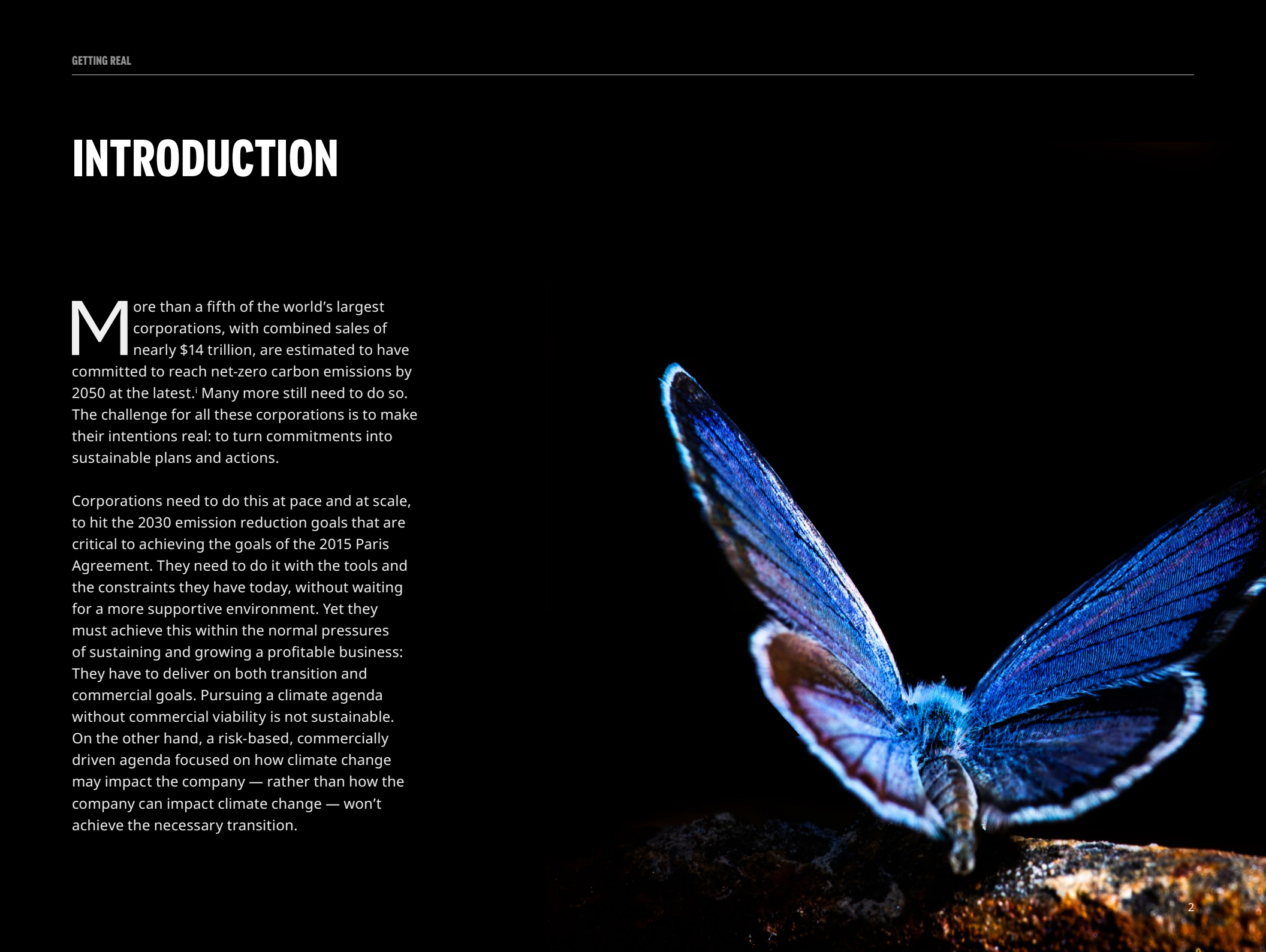

OliverWyman
CLIMATE GROUP
GETTING
REAL
A blueprint for a commercially smart climate transition

INTRODUCTION

More than a fifth of the world's largest corporations, with combined sales of nearly $14 trillion, are estimated to have committed to reach net-zero carbon emissions by 2050 at the latest.[i] Many more still need to do so. The challenge for all these corporations is to make their intentions real: to turn commitments into sustainable plans and actions.

Corporations need to do this at pace and at scale, to hit the 2030 emission reduction goals that are critical to achieving the goals of the 2015 Paris Agreement. They need to do it with the tools and the constraints they have today, without waiting for a more supportive environment. Yet they must achieve this within the normal pressures of sustaining and growing a profitable business: They have to deliver on both transition and commercial goals. Pursuing a climate agenda without commercial viability is not sustainable. On the other hand, a risk-based, commercially driven agenda focused on how climate change may impact the company — rather than how the company can impact climate change — won't achieve the necessary transition.



A BLUEPRINT FOR A COMMERCIALLY SMART TRANSITION

Corporations are under pressure from different quarters — pressures that can drive them to action or hold them up. Investors are increasingly motivated to finance the transition, but the territory is complicated by multiple agendas, unsettled priorities, and insufficient data. Customer pressures are creating new opportunities for collaboration: Larger corporations, in particular, are driving the pace. But smaller businesses are less focused or equipped to participate, and most consumers are still inactive. Regulatory pressures mostly remain in the future, but anticipated regulations are incentivizing companies to avoid dangers ahead. Adding to the challenge, companies have to respond to the uncertainties of these evolving pressures — and of new, enabling technologies — with an unusually long business horizon, to 2030 and towards 2050.

The good news is that practitioners turning commitments into actions have a vast collective experience. The aim of this report is to tap into that expertise and to distil it into a blueprint for a commercially smart transition. Working with the Climate Group, we talked to 27 major corporations across a broad range of industries. Many are members of the Climate Group's "100" and "Zero" initiatives such as EV100.

We deliberately explored a diverse, international range of organizations — companies in high-carbon and low-carbon sectors; manufacturers and financial services companies; publicly traded, privately owned, and state corporations; and consumer-facing and business-to-business companies.

Amid this variety, we found some strong, non-obvious patterns and themes that we believe make for a challenging and instructive blueprint, for all its imperfections. Everyone is learning: Neither the individual company stories here, nor our blueprint that brings them together, are complete solutions to a problem. Executives told their success stories as accounts of how they have conquered the foothills, knowing that they still face the big climb ahead.

Practitioners shared their stories with openness and humility, making clear their institutional drive and inventiveness. This report aims to capture and learn from their experiences. We hope other companies find this report helpful as they attempt commercially smart transitions, and welcome continuing the conversation.

OUR PRACTITIONERS

This report would not have been possible without the willingness of climate, sustainability, and commercial leaders in the companies below to share their best practices in turning their climate commitments into plans and actions. We are grateful to them for sharing their perspectives with us. The views expressed in this report are those of its authors, not necessarily those of each of the practitioners.

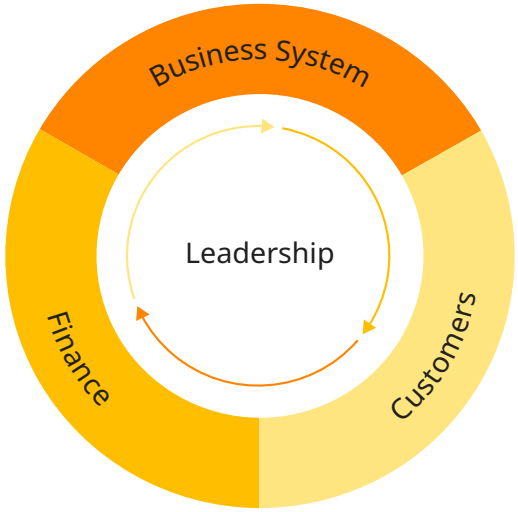
AT&T	Aurizon	BHP	BT	CEMEX	Citi	DPDgroup	Goldman Sachs	HP
HSBC	Ingka Group	Lloyds Banking Group	Microsoft	National Grid	NatWest Group	Nestlé	Nexans	Nucor
Ørsted	PepsiCo	Siemens	TD	Temasek	United Airlines	Vale	Volvo Cars	Votorantim Cimentos

A TRANSITION BLUEPRINT IN FOUR DOMAINS

Through our conversations with practitioners and our consulting work we have identified four domains that businesses need to manage in order for their transition plans to be both commercially successful and to have impact. These are: leadership, the business system, customers, and finance.

We have structured the core of this report around these four domains. Each of our chapters explores key questions on these fronts.

Exhibit 1: Four domains to manage



Source: Oliver Wyman

LEADERSHIP

Climate action begins at the top — in signaling priorities, demonstrating commitment, showing a long-term perspective, empowering colleagues, enabling investments, influencing other players in the system, supporting risk-taking, and protecting against failure.

BUSINESS SYSTEM

The business system is where decarbonization takes place. But the task is deep and broad. Climate leaders work strategically on transitioning the whole value chain, rather than just the scope of their own business, creating opportunities for both greater climate impact and commercial value.

CUSTOMERS

Companies in all sectors are engaging their customers on climate action. Big, corporate customers are active and offer commercial opportunities, through collaborative relationships more than paying product premiums. Smaller businesses tend to be reactive, while consumers' climate concerns are mostly not leading to action today.

FINANCE

Climate action financing is currently abundant — for ventures that can demonstrate the right combination of financial and climate returns in the context of a planned transition. One result is a fast-evolving industry of metrics, disclosures, ratings, carbon budgeting, and carbon pricing — both at a company level with external funders and at a project level within organizations.

OWN THE PROBLEM
DON'T OFFLOAD IT

INNOVATE THE BUSINESS
NOT JUST THE TECHNOLOGY

GUIDING PRINCIPLES

Our explorations with practitioners highlighted two overarching themes that run across all four domains. These form the guiding principles for our blueprint.

OWN THE PROBLEM
DON'T OFFLOAD IT

Climate change is a collective action problem, and this comes across clearly in the approach of the climate action practitioners we talked with. Their mindset is not to offload the problem to other players, but to take it on and make the biggest impact they can, given who they are. The key to success is for this generation of leaders "to embrace the reality of climate change," says Steve Howard, Chief Sustainability Officer for the Singapore government's investment company Temasek: "To recognize that it is happening now, on their watch, in their term of office, and to take responsibility knowing that their success will be measured on it."

Taking responsibility means looking beyond a company's own operations, which in many cases are small compared with the overall impact of their value chain or the system of which the business may be a core part. It may sound intuitive: To reduce emissions, go where the emissions are, and work on them there. But owning the problem, up and down the value chain, has a profound impact on the management of every domain of our transition model — and on what others expect from a company. It requires a level of collaboration, understanding, and trust over time to solve the bigger problem. This can conflict with demands for here-and-now reductions in emissions, which can encourage divestment or other responses that push the problem elsewhere. As Citi's Chief Sustainability Officer Val Smith asks, "Will the system have the patience required to really decarbonize?"

INNOVATE THE BUSINESS
NOT JUST THE TECHNOLOGY

Less visible than innovations in enabling technologies such as hydrogen or carbon capture are the need and opportunity to innovate the business itself. This can involve strategically rethinking the business design or working tactically with customers, investors, and colleagues. An overall objective of innovating the business provides a strong theme to shape and enrich each of the four domains.

Business and technology innovation are not in competition: The transition depends on both, with each driving and reinforcing the other. Energy provider Ørsted has demonstrated with offshore wind how the breakthrough to scale and profitability comes from the "availability of cost-competitive technology," according to Jakob Askou Bøss, Senior Vice President for Corporate Strategy and Stakeholder Relations. This milestone has not yet been reached for green hydrogen, other green fuels, or carbon capture, usage, and storage (CCUS). Business innovations that enable scale deployments unlock technology breakthroughs. "Cost comes down by scaling and building a series of installations where you learn from one to the next," says Bøss. "R&D is a lubricant.

OUR BLUEPRINT

Applying these two guiding principles to the four domains yields our blueprint for a commercially smart transition. This is summarized here and then described in detail in the following four chapters.

LEADERSHIP	BUSINESS SYSTEM	CUSTOMERS	FINANCE
OWN THE PROBLEM DON'T OFFLOAD IT			
Make meaningful commitments, beyond today's capabilities, to influence and accelerate future solutions • Live your purpose • Build confidence in steps • Model the alternative	**Invest to decarbonize** with a mindset of transition rather than cleansing, engineering out emissions in all scopes rather than building islands of green • Solve for the whole value chain • Tackle the root causes • Don't automatically defund high-carbon business	**Collaborate with customers** to solve the end-to-end value-chain problem, sharing risks, roles, and rewards • Shape customer behavior • Collaborate to solve shared problems • Share risks and reward	**Build metrics and narrative around intensity goals and progress,** more than today's absolute emissions • Drive dialogue • Own your metrics • Recognize the starting point
INNOVATE THE BUSINESS NOT JUST THE TECHNOLOGY			
Create the conditions for innovation — in management culture, skills, responsibility, incentives, and narrative and by embracing uncertainty • Aligned incentives • Supportive and experimental culture • Leadership knowhow	**Rethink the business design,** embracing opportunities for new scope in adjacent spaces and strategic control • Work back from a future vision • Go where the value will be • Prepare for big bets	**Capture value by decommoditizing** the proposition and relationship rather than explicit premiums • Deepen relationships • Be part of your customer's proposition • Complete the circle	**Access funds that value climate goals** — whether as part of the financial system or to complement it • Stimulate experimentation with reduced returns • Build climate into budgeting • Establish a decision framework

LEADERSHIP

OWN THE PROBLEM
DON'T OFFLOAD IT

Make meaningful commitments beyond today's capabilities to influence and accelerate future solutions

INNOVATE THE BUSINESS
NOT JUST THE TECHNOLOGY

Create the conditions for innovation in management culture, skills, responsibility, incentives, and narrative and by embracing uncertainty

Now is the time to lead, before being led.

Questions explored in this chapter

How can the leaders of an organization establish the right ambition, priorities, and roles?

What are the best ways to pursue that agenda while running a profitable business?

How can leaders have an impact beyond organization boundaries?

A dominant theme in our interviews was leadership. Interviewees repeatedly told us that climate action begins at the top — in signaling priorities, showing a long-term perspective, influencing other players in the system, supporting risk-taking, and protecting against failure. Now is the time to lead, before being led — to envision the organization's role in a low-carbon and then net-zero world, as well as in driving the transition, and to chart a path to achieve it. This is a strategic challenge that goes far beyond incremental reductions in carbon emissions and reacting to regulation or to environmental, social, and governance (ESG) scoring systems.

What do leaders need to do, and how are they managing to do it?

MAKE MEANINGFUL COMMITMENTS

beyond today's capabilities,
to influence and accelerate
future solutions

Net-zero commitments don't fit the norm of businesses' forward-looking statements. What does it even mean to commit to something that they don't know how to do and that will be tested only long after the leadership team retire? Yet we heard time and again from interviewees how bold commitments and targets have unlocked progress, making the previously impossible possible: "If targets were not set, technologies would not be pursued," said one executive. "It's self-fulfilling," said another: "If you don't put the goal out there, you won't find a way."

So how can a company achieve breakthroughs and acceleration from such commitments, without writing checks it cannot cash or indulging in hubris or fantasy? We heard three recurring themes, which are used most powerfully in combination:

1. LIVE YOUR PURPOSE

Organizations that are led by a purpose have drawn heavily on this to shape and justify their commitments: It is harder to argue against a commitment dictated by an existing purpose or mission. For Lloyds Banking Group, climate commitments are part of its purpose of "Helping Britain Prosper." Microsoft's commitments help its mission "to empower every person and every organization on the planet to achieve more." Temasek's guiding charter includes being a long-term, active investor, a forward-looking institution, and a trusted steward.

These higher callings are not blank checks, but they help to drive the agenda, shift the burden of the internal argument, and create the conditions to discover commercial opportunities.

A purpose can also help guide the resolution of conflicting goals. This is not as simple as just reconciling a climate imperative with a financial one; there can be conflict between different climate imperatives. Particularly in countries dependent on the high-carbon extraction of resources, companies can be torn between a national economic and social agenda, the global mandate for climate transition, and rapid changes demanded by investors. In these circumstances, companies need a moral compass to chart and defend a "just transition," and a purpose can help to provide this.

2. BUILD CONFIDENCE IN STEPS

Committing to the transition is not a one-off action — it's a journey. Many companies describe

how they build confidence through small leaps of faith, taking on bigger commitments as they build a track record of past achievements and more clarity about what they need to achieve in the future. This is a strong reason to start early. Telecommunications service provider BT set its first carbon reduction target in 1992 in response to the Earth Summit in Rio de Janeiro. As BT found how to achieve each successive target, it grew in confidence and ambition, becoming among the first companies to commit to a 1.5˚C pathway after achieving its 2020 science-based carbon reduction target four years early.

But today, there is no time to be sequential. Nestlé signed up to a 1.5˚C science-based target in 2019. "We normally commit when we have comfort," says Benjamin Ware, who leads the evolution of responsible sourcing for the Nestlé group, "and we didn't have comfort." The commitment was a recognition of the "inconvenient truth" of the scale of its Scope 3 agricultural footprint. This drove a "dark" six months until the company found a feasible way through. The 2019 commitment is big, "with no asterisks, footnotes, or exclusions," and it commits to decarbonizing the Scope 3 emissions of farmers Nestlé does not control. It is meaningful because Nestlé manages it as a sequence of five-year waves, grounded in the identification of some big levers to drive the change needed — not only avoiding deforestation, but also moving to afforestation in the cocoa supply chain.

The motivating power of anticipated regulation

A few quotes from interviewees

"You can't model how fast it will happen, but what is guaranteed is that the cost of a carbon credit — the cost of compliance — will go up."

"The sooner we reduce, the less we will pay later."

"Going early is a long-term competitive advantage. Carbon will be more costly and won't be socially or legally acceptable."

"We need more discussion and awareness on the impacts coming — there is no status quo option."

"If you look at all the companies and governments with climate pledges and net-zero goals, they will ask for help to meet those goals — and what business does this represent?"

Microsoft describes how companies need to commit to higher ambition and goals, even without a fully-documented action plan across the full time frame of the goal. That becomes manageable if companies can inspire confidence and buy-in across the organization with a well-documented plan across the first several years. Ambition then grows along with opportunities to drive change through near-term actions. United Airlines set its net-zero goal privately first, to provide time to generate the necessary actions, before publicly committing. AT&T's engineering culture ensured that the target "came with a line-of-sight plan", even if the specifics were not yet solved.

The Climate Group's "commitment initiatives" are one way for companies to make bold commitments they will be able to follow through. These campaigns target systems with the potential for big emissions reductions: renewable electricity (RE100), electric vehicles (EV100), energy productivity (EP100) and steelmaking (SteelZero). By focusing on wholescale commitments (100% or zero), they help organizations to shift their entire operations — when you target 95%, everyone thinks they're in the remaining 5% — and provide a clear signal of direction to governments and investors.

3. MODEL THE ALTERNATIVE

Climate action leaders often talk about their commitments by contrasting them with the realistic future alternative. They recognize that "do nothing" is not the same as "nothing changes." A company should not evaluate a transition plan by comparing it with the status quo. It has to "model two futures" and compare the plan against a future in which competitors, customers, investors, and regulators have their transition plans, and the company does not. In that assessment, an initial mindset focused on the risks of climate affecting the business becomes a bigger agenda, which includes obligations and the opportunity to thrive in a changing business environment. "There is no 'business as usual' with climate change," says Fiona Wild, Vice President for Sustainability and Climate Change at miner BHP. "Companies need to think about the change in their operating envelope, and beyond." This way of thinking led BHP to talking publicly about its Scope 3 emissions, leading other mining companies into that territory. BHP also made the surprising and helpful discovery that a 1.5˚C future scenario was the most favorable for it, even in conventional financial terms. (See Case Study 1, page 15.)

It is critical to project how inaction could play out in a realistic future scenario, because few companies are feeling substantial pressure from their stakeholders today. Instead, most are anticipating the pressure they will feel tomorrow, which a future scenario can bring to life.

According to Jean-Claude Sonet, Executive Vice President for Marketing, Communication and Corporate Social Responsibility at European parcel delivery company DPDgroup, "The business case is leadership." While some climate initiatives are win-win and self-funding, the overall program costs money. But the alternative is not to keep the money; it is to spend more later, under growing pressure from stakeholders and the rising cost of carbon emissions. Inaction also means missing out on the commercial opportunities from innovative propositions and business models, explored in the subsequent chapters.

"You need ambition-driven leadership — but then you need to back it up."

CREATE THE CONDITIONS FOR INNOVATION

in management culture, skills, responsibility, incentives, and narrative and by embracing uncertainty

Making meaningful commitments is the first task. Following them through is the bigger challenge. "You need ambition-driven leadership," says James Close, Head of Climate Change at NatWest Group. "But then you need to back it up with decision support."

The challenge often depends on the relative weight of a company's Scope 1, 2, and 3 emissions. One approach is to channel investment into a small number of financially big, hard-to-achieve, high-impact bets. These might be on new technologies such as hydrogen, carbon capture, and alternative fuels; or they might be on new business systems based on the circular economy or on achieving climate goals and standards for customers. These bets tend to focus on heavy Scope 1 and 2 emissions in an organization's operations, though they go beyond initiatives to improve operations.

For other companies, the challenge is to stimulate a broad portfolio of initiatives throughout the business, perhaps tracking hundreds of programs. These will depend on broadly based, bottom-up innovation, and the central role is to create the conditions for this to be successful. Organizations pursuing this kind of initiative tend to have relatively light Scope 1 and 2 emissions and will focus most of their effort on Scope 3. One example is banks and institutional investors addressing the emissions they finance; another is food groups addressing their agricultural supply chains. What does decision-support leadership look like? We heard three recurring themes:

1. ALIGNED INCENTIVES

Many interviewees emphasized the importance of management incentives. Numerous companies already link a small percentage of senior management's remuneration to sustainability goals, and many others are about to. "Once you are honest that decarbonization costs money," said one executive, "there is no other way than to put it in people's objectives." Incentives also put a focus on metrics and performance tracking. Only if this is carried out with a frequency comparable to financial performance, can the two sit meaningfully alongside each other. (See Finance chapter.)

2. SUPPORTIVE AND EXPERIMENTAL CULTURE

The arguments for climate action are strong, but they are often qualitative. It is hard to quantify the results of action convincingly when the changes to the environment are pervasive and fast, making any future numbers speculative. Moreover, the most salient metrics have not yet been settled, and reporting systems have not been established, so historic numbers are hard to obtain and of uneven data quality. (We explore the challenge of creating business cases in this context in the Finance chapter.) These difficulties with metrics mean that any realistic case will depend on a leadership

that thinks beyond rates of financial return and can evaluate hypothetical scenarios on the basis of, "What would you have to believe for this to be true?" "It's hard to do this, and it's OK to say it's hard — if it's not hard, you may not be doing it right," says Michelle Lancaster, Sustainability Director at Microsoft. "The current accuracy, availability, and ability to use data across this space is not highly mature — but this is an opportunity to work together to solve it, not a reason not to act." Howard at Temasek talks about "getting beyond the pain — to the innovation and doing smarter things."

Since the path is not always clear, the support needed is not just for employees to sign up to an unproven vision. Leaders should also embrace experimentation and course corrections, particularly in engineering cultures that resist uncertainty. Vivian MacKnight, Climate Change Manager at miner Vale, observes that "being a leader in the transition to zero-carbon mining means to test a lot of technologies with low level of maturity and to accept the risk of failure of some of them."

Steelmaker Nucor illustrates the power of a strong corporate culture in pursuing climate goals. Nucor already makes steel with a carbon intensity less than one third of today's world average and has committed to stretch this to less than a quarter by 2030. Despite being a commercially driven business where everyone is paid based on performance, they also have strong sense of responsibility and a commitment to take care of each other and the communities where their teammates live and work.

3. LEADERSHIP KNOWHOW

To play the wise and enlightened role demanded of them, leadership teams need more than aligned incentives: They need the right skills and exposure. Ingka Group, the largest IKEA retailer, provides extensive training for its board and its country management teams. The accountability and responsibility of each IKEA country head is made explicit by giving them the additional role of chief sustainability officer for their country. Vale recognizes climate as a cultural change and provides training on what climate change is and what it means for the business. HP involves the top three layers of the organization in setting climate targets, partly so that they can see how they might achieve the targets before setting them and also so that the leaders delivering the goals understand and have a stake in them.

Organized forums can promote a shared understanding and commitment among a company's leaders and externally. They can facilitate partnering with peer organizations to share experiences, and they can extend pressure along the supply chain. Vale runs a monthly Low Carbon Forum for all technical and senior leaders to track the performance of the company's climate change agenda. Goldman Sachs has a sustainability council for each of its four businesses.

The task of leadership is substantial: Duncan Burt, Director of Systems Operations at National Grid, describes it as "a whole organizational lift." Done well, a leadership culture can achieve what DPDgroup describes as a "sustainability sensibility," based on shared conviction. This has the potential to reduce dependence on more-formal mechanisms such as carbon pricing.

CASE STUDY 1

Modeling the alternative at BHP

BHP used scenario modeling to test the likely outcomes of different climate actions in different transition scenarios — and to show that a Paris-aligned 1.5˚C scenario is the one with the best business outcome for the company.

The business is involved in activities associated with a high climate risk and exposure, including oil, natural gas, and thermal coal. But it also mines materials essential to the energy transition, such as nickel and copper.

Estimates of cumulative demand in the next 30 years, compared to the last 30 years, yielded surprising and important results. The projected declines in the most threatened sectors, even in the most ambitious transition scenarios, are far more than outweighed by the large upside for the commodities that are feeding the transition (Exhibit 2). Putting these projections together in the proportions of BHP's business portfolio shows how the company can expect to prosper under each scenario (Exhibit 3), demonstrating the commercial attraction of the 1.5˚C scenario.

Exhibit 2: Most of BHP's commodities benefit in a decarbonizing world

Cumulative demand in the next 30 years compared to the last 30 years (%)

(100% = CY1990-CY2019 cumulative demand)

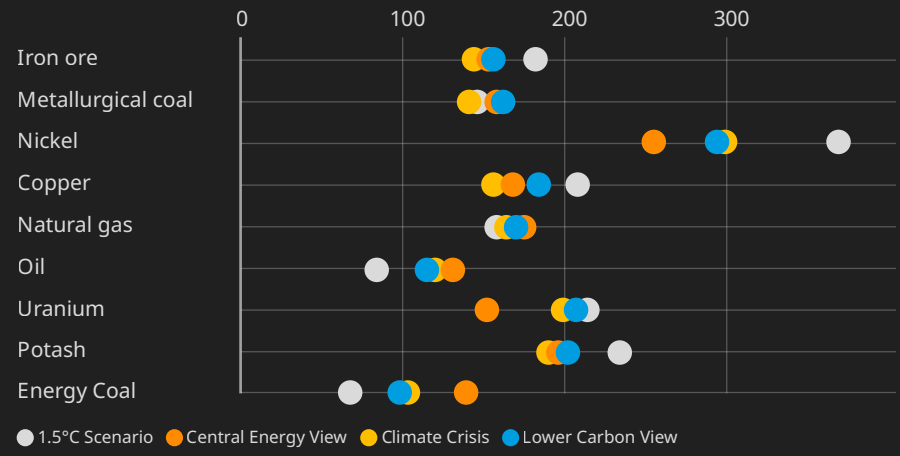
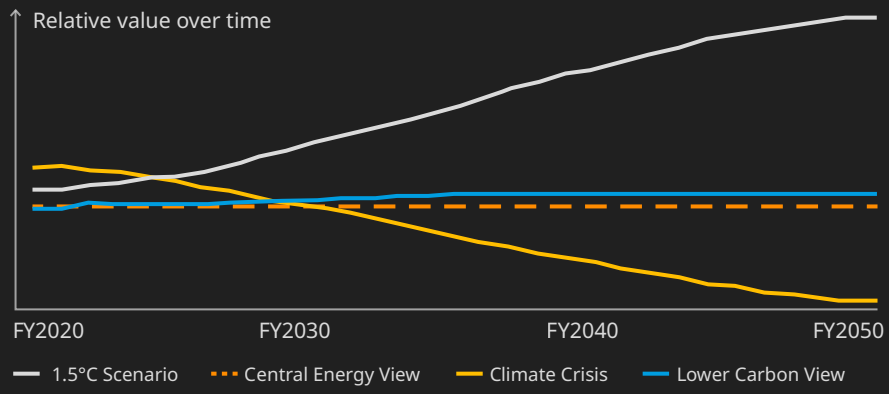


Exhibit 3: Rolling present value[1] relative to Central Energy View



1. Present value of unlevered free cash flows. Data in this chart is based on BHP's current portfolio and does not include any potential future divestments.

Source: BHP

BUSINESS SYSTEM

OWN THE PROBLEM
DON'T OFFLOAD IT

Invest to decarbonize with a mindset of transition rather than cleansing, engineering out emissions in all scopes rather than building islands of green

INNOVATE THE BUSINESS
NOT JUST THE TECHNOLOGY

Rethink the business design embracing opportunities for new scope in adjacent spaces and strategic control

The system to transition is the whole value chain.

Questions explored in this chapter

How will the transition affect where profit is generated in the sector?

Is the need for technological and operational changes within the scope of the existing business?

Or is there a need for a bigger strategic shift in which businesses to participate in?

The business system is the only part of a transition plan where decarbonization takes place; the other domains are just enablers. But the task is deeper and broader than an operational reduction in a company's own carbon emissions. Climate leaders recognize that the system to transition is the whole value chain. They focus on their role in transitioning this system rather than just their own business. This broader perspective unlocks greater climate impact and new commercial opportunities.

INVEST TO DECARBONIZE

with a mindset of transition rather than cleansing, engineering out emissions in all scopes rather than building islands of green

Incumbent businesses managing legacy at scale have a different stance from "impact investors" seeking to grow pure-green businesses. A transition mindset is different from a green mindset: It must take account of the starting point and the actions needed for the change, and not just aim for a future target state. (See Case Study 2, page 19.) This distinction has profound implications for the areas that are prioritized and funded, and — as we see in the Finance chapter — what should therefore be measured to assess progress.

1. SOLVE FOR THE WHOLE VALUE CHAIN

For many businesses, most of the emissions, and the potential for climate action, lie in Scope 3, elsewhere in the value chain. Nestlé's Scope 1 and 2 emissions account for only 5% of its total, so "focusing on Scopes 1 and 2 [only] is a joke," says Nestlé's Ware. However, the company is one of a small number of very large food corporations, giving it the opportunity to make an impact on a huge number of relatively small farms. Nestlé's position in the value chain and its involvement beyond its direct activities are thus crucial for its contribution to change.

Companies where the bulk of emissions are in Scope 3 still make sure they reduce Scope 1 and 2 emissions. But they make greater efforts elsewhere. Ingka Group's first step to deliver on its 1.5˚C science-based target was an impact analysis of the full value-chain emissions, which helped it to understand its opportunities to influence them.

For Microsoft, the importance of an internal carbon price started as a response to the environmental footprint of cloud computing, initially covering direct operations and electricity use of data centers. Recently Microsoft has extended internal carbon pricing to its Scope 3 emissions.

In mining, emissions profiles vary depending on the product portfolio. For nickel and copper, most emissions occur in Scopes 1 and 2, while for the iron ore product, more than 90% of the emissions are in Scope 3, in the carbon-intensive process of making steel in blast furnaces. Recognizing the pressure on steelmakers to produce lower-carbon steel highlights commercial opportunities to support that effort from further up the value chain. These include ore blends that demand less energy in the steel blast furnace and the use of low-carbon fuels to produce pig iron. This is why BHP's Wild emphasizes "thinking about net zero at a system level rather than a company level."

If a company focuses just on its own Scope 1 and 2 emissions, it can reduce them by redefining its role to exclude high-carbon activities, pushing responsibility elsewhere along the chain. Such moves may improve a company's emissions numbers but won't contribute to decarbonization. Leaders in climate action bring activities into their domain so that they can have a greater impact on them, particularly by facilitating the circular and regenerative economy. HP, for example, is growing its "as-a-service" business model partly in order to manage and minimize the lifetime emissions of products that would not otherwise be under its control. It is also supporting forest growth to counterbalance paper used in its printers, whether or not the paper comes from HP. Nexans has extended the scope of its business from cable-making to the whole value chain of electrification. (See Case Study 5, page 35.)

2. TACKLE THE ROOT CAUSES

The sources of carbon emissions are pervasive, so the opportunities for their abatement are too. The places where the big emissions happen are often not the most effective places for action, so companies are tracking emissions to find their root causes, either within their own business or along the value chain. DPDgroup, for example, reduces emissions in package delivery as expected, through fleet electrification and routing optimization. But it also provides better information and control to the people receiving packages, so that they can anticipate and redirect a delivery, reducing the number of delivery attempts.

Microsoft is beginning to measure carbon efficiency down to the product level, with plans to move to code level with the Green Software Foundation and beyond. HP works with chip manufacturing and software partners to reduce energy consumption during product use. Ingka recognizes the importance of the end of furniture's (first) life and has launched circular services in a number of markets. These let customers replace modules of their IKEA sofas "like Lego," by taking advantage of IKEA products' self-assembly construction to replace whole products less often.

3. DON'T AUTOMATICALLY DEFUND HIGH-CARBON BUSINESS

It is tempting for a company simply to rebalance its allocation of capital to grow its portfolio of low-carbon activities. However, a transition mindset sees the need to invest in activities that currently cause high carbon emissions. Nestlé recognizes dairy, meat, and pet care as the "handicaps" in its portfolio from a carbon point of view. But rather than exiting these businesses, it is investing proportionately more to decarbonize them, for example fostering thousands of net-zero dairy farms around the world. "You need to test your climate roadmap on the most difficult businesses," as Ware puts it.

Some banks recognize that lending to fossil fuel companies can help those businesses to make the transition, and that their lending to this sector may need to get bigger before it gets smaller. But such lending must be based on meaningful conversations with the companies to ensure the bank is financing effective transition plans. "If the oil and gas companies you have exposure to have a good shot at transitioning, then you might even see increased financed and facilitated emissions in the near term," says Citi's Smith. "Our theory of change is that we transition with our clients, and that transition will require capital." Citi is signaling to its investors that they should focus on the bank's interim climate goals for 2030 but not expect to see linear, year-on-year declines on the way to these. Goldman Sachs estimates that, of the more-than $100 trillion cumulative investment that global climate goals will require in the next three decades, 70% to 80% needs to go towards investments in technologies and processes that support transition across some of the hardest-to-abate sectors.

Some activists now recognize this logic and are shifting from demanding divestment to demanding a managed winddown of high-carbon

businesses. According to BHP's Wild, "Some activists now do not consider divestment as a legitimate lever to address carbon risk."

Selling mortgages for homes that are already energy efficient improves the carbon metrics of a bank's mortgage book. But "green mortgages don't decarbonize directly," observes Close of NatWest Group. They are a first step and may draw consumers' attention to energy efficiency, but "the next step is to finance home retrofits." These will have a much greater decarbonization impact.

CASE STUDY 2

Navigating to the highest-impact climate actions

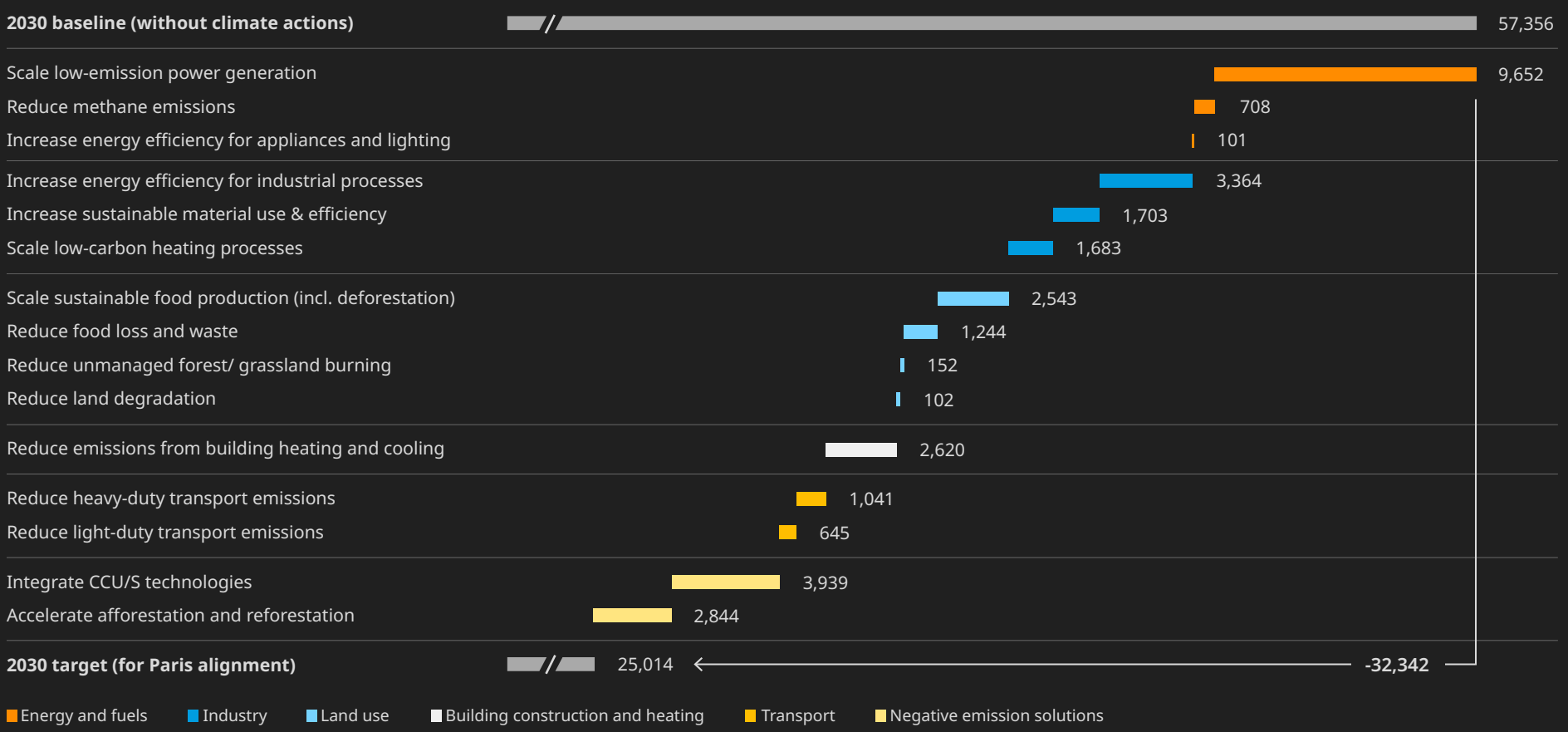
A top-down view of the climate actions the world needs to take to ensure Paris alignment by 2030, shows the importance of solving for the whole value chain. In particular (See Exhibit 4):

- While switching to renewable electricity is by far the biggest contributor to 2030 emissions reductions, it accounts for less than a third of what is needed overall;
- The redesign and reengineering of industrial processes are a large part of what is needed, typically requiring collaboration along a value chain;
- Food production has a major impact, with the world's large food corporations better able to drive this transformation through their purchasing and partnering than the much more fragmented agricultural sector is able to do directly;
- The cost and practicalities of implementing carbon capture, usage and storage can create new economic and physical linkages along the value chain.

These actions are described and quantified in Oliver Wyman's Climate Action Navigator, an interactive, Web-based tool that provides a consolidated view of global emissions and specific, actionable decarbonization solutions — or "actions" — for the public and private sectors.

Exhibit 4: Climate actions to close the world emission gap in 2030

Million tons of carbon dioxide equivalent ($MTCO_2e$), 2030



Source: Oliver Wyman Forum Climate Action Navigator

Note: The Climate Action Navigator combines historic emissions with scientific projections and attributes the emissions gap across 12 major regions and 22 industries. Data are sourced from the Global Change Analysis Model, an integrated assessment model managed by the Joint Global Change Research Institute — a partnership between the Pacific Northwest National Laboratory and the University of Maryland. Additional analyses were performed by Oliver Wyman to provide decision makers with the granularity of data required to take action. Collectively, the reduction from the climate actions reflects the target emissions by 2030 to be on track to limit global warming to a 1.5°C rise above pre-industrial temperatures by the end of the century.

RETHINK THE BUSINESS DESIGN

embracing opportunities for new scope in adjacent spaces and strategic control

The imperatives and opportunities along the value chain can open up new perspectives on the shape of a business's future. That's why some climate action leaders are approaching their task holistically, working back from a vision of the target, low-carbon future. This helps them to project where value will migrate to within the system and to prepare for big bets on technologies and business opportunities.

1. WORK BACK FROM A FUTURE VISION

This big-picture stance is clearest in financial organizations, which necessarily take a portfolio view, and in energy companies, which necessarily see an existential shift in their sector. However, the stance and its value are not limited to those players. Temasek develops a vision of what a sustainable world will look like with a 20-year horizon and sets out to build future-proof businesses for a zero-carbon world. It then forms deep partnerships to open up opportunities and understand technologies and other enablers. The approach has led to Temasek's Decarbonization Investment Partnership with BlackRock. NatWest Group recognizes that there will be winners and losers from the climate transition — between and within industries — and want their relationship managers to build their business with the industries and players of the future. The Paris Agreement on climate change includes just transition as an important element. The principles that guide a just transition will be an important part of setting a future vision, ensuring that portfolio decisions look at community impact as well as carbon emissions.

National Grid plays a role in setting and realizing a vision for the future electricity grid, so this future vision is strongly aligned with its opportunities as a company. The vision forms part of National Grid's thought leadership, showing how the future grid can work and attracting other players and investors. This vision also plays a role in directing the company's inorganic growth — both big strategic moves made through National Grid Ventures and more-experimental explorations made through National Grid Partners.

2. GO WHERE THE VALUE WILL BE

Oliver Wyman introduced the concept of value migration 25 years ago to describe how the opportunity for profitability, and therefore market value, was moving within and between sectors in response to changing business designs — and, particularly, the first wave of digitalization. Several interviewees for our current project made the comparison between digitalization and climate transition because of the pervasiveness and speed of the change. They are on the lookout for areas where value migration is happening. Value

is not just migrating from businesses with high carbon intensity to those with low. Previously commoditized products and services are becoming decommoditized, as we explore in the chapter on Customers; risk may be transferred; and supply and demand may become unbalanced. All these shifts create new opportunities for the strategic control of an industry or value chain.

For example, the circular economy is turning parts of the waste and scrap industry from relatively low-margin commodity businesses to strategically valuable roles in controlling how and where the scrap is repurposed for its next life, as demand exceeds supply for re-usable and renewable materials. In electricity, risk capital is flowing into an increasingly complex electricity infrastructure, and companies such as Nexans can capture growing value from understanding and addressing risk in the design, development and maintenance of the electrification value chain.

Some banks are increasingly applying a consistent decision-making framework to take account of climate risk and the cost of carbon in each sector and in each region. This helps them to understand where value will flow in a climate-responsive world and to drive capital allocation towards the parts of the value chain with growth that they want to be in, as well as to ensure clients have access to the finance required to invest in a just transition, and to thrive in that transition. This portfolio alignment is critical to reconciling a bank's commitment to support customers through the climate transition with its own commitment to become a net-zero bank.

3. PREPARE FOR BIG BETS

The implication of this big-picture thinking is the emergence of big bets on specific technology solutions and business opportunities. Ingka Group first invested in wind farms to obtain a source of renewable energy, but it has since turned them into a business opportunity in their own right. Nexans is making big bets and technology investments in opportunities such as floating wind power, which creates demand for highly differentiated power cables, and superconductivity technology for future urban power distribution. Multiple companies are making big bets on hydrogen, carbon capture, and other technologies for the still-unsolved parts of the transition.

Batteries and motors may be the most obvious technologies in battery electric vehicles (BEVs), but much of the product differentiation — in performance and in the driver experience — comes from software. That's why Volvo Cars is making a big bet on software, vertically integrating its organization and adding 3,000 software engineers (in the context of 8,000 engineers overall). The move to BEVs "changes the whole car, reengineering the industrial system and supply chain," according to Anders Kärrberg, Head of Global Sustainability at Volvo Cars. The company is also taking the shift to BEVs as an opportunity to move to exclusively online direct sales, transforming its relationship with customers.

CUSTOMERS

OWN THE PROBLEM
DON'T OFFLOAD IT

Collaborate with customers to solve the end-to-end value-chain problem, sharing risks, roles, and rewards

INNOVATE THE BUSINESS
NOT JUST THE TECHNOLOGY

Capture value by decommoditizing the proposition and relationship rather than explicit premiums

Companies are being rewarded, though often not through a "green premium."

Questions explored in this chapter

How can collaborating with customers help to solve the issues of the value chain?

Can a company win customers' support for its transition agenda and provide its support for theirs?

How can companies and customers share in the value created?

Companies in all sectors are engaging their customers on climate action, with a similar pattern. Big, corporate customers are active with their own transitions, offering plenty of commercial opportunities. Small businesses are showing interest but not yet momentum: They are reactive but receptive. Consumers are generally not yet converting their climate concerns into action. We heard plenty of stories where companies were rewarded by customers for being proactive. This was generally through deeper relationships and increased share or loyalty, not through a "green premium."

COLLABORATE WITH CUSTOMERS

to solve the end-to-end value-chain problem, sharing risks, roles and rewards

The logic of solving for the whole value chain, described in the Business System chapter, leads directly to the opportunity of collaboration with customers, especially in business-to-business activities. With limited pull coming from most customers, it takes a proactive, open mindset to shape customers' behavior, solve shared problems, and share in the resulting risks and rewards:

1. SHAPE CUSTOMER BEHAVIOR

The climate transition is not being led by end-customers, so the onus is on companies to influence rather than respond to customer behavior. Several companies described this opportunity as a source of untapped potential, but it can be hard to tap. For example, consumers are starting to look for alternatives to single-use plastic bottles, while PepsiCo is now using recycled plastics for many brand packages and also has a solution in SodaStream, which aims to avoid the use of 78 billion bottles by 2025. But driving the behavior change in consumers and retailers is no easy task. "We can't simply rely on consumer behavior to dictate how fast the industry evolves," says Roberta Barbieri, Vice President for Global Sustainability at PepsiCo. "It's on corporations like ours to drive these changes."

For consumers, AT&T needs to lead and "take action for them — as a value add, not a purchase driver," according to Charles Herget, who leads AT&T's Global Environmental Sustainability team. Ingka researches consumer behavior every two years but sees only a very slow evolution. Its approach to shaping customer behavior is therefore to focus on "making climate action more convenient and affordable" than the alternative. One example is reducing emissions from delivery and shopping journeys by letting consumers pick up their IKEA products from delivery boxes in their neighborhoods.

For small business customers, the opportunity is to enable them to make the transition through a sequence of "educate, inform, inspire, and reward" steps. NatWest and Microsoft each has an app that allows small businesses to better understand their carbon footprints as a first step towards mitigation. (NatWest's app is used for customers' overall businesses, while Microsoft's is for their cloud computing.) Lloyds Banking Group has a green buildings tool that allows businesses to assess and cost how a range of energy-saving investments could improve the running costs, emissions and the projected energy performance certificate of their buildings. Goldman Sachs is adding carbon accounting to its Marquee investing application, so that clients can see their portfolios' footprints.

CEMEX has found the need to convince some customers that low-carbon cement and concrete products do not suffer any change in performance

and can be used for all applications in exactly the same way as traditional products. The commercial teams at CEMEX take the time to educate customers on the properties and uses of low-carbon cement and concrete to ensure successful adoption.

With corporate business customers, the dynamic is often the other way around. Some of the stories in our Business System chapter show large corporate customers shaping the behavior of their suppliers: Big food groups, automotive companies, retailers, and public procurement agencies can all use their purchasing power to influence relatively fragmented supply chains.

2. COLLABORATE TO SOLVE SHARED PROBLEMS

Banks have deeply embraced their opportunity to work with clients to reduce their "financed emissions." "Only through addressing Scope 3 can you begin to transform the system as a whole," says Close of NatWest. Leading banks are therefore building expertise in the transition paths needed by each sector and using that expertise to "actively engage with clients to develop a robust understanding of their plans, and support them in balancing both risks and opportunities during transition," as Dia Desai, Global Head of Climate Aligned Finance at HSBC describes it. Currently these efforts have a business-to-business focus, but there is an opportunity with consumers too. Lloyds Banking Group points out that given the low average energy performance of properties in the UK, a huge number will need to be retrofitted, which will require significant investment. While lenders can support the government's ambition to improve the energy efficiency of homes through finance, ongoing government support will be required to make the economics appealing to consumers, particularly for low carbon heating, so that the interests of consumers, the bank, and the government are all aligned.

In the corporate world, examples of collaboration with customers to solve shared problems run all the way along the value chain. In Brazil, Votorantim Cimentos collaborates with local farmers and communities to turn açaí pits that would otherwise be discarded into biomass to replace part of the petroleum coke used as fuel in cement kilns. This substitution generates profits for the farmers while reducing waste to landfill as well as the company's own emissions. Miners of iron ore such as Vale and BHP are working with steel companies to reduce emissions from steelmaking, through improved raw material optimization, direct investments in efficiency improvements, and new technologies that can decarbonize existing operations. Steelmakers such as Nucor are collaborating with automakers. Today the focus is on lighter, stronger, more-formable steels to take weight out of their cars, improving fuel efficiency. As tailpipe emissions are being eliminated through the move to electric propulsion, focus is shifting towards the materials making up the car, including net-zero steel. Volvo Cars and other auto manufacturers are collaborating with fleet buyers to make car fleets more sustainable. "For some companies, the car park is the biggest part of their footprint," says Volvo's Kärrberg.

Siemens has found that opportunities to collaborate have increased as more of its customers have appointed their own chief sustainability officers and prioritized climate action. "This allows for conversations along the lines of, 'We want to come alongside you to work together, because we both benefit from the improvement and shared experience'", says Matt Helgeson, Chief Sustainability Officer for Siemens USA. This works for Siemens because their customers' footprint is far larger than their own, and the climate agenda of energy efficiency, decarbonization and digitalization is at the heart of what they do as a business.

3. SHARE RISKS AND REWARD

Strategic collaborations can lead naturally to new, soft boundaries between companies' domains. Sometimes these are manifested in branded partnerships, such as the ReLove joint initiative between DPDgroup and the retailer ASOS. When DPDgroup makes an ASOS delivery, it also offers to take back pre-loved clothing for donation to charity. On a larger scale, Nexans is playing new roles when it provides the electricity network for offshore wind farms including floating wind farm installations. Rather than just being a supplier, it also takes on responsibilities for operations and maintenance, co-creating value and sharing in both the risk and the reward.

CAPTURE VALUE BY DECOMMODITIZING

the proposition and relationship rather than through explicit premiums

There is strong commercial value in the customer activities above, but there is also a consensus that they do not generally yield an explicit "green premium" for a climate-friendly product compared with a standard version. The idea of such a side-by-side comparison can be troubling. "Consumers expect brands to commit without them having to pay for it," says Sonet of DPDgroup. The World Business Council for Sustainable Development's (WBCSD) Vision 2050 report "Time to transform" describes this as "making all choices good choices."[ii]

Companies can still capture a share of the value they create for customers, even without a direct premium. Microsoft calls it giving people a "reason to prefer." Nexans is aiming to decommoditize what it sells, evolving who they sell to, and how they sell the value. How can companies do this?

1. DEEPEN RELATIONSHIPS

Collaboration and co-creation bind companies together building the sort of deep, trusting relationships that generally yield higher margins than transactional sales. National Grid is giving its business the local autonomy to innovate one-on-one with customers and earn their trust. Lloyds Banking Group, in partnership with the University of Cambridge Institute for Sustainability Leadership (CISL), has trained more than 900 relationship managers in sustainability generally and sector-specific climate issues, in high impact sectors such as agriculture. Managers were trained in the latest science and commercial implications, leading practices in the real economy, and how best to support clients to decarbonize value chains and protect key dependencies. HSBC says it has started to have high-quality conversations with clients, which strengthen relationships and aim to help clients to transition successfully.

Siemens says it is sharing goals and challenges in the spirit of "we're on the same journey that you are on." "Of course, this can be defined simply as Scope 3 emissions," says Helgeson. "However, we see it as an opportunity to deepen our relationships and create a more significant impact on the climate."

Nexans is establishing itself as a thought leader with its customers through events such as its annual Climate Day and a roundtable during Climate Week NYC with the leading operators in offshore wind.

Nucor is discovering that climate issues are decommoditizing steel. In addition to the automotive needs described earlier, the foundations for offshore wind turbines and the torque tubes used to tilt the panels in solar farms also have specialized performance needs. All these

applications value steel with the lowest embedded carbon possible. But the difference is not just in the products themselves: It is in the collaborative partnerships with customers that shape solutions at the design stage.

Recognizing that "the road to net zero is paved with connectivity," in 2015 AT&T launched its "10x" program, which aimed to track connectivity-enabled emissions savings for its customers totaling 10 times its own emissions. The program has differentiated the company in its sales conversations, elevating both their content and organizational level. "It has improved our relationships at a high level," says AT&T's Herget. "It gets us more entangled with customers as we discuss their transition plans." The program's next stage is to help business customers to remove 1 gigaton of carbon emissions by 2035. This is not defined in terms of AT&T's own operations but as a goal shared between AT&T and the business customers that engage with the program. (See Case Study 3, page 28.)

2. BE PART OF YOUR CUSTOMER'S PROPOSITION

A bond is created when a company's product or service becomes part of a customer's own proposition to its end customers. Products formerly considered commodities, such as steel and plastics, can become differentiated not by their performance but by their provenance — specifically, by the low carbon emissions of their manufacturing processes. When such differentiated materials are built into a product specification — and particularly if they become an attraction for end users — they acquire strategic importance and value.

The same can happen in services. DPDgroup does not just reduce the carbon emissions of its deliveries as much as it can. It focuses these efforts, so that it can promise shippers "low/zero emissions delivery in 225 European cities by 2025," covering 80 million inhabitants. Shippers can then pass on this promise to their consumers, who increasingly care about their deliveries, and who can see on their DPD app when they receive a green delivery. This is a real benefit to the shipper when they work with DPDgroup. United Airlines has established the Eco Skies Alliance to help participating corporate customers such as HP and Siemens to visibly fly responsibly, by paying for sustainable fuel and not just offsetting their flight — so long as they fly United.

3. COMPLETE THE CIRCLE

The circular economy offers challenges and opportunities for closer, more-committed customer relationships to complete the circle over time. When a brand is involved at the end of a product's life, that brand remains salient — typically at the moment when the customer may be renewing the product and considering whether to repurchase the same brand. In some cases, involvement at the end of a product's life may create an ongoing relationship that did not previously exist. One example is HP's growing as-a-service solutions which optimize the lifetime and circular re-use of personal computer and print hardware.

The circular economy can also decommoditize scrap, which can have value beyond its previous scrap value depending on its provenance. Whether it is the steel in end-of-life cars or the copper in end-of-life electric cables, customers value the circular story that the materials they are buying new have been recycled from materials they used previously.

CASE STUDY 3

Deepening relationships at AT&T

AT&T has long recognized that the biggest impact it can have on climate change is not in its own operations but in what it can help others do. This insight was reflected in its "10x" program, launched in 2015, through which AT&T has been working together with its customers to enable carbon savings 10 times the footprint of its own operations by 2025. Case examples include the remote monitoring of pipelines to reduce the need for maintenance visits, near-real-time information provision to optimize the utilization and improve the experience of charging points for electric vehicles, improving the streaming of videos to mobile devices to reduce electricity consumption in the network, and using connected sensors to enhance the transformation of food waste into clean energy In all these cases and more, getting to the solution brought AT&T closer to its customers, as they worked together to solve a shared problem and measure the impact of their solution.

AT&T calculates that it has helped a group of business customers to achieve "a reduction of more than 72 million metric tons of carbon dioxide equivalent between 2018 and 2020 through the enablement of smart Internet of Things (IoT) and edge-computing technologies for the manufacturing, agriculture, and commercial sectors." The company is now taking this approach to the next level, with a target of helping customers to reduce 1 gigaton of emissions between 2018 and 2035. (That is 1 billion metric tons, or about 15% of all annual emissions in the United States.)

AT&T plans to achieve this through its new Connected Climate Initiative, which brings it together with its business customers and with leading technology companies, universities, and nonprofits. Together, they "identify best practices, develop innovative new products and use cases and scale the innovations of startups building tomorrow's 5G- and other broadband-enabled climate solutions."

Source: AT&T

FINANCE

OWN THE PROBLEM
DON'T OFFLOAD IT

Build metrics and narrative around intensity goals and progress more than today's absolute emissions

INNOVATE THE BUSINESS
NOT JUST THE TECHNOLOGY

Access funds that value climate goals whether as part of the financial system or to complement it

Companies need to demonstrate the financial and climate returns they can offer.

Questions explored in this chapter

How can the financial system be adapted — within the business, and externally — to meet the new goals and constraints?

How can funds be accessed (or provided) that will value and support a company's climate goals and transition path?

What metrics, disclosures, and dialogue does the company need to show progress on this path?

The finance needs of the transition to net zero are projected at many tens of trillions of dollars. The money is, broadly, available ahead of demand. In Europe, there is a gap of more than €4 trillion between the lending that banks plan to align with Paris (that is, 95% of all lending to European corporations) and the current demand for such financing.[iii] To access that money, companies and project owners need to demonstrate the combination of financial and climate returns they can offer. One result is the fast-growing industry of metrics, disclosures, ratings, carbon budgeting, and carbon pricing.

Companies must go beyond the integration and balance of financial and climate metrics. They also need to find meaningful ways to evaluate potential and actual progress against their climate goals and to incorporate those evaluations in investment decisions.

BUILD METRICS AND NARRATIVES AROUND INTENSITY GOALS AND PROGRESS

more than today's absolute emissions

The first guiding principle of our blueprint has been to own the problem, not offload it. Assessing a company or project on its direct, short-term reduction of carbon emissions can pull in direct opposition to that principle: It incentivizes organizations to focus on their own turf, not the whole value chain, and to avoid rather than engage with hard-to-abate activities. So how can a company make sure it is assessed on the right parameters for the transition path it has chosen?

1. DRIVE DIALOGUE

The answer does not come from just choosing the right metrics; it is also needs an understanding of context — numbers plus narrative. For example, if a company is seeking to buy North Sea assets that are being sold as part of an international oil company's transition plan, how should a bank assess this? Is this a short-term arbitrage play with no decarbonization value — the sort of fossil-fuel business to avoid? Or is it a longer-term play on carbon capture and storage that drives decarbonization — and, therefore, a valid target for transition finance? The answer will come only from dialogue with the client, not from metrics of today's business.

Part of Temasek's role as a committed, long-term shareholder is to "drive dialogue with portfolio companies and share accountability," according to Howard. Kara Mangone, Managing Director and Global Head of Climate Strategy at Goldman Sachs, describes how the dialogue and relationships that Goldman Sachs established following the global financial crisis have been invaluable in helping stakeholders to support the bank's approach to climate and understand how its various initiatives form a cohesive effort. Corporations, too, are using their "capital markets days" to explain to investors how to assess their progress and to initiate a dialogue about it.

2. OWN YOUR METRICS

Complementing this dialogue with comparable, trusted metrics is essential for investors, banks, and companies themselves to evaluate and invest in transition plans. Absolute emissions metrics are the obvious focus, directly measuring what the world needs to reduce. But while these metrics describe the goal at an overall system level, they can be counterproductive by themselves at a company level if they promote a mindset that wants to cleanse the organization of emissions — that is, offload the problem rather than owning it. Metrics that recognize the dynamics of transition, such as those measuring carbon intensity or implied temperature rise, may sound indirect or like excuses for procrastinating. But they may prove more useful than a focus on absolute metrics in tracking progress against a plan. The

important factor is to align metrics with the progress being targeted; otherwise they will divert the company from its plan. (See Case Study 4, page 34.) Some banks are finding intensity metrics to be more decision-useful — provided that the metrics' real-world implications are understood through meaningful conversations with the companies involved.

Alvaro Lorenz, Global Director of Sustainability at Votorantim Cimentos, emphasises the importance of showing investors and lenders projections, methodologies and assumptions to make sure that their targets and estimates are based on the company's realities, as well as continuously tracking progress towards publicly disclosed targets.

Conflict can arise between individualized approaches and those that are easy to compare. "As the urgency to act accelerates, corporates face tension between developing their own pathway to net zero based on their unique business context, and subscribing to broad-brush methods and metrics that enable comparability and measurement of progress on climate at a global level," says Nicole Vadori, Head of Environment for TD, emphasizing the need to "guard against action for the sake of action."

One response to the challenge is financing linked to key performance indicators (KPI). This provides flexibility both in the metrics used for the sustainability performance targets and in the company's use of the money to achieve the targets.

The set of metrics recommended by the Task Force on Climate-Related Financial Disclosures (TCFD) helps to achieve the best of both by specifying a set of standardized metrics that go beyond absolute emissions and give a rounded view of the transition plan. The cross-industry metrics called for in the TCFD's June 2021 consultation document[iv] include output metrics such as emissions intensity and "relevant, material categories of Scope 3 emissions," as well as input metrics such as carbon pricing, the amount of senior management remuneration "impacted by climate considerations," and the proportions of capital and operating expenditure "aligned toward climate-related opportunities."

3. RECOGNIZE THE STARTING POINT

The most important measure of transition impact is the reduction achieved in emissions, not necessarily the absolute level of emissions at the end. For that simple logic, as well as in consideration of a just transition, "you need to recognize where you are starting from," says Vadori of TD — particularly in resource-based economies like TD serves in North America.

Defensive walls around high-carbon legacy businesses can make it hard to invest for the greatest transition impact, so they need to be broken down, says Howard from Temasek: "As a long-term investor, you need to signal that you are behind having the right long-term plan."

ACCESS FUNDS THAT VALUE CLIMATE GOALS

whether as part of the financial system or to complement it

Some initiatives to reduce emissions also save money, for example by reducing energy costs. They are win-win. But that's not always the case. "At times there is a tension between the P&L and net zero," says Barbieri of PepsiCo. "It's unrealistic to think that all of what we need to do won't cost money. There will be long-term gain for sure, but also at times a short-term cost." These initiatives only happen if they are funded through a financing system that values climate goals and is prepared to compromise short-term financial returns to achieve them. That depends on the system as well as the funding.

1. STIMULATE EXPERIMENTATION WITH REDUCED RETURNS

Several companies we talked with have made available pre-allocated, ring-fenced money to be used only for climate initiatives. This has a lower standard for financial returns — for example, requiring a positive return, but not a particular hurdle rate. Typically, this type of financing is at an experimental scale: Aurizon, the Australian freight railroad company, has established a $A50 million ($37 million) ten-year "future fleet fund" to support the decarbonization of its locomotive fleet, amounting to about 1% of its annual capital expenditure. For initiatives that qualify, AT&T taps into philanthropic budgets. National Grid created venture capital arm National Grid Partners "to 'disrupt itself' and advance the energy systems of tomorrow." The unit has $400 million in funding and seeks learning and access to future growth opportunities as well as financial returns. More generally, green bonds provide a natural way to build on successful initiatives and fund them at scale.

2. BUILD CLIMATE INTO BUDGETING

Companies somehow need to evaluate initiatives in terms of both their climate impact and their financial returns. These aspects need to be brought together to compare competing claims on capital. We heard many ways to do this, and there is no one right answer — but all the companies we talked with have a system. Approaches may be based on:

- An overall reporting system for climate metrics, which parallels the financial reporting system (Ingka Group). As part of the annual goal-setting process, each business unit and IKEA Retail on a country level set specific goals, based on functional plans. Critically, this system depends on putting metrics in operation that track performance throughout the year, just as for financial metrics. "To make sure the right decisions influencing business, people, and climate are taken, there is a need to integrate climate footprint measurement as part of the KPIs dashboard," says Karol Gobczynski, Head of Climate and Energy at Ingka Group.

- Climate targets included in balanced scorecards alongside financial metrics (Lloyds Banking Group).
- A carbon budget, centrally allocated on a top-down basis, with each business area responsible for operating within its budget (NatWest Group). Good data are critical to this approach and are currently a challenge, says Close at NatWest. “It will be messy at first, and we will need to learn,” he says.
- Shadow carbon costs, which are provided alongside financials to support investment decisions but not charged to the profit and loss accounts (P&L) of the business (CEMEX, PepsiCo, and others). CEMEX incorporates an internal carbon price into its investment decisions “to internally evaluate the exposure to a potential external carbon pricing.” As Vicente Saisó, Head of Global Sustainability at CEMEX, says, “We are pushing forward as if we were regulated in all of our markets.” This helps drive a culture of constantly reducing the carbon footprint even in the absence of an adequate regulatory framework. A carbon price allows CEMEX to better evaluate the future profitability of projects and strategies.
- Carbon costs that hit the P&L (Microsoft). While some companies have introduced internal carbon pricing as a shadow signal, Microsoft introduced it as a real price that it charges to its business groups for their greenhouse gas emissions. Microsoft then reinvests the proceeds in top-priority projects to meet its commitments to be carbon negative, water positive, and zero waste. Internal stakeholders now design their carbon reduction strategies explicitly to avoid the carbon fee, creating a virtuous cycle that will help to drive carbon reduction in the long term.
- Bundling with related initiatives to offer self-funding packages (Nestlé). Sustainability and digitalization are naturally linked. Digital advances unlock efficiency opportunities, for example by optimizing logistics networks and allowing products’ provenance and embedded carbon to be tracked all the way up the agricultural supply chain. By bundling its sustainability and digitalization initiatives, Nestlé is seeking to deliver its decarbonization goals through projects that are earnings-neutral and do not come at a cost to its shareholders.

3. ESTABLISH A DECISION FRAMEWORK

However strong the budgeting system and performance metrics, the trade-offs between financial and climate goals and their respective risk profiles will not be purely formulaic. That implies a decision-making framework that recognizes both agendas. Even apparently straightforward initiatives can have significant financing implications, such as the charging stations needed for an electric vehicle fleet. These create big changes to the financial structure needed.

Climate investment decisions are not made algorithmically. For all the guidance on metrics and systems, companies’ progress depends on the conviction of their leadership and the need to deliver on their external commitments. We end our blueprint on leadership, just as we started it.

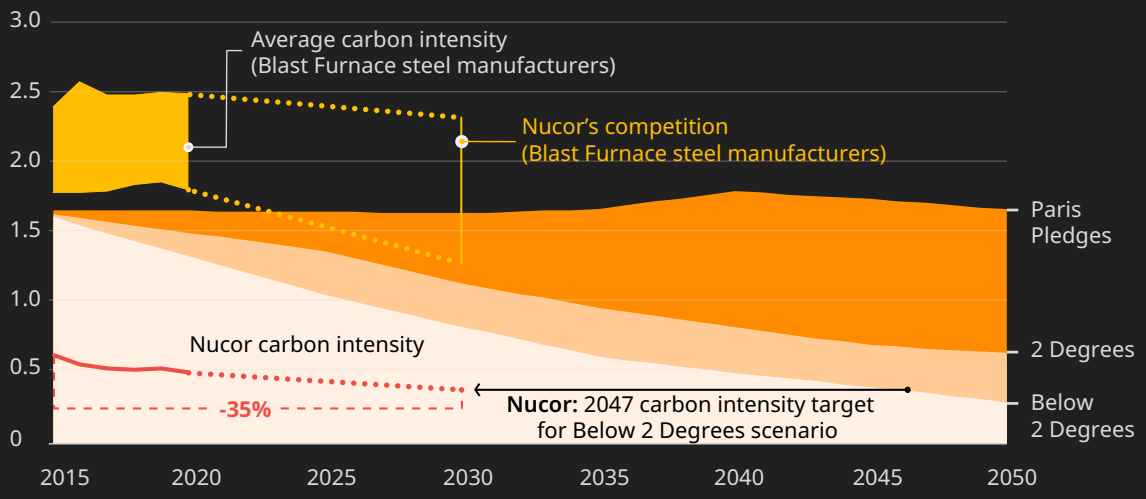
CASE STUDY 4

Building metrics and narratives around intensity goals and progress, at Nucor

Nucor makes steel in an inherently carbon-efficient way, using electric arc furnaces that melt recycled scrap and turn it into new steel. The greenhouse gas emissions from Nucor's steel mills are less than one third of the global steelmaking average: Nucor's mills emit 0.47 tons of carbon dioxide equivalent (Scopes 1+2) for every ton of steel produced, compared with 1.69 tons global average, and 2.15 tons for the average of the company's blast-furnace competitors.

Exhibit 5: Carbon Intensity

Tons GHG per ton of steel, Scopes 1+2



Source: Nucor, Transition Pathway Initiative (TPI) 2020, Blast Furnace average from World Steel (2019 data).

Note: Data selected based on TPI availability.

With these numbers, reducing absolute emissions would be a perverse goal to ask of Nucor. The biggest contribution the company could make to global emissions, at least in the short term, would be to grow its market share at the expense of its blast-furnace competitors, which would increase its own absolute emissions — while reducing emissions overall.

Instead, intensity metrics are the focus, both to communicate its present advantage and to set future targets. The company has committed to a 35% reduction in emissions intensity by 2030. At that point the greenhouse gas emissions from its steel mills will be less than one quarter of today's global steelmaking average. The combination of the abnormal starting point and substantial reduction take Nucor in 2030 almost to the point that the steel industry overall needs to be in 2050 for Paris alignment, according to the model produced by the Transition Pathway Initiative (see Exhibit 5).

CASE STUDY 5

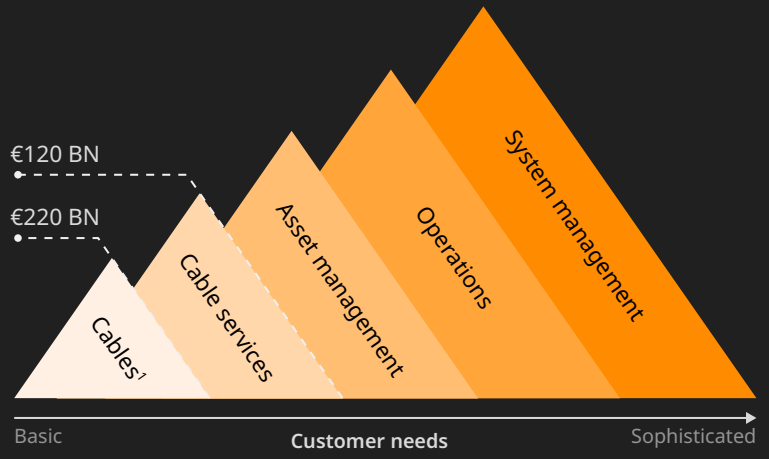
Putting it all together: Business redesign at Nexans

For over a century, since the invention of the lightbulb, Nexans has played a crucial role in electrification by making cables for the world. But to capitalize on, and help drive, the energy transition, it is fundamentally reshaping itself, selling a third of its business to change from a generalist cable-maker to a pure-player in electrification, under a new purpose to "electrify the future."

The move reflects the higher growth projections that the company sees in electrification compared with other sectors of the cable market (industrial and telecoms). But it also reflects a vision of the higher-value role that the company will play, getting to deliver systems and solutions on a global scale: "Our clients no longer want cable and components alone, but rather interconnected solutions and systems." Beyond cables, Nexans wants to help solve the many challenges of tomorrow's electric systems, from integrating energy storage systems into electricity distribution networks to dealing with massive volumes of data and heterogeneous data sources. It is currently exploring acquisitions along the electrification value chain focused on design and engineering services; data collection, management, and exploitation; and smart products.

The move is bold. As Nexans says, "We are convinced that maintaining a broad-based approach will become a weakness rather than a strength in the years to come, which is why we are looking to expand our leadership in growing sectors, such as subsea high voltage, building, and electricity distribution, and focus our acquisitions in these areas. Our goal is to acquire between 1.5 and 2 billion euros [$1.8 billion and $2.4 billion] worth of electrification assets by 2024, mainly in Asia, the United States, and Latin America. We also need to scale back on historic sectors such as automotive, telecom, robotics, oil and gas, aerospace, and cruise ships and dispose of some 1.5 billion euros worth of assets in these industries by 2024."

Exhibit 6: Clients demand solutions not (only) components



(1) World value including accessories and assembly

Exhibit 7: Nexans' business — a pure electrification player in 2024

Nexans provides end-to-end solutions to its clients alongside the electrification chain; from generation, to transmission, to distribution, to usages of energy

Generation	Transmission	Distribution	Usages
Turnkey Offshore Windfarms connections to the shore	Turnkey Submarine and Land Interconnections	Turnkey: • Electrification projects • Superconductor systems • Connection of utility scale renewable farms to the grid	• Electrical vehicles charging stations • End-to-end supply chain services • Product Innovations to ease installation, enhance safety and installer productivity

Asset monitoring & management

Smart cables & accessories

Sources: Nexans, Financial Times

CONCLUSION
GETTING REAL

The companies profiled in this research are among the world's most experienced in corporate climate action. They have made meaningful public commitments and set out plans to achieve them. They have track records of setting, pursuing, and generally meeting climate goals — and of resolving the perpetual trade-offs between commercial and climate agendas, which sometimes happily align, but often do not. That is part of what we mean by getting real.

Their progress to date has been impressive, but their focus is rightly on what they still have to do. Each round of five-year targets is more ambitious than the last. Experimental solutions, which are currently working at around 1% of a company's capital expenditure, need to scale into the mainstream of the business. That is the next part of getting real.

The learning curve is still steepening. That is why companies benefit from joining the climb as early as possible, rather than hoping for an easier, settled ride once pathways to transition have been established. The road to net zero is not well paved and signposted. The level of "code red" urgency, which the United Nations used to describe the IPCC's Sixth Assessment Report, may rough it up further. The two themes threaded throughout this report provide helpful guardrails: Own the problem — don't offload it. And innovate the business — not just the technology.

A driving force for the companies in this research has been the anticipation of pressures that do not yet exist. Companies are doing more than they have to today because they are preparing for escalating demands from customers, investors, and especially policymakers. These pressures will increase the price of carbon emissions both implicitly and explicitly. The momentum we are experiencing today is based on that anticipation. To sustain and increase that momentum — for the transition to thrive — pressures from policymakers will have to get real too.

i *Taking stock: A global assessment of net zero targets*, The Energy & Climate Intelligence Unit and Oxford Net Zero, March 2021

ii *Vision 2050: Time to transform*, World Business Council for Sustainable Development, March 2021, p103

iii *Running hot: Accelerating Europe's path to Paris*, CDP and Oliver Wyman, March 2021

iv *Proposed guidance on climate-related metrics, targets, and transition plans*, The Task Force on Climate-Related Financial Disclosures, June 2021, p26, Table C1

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Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation. Oliver Wyman works with businesses and financial institutions to set and execute low-carbon transition strategies that collectively chart a path to net zero. We help clients to pursue a commercially smart transition, enabling leadership teams to deploy their financing, operating capabilities and customer relationships to achieve outcomes for which they were never designed. In financial services, we help clients align their portfolios with the Paris Agreement, managing their transition risk while providing the finance to accelerate the transition in each sector.

Climate Group drives climate action. Fast. Our goal is a world of net zero carbon emissions by 2050, with greater prosperity for all. We focus on systems with the highest emissions and where our networks have the greatest opportunity to drive change. We do this by building large and influential networks and holding organisations accountable, turning their commitments into action. We share what we achieve together to show more organisations what they could do. We are an international non-profit organisation, founded in 2004, with offices in London, New Delhi and New York. We are proud to be part of the We Mean Business coalition. Follow us on Twitter @ClimateGroup.

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