lifestyles integrating circularity					
Carbon dioxide removals 🌿	% of volume of annual GHG emissions counterbalanced by removals (either within or beyond value chain)					
Funding of projects to protect and restore nature and store carbon beyond value chains 🌿	% unabated emissions matched with project funding at \$100 per tCO ₂ e					
Purchase high-quality carbon credits	% volume of purchased credits in relation to remaining annual emissions					
Emissions intensity of cash deposits	tCO ₂ e per US dollar					
Green financing	% of new financing portfolio that is green or sustainable					
Organisation memberships aligned with the 1.5°C ambition	% of associations and organisations that are aligned with 1.5°C					
Policy influence (InfluenceMap)	InfluenceMap score and quartile/rank; year-on-year trend					
Industry associations alignment	% of total membership fees paid to 1.5°C-aligned associations					

🌿 Nature-positive indicators. KPIs marked with a leaf materially advance biodiversity/nature outcomes when delivered credibly (eg deforestation-free supply, regenerative agriculture, circular materials, protection and restoration of ecosystems).

* In addition to climate solutions revenue, the percentage of revenue aligned with the EU taxonomy for sustainable activities or other frameworks may serve as a measure for portfolio transformation.

REPORT AND COMMUNICATE

Reporting publicly on your targets and progress across all five pillars of climate action is an integral part of your company's contribution to the 1.5°C ambition and net zero. Public reporting is required by customers, investors, and increasingly by governments and other regulatory bodies, and it will help to position your company as a relevant and serious climate leader.

Communicate your direction, effort, progress and challenges to society as a whole – to customers, suppliers, employees and investors, as well as to other stakeholders. Communication about your company's climate action should be honest, truthful, transparent, representative and based on the latest science. Companies should not only highlight their successes but also share their challenges and barriers in order to inspire others and build credibility.

REPORTING AND COMMUNICATION GUIDELINES

- Describe how climate change and the global net zero transformation, the associated opportunities and risks, and necessary mitigation and adaptation affect your organisation.
- Report publicly and annually on your climate impact and progress towards goals, including via open platforms such as the [UNFCCC NAZCA portal](#) and the [SME Climate Hub](#).
- When reporting annual emissions and removals, follow the GHG Protocol suite of standards or equivalent. Include all types of emissions, in all scopes, categories (minimum 95% coverage) and jurisdictions. 
- When using market-based accounting approaches (eg in reporting Scope 2), disclose details of the market instruments being used.

- Disclose estimated emissions for any Scope 3 categories that are not yet quantified. Where data is of low quality, make estimations, disclose uncertainty and explain how you plan to quantify emissions more precisely in future.
- Disclose and explain annually any deviations from planned emissions and removals trajectories, and state the corrective actions being taken. Prioritise honesty, openness and transparency.
- If reporting on purchases of carbon credits, state the percentage of unabated emissions that are addressed by those credits.
- If reporting avoided emissions, base all claims on quantifications carried out in accordance with established standards (eg ISO).
- If making claims on the basis of carbon credit purchases, base all those claims on established standards (eg ISO).
- Have your annual GHG inventory of emissions (Scopes 1, 2 & 3) and removals audited by an independent third party.
- Report on KPIs and actions that have been taken to scale solutions which reduce and avoid emissions* for customers and in society.
- Report annually on your direct policy and advocacy activities and on any identified impacts of your actions.
- Disclose annually your trade and membership association affiliations, and the alignment or misalignment of their lobbying with the 1.5°C ambition.
- Report on your company's adverse environmental impacts on nature, aside from GHG emissions – eg marine pollution, soil degradation and biodiversity loss – and on how you plan to reduce and eliminate these impacts. 

* Any calculations of avoided emissions must be presented separately from Scopes 1, 2 & 3 emissions, and the methodology used and all assumptions publicly disclosed.

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“Businesses must align with the 1.5°C pathway if we want to address the climate emergency. This Business Playbook provides an action plan for businesses of all sizes to develop and urgently implement ambitious climate strategies.”

Maria Mendiluce
CEO, We Mean Business Coalition

“The science makes clear that we need a fundamental reshaping of business and finance. Every board and every company must show a credible strategy to align with 1.5°C. This Playbook is an excellent guide for the necessary journey to net-zero emissions, to prepare business for the fastest economic transition in history and help them drive it. It’s a guide for preserving a more liveable planet for future generations.”

Christiana Figueres
Former head of the United Nations Framework
Convention on Climate Change

“We applaud that this Playbook not only recognised the need for climate solutions in the transition to a net zero world, but now sets a clear framework to identify climate solution products, services and companies, pushing companies to strive for the solutions truly needed.”

Caroline Reid
Sustainability Director, Oatly

“This business playbook provides a great framework aligned with the Race to Zero campaign, available today for companies to use. Focusing on simplicity and speed, it will help companies to halve emissions by 2030 towards net-zero well before 2050.”

Nigel Topping
Climate High-Level Champion COP26

ERI GUIDES THAT COMPLEMENT THE EXPONENTIAL BUSINESS PLAYBOOK



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“This Playbook is aligned with the target to limit global warming to just 1.5°C. The only pathway left is massive emissions reductions across all business sectors in the next decade. We show that this is achievable”

Johan Rockström

*Co-director, Potsdam Institute for Climate Impact Research,
Executive Director, Stockholm Resilience Centre, Co-chair, Future Earth*

“Meeting the 1.5°C target requires decisive, sustained emissions reductions. The Business Playbook offers a robust framework for companies to align action with science, and lead the transformation to promote sustainable socioeconomic development.”

Dan loschpe

Climate High-Level Champion COP30

“This Playbook is great at converting the 1.5°C ambition into concrete climate action that companies of any size can implement. The strategic framework it provides has been very useful in guiding our decision-making and transition towards net zero.”

Hannah Hislop

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