



CLIMATE ACTION AT SCALE

Aligning corporate and climate interests

 OliverWyman |  CLIMATE GROUP



SUMMARY: ALIGNING CORPORATE AND CLIMATE INTERESTS

FROM REDUCING TO BUILDING

In our [Getting Real](#) report for Climate Week NYC in 2021, we set out a blueprint for a commercially smart climate transition. In our [Getting Going](#) in 2022, we explored how to break through organizational barriers to make the transition happen. In this report, we explore what it takes to scale it up.

Our concern was that much of today's action is limited to the incremental moves that can be made under "business as usual," while to transition at scale will require something different. We may be at the foot of the S-curve — the period at the beginning of a transition, when progress is typically slow. But can we climb towards the steeper part of the S by doing more of what we are doing today? Or does a greater level of business exposure require a different, more business-integrated approach?

Our research with practitioners, both qualitative and quantitative, has validated that concern and illustrated how some leading companies are responding to it. The core idea is simple. As a business, you can't achieve climate action at scale just by reducing. The investment is unrewarding and unaffordable. But you can by building. The companies making the most progress at scale are building their businesses to thrive in a decarbonizing world.

BUSINESS DESIGNS THAT UNLOCK INVESTMENT

You can make incremental contributions to decarbonization in ways that may conflict with your corporate interests, because the conflict is manageable. But to secure the investment and the leadership commitment to act at scale, corporate and climate interests need to align. The leaders of this stage of the effort have a positive vision for a role they want to play that will achieve this alignment.

To get there, they live the proven innovation principle of creative destruction. They don't let their stake in the old prevent them from pursuing a stake in the new. Instead, they take a lead to avoid the business risk of being left behind. And to manage the huge uncertainty — over future regulations and technologies, as well as the parallel moves made by competitors, customers and suppliers, at different paces around the world — they use bold tactics to make meaningful progress while keeping future options open.

This is how companies are unlocking the investment needed for climate action at scale. It's not just about emissions reductions — or, at least, not directly. It's about business design.

CREATING THE CONDITIONS FOR SUCCESS

Finding this alignment is not easy. Some companies see natural opportunities, but most need to create the conditions in which self-interest can support climate action at scale.

Many companies are betting on future government policies to make their plans affordable. Some are going further, working constructively with governments to achieve a policy environment that will foster climate action at scale.

Companies are challenged by the mixed signals from investors: Set and meet ambitious 2030 climate goals, but also grow profits. Some companies are engaging with investors to win support for climate action that inevitably hits profits — relative to today, but not relative to the hit from a future without climate action.

The leaders we talked with are clear that they can't do what's needed by themselves. They depend heavily on investors and policymakers, as well as suppliers and partners. They can't go all the way, but they can show the way. It's then up to investors and policymakers to make that way possible.

OUR PRACTITIONERS

We conducted 35 interviews with advanced climate practitioners in large corporations from a broad range of sectors, mostly operating globally and headquartered in Europe and the Americas. The people we spoke to are responsible for driving the climate transition throughout their organizations. In parallel, we ran a quantitative survey with climate practitioners from more than 200 corporations active in the climate transition.

This report would not have been possible without the willingness of climate, sustainability, and commercial leaders in the companies below to share their experiences of seeking to achieve climate action at scale — their challenges and frustrations as well as their workarounds and breakthroughs.

We are grateful to them for sharing their perspectives with us. However, the views expressed in this report are those of its authors, not necessarily those of each of the practitioners.

ARCELORMITTAL	BT GROUP	HEINEKEN	MAERSK	PEPSICO	SODEXO	VALE
BALL CORPORATION	CBA	HSBC	NATWEST GROUP	PERNOD RICARD	SWISS RE	VEOLIA
BHP	COLGATE PALMOLIVE	INGKA GROUP	NEXANS	SALESFORCE	TD	VIRGIN MEDIA O2
BMW	ENGIE	JOHNSON CONTROLS	NUCOR	SCHNEIDER ELECTRIC	THALES	VOLVO CARS
BRASKEM	GOLDMAN SACHS	LA POSTE	ØRSTED	SIEMENS	UNILEVER	VOTORANTIM CIMENTOS

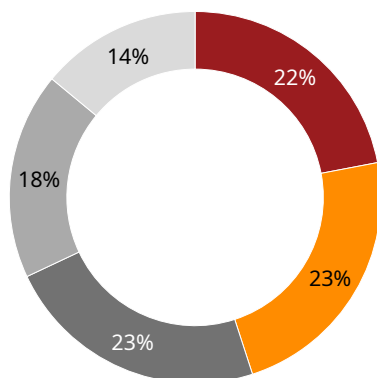
01 A LONG S-CURVE

Companies are challenged to scale up



Exhibit 1: 55% have not integrated climate action in their core business strategy yet

How would you describe your organization's business case supporting the transition plan?



- Defined and operational, driving the transformation of the organization through strategic, financial and operating processes
- Defined and operational, built into the strategic, financial and operating processes
- Defined and operational, acting on its own to support investments not critical to the company's financial results
- Defined but not yet put in place
- Not defined yet

Source: Oliver Wyman/Climate Group quantitative survey of corporate climate practitioners, n=159 respondents, July 2023

The step-change in corporate climate action in the past few years has been extraordinary. Yet we are more than halfway through the critical period between the 2015 Paris Agreement and 2030, the agreement's target year for halving global emissions, and emissions are still rising. Clearly, we need to scale up.

Unfortunately, this is not just a case of dialing up current efforts. In our Getting Going research report for Climate Week NYC 2022, one of the strong themes was that many of the approaches that companies were taking would not naturally scale. "Too often in climate," we wrote, "we expect incremental management tools to yield transformational outcomes." So what does it take to go beyond that incremental change and to transition at the scale and pace we need to meet the Paris goals?

In this chapter we look at challenges to delivering climate action at scale. The following chapter describes the patterns we uncovered in how leading companies are responding to these challenges.

RUNNING OUT OF "BUSINESS AS USUAL"

It is natural to start with the easiest emissions reductions, and for many companies, the first goals can be achieved without challenging the way the business operates. Of the corporate practitioners responding to our quantitative survey for this report, a majority (55%) said that they do not presently have a business case for climate action built into the strategic, financial, and operating processes of the business (see Exhibit 1). For many of those companies (23% of the total), they do have a business case in place, but this is "acting on its own to support investments not critical to the company's financial results."

The challenge, and the reason for this research report, is that this approach only takes you so far. The first tranche of actions may pay for themselves, often through improved energy efficiency. Yet going beyond the traditional business case can be challenging. Roberta Barbieri, vice president for sustainability at PepsiCo, makes a similar distinction: "Scope 2 is relatively easy. Scope 1 is much harder." Many of our interviewees started the discussion with a recognition that, collectively, we are not on the right track.

2030 TIMEFRAME MAY DEFER THE BIG CHALLENGES

Is 2030 round the corner, or still distant?

Considering what we need to have achieved before that date, it is dauntingly close. But relative to typical business planning timeframes, seven years is a distant horizon. “Humans underestimate the first part of the S-curve,” one interviewee observed. “It’s inappropriately long for the urgency of the climate crisis.”

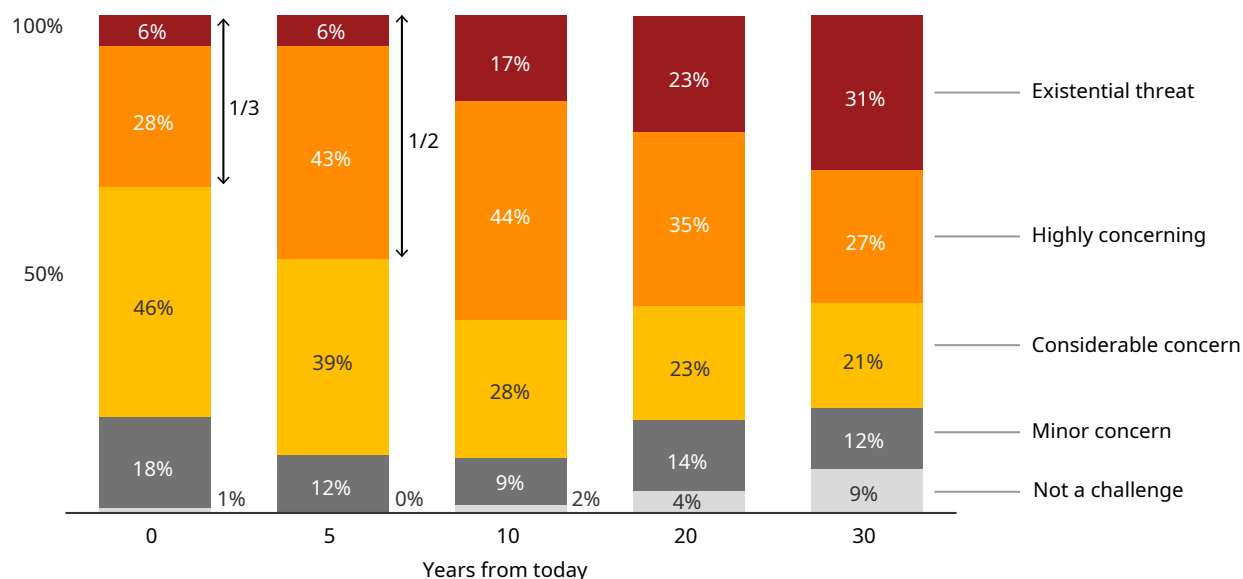
The sense in several of our interviews was that companies have not yet had to do the difficult part of the transition. This is born out in our quantitative survey, in which half the respondents expect decarbonization to be a serious challenge (“highly concerning” or an “existential threat”) for their business by 2030, compared to one third today (see Exhibit 2). Views beyond that year begin to polarize, with a big increase toward 2050 in

respondents expecting an existential threat, but also some expecting that we will have cracked the problem.

Targets can and do provide an impetus for action, but they can also contribute to inertia. While there are rewards for exceeding, not just meeting, a financial target, there is no equivalent prize for outperforming on a climate goal. Moreover, even the leading companies often have a climate target that is defined as Paris-aligned only on the basis of other companies taking equivalent action. (A company being “aligned with 1.5 degrees” means that it is taking the kind of action that, if matched by other companies too, would limit the rise in global temperatures to 1.5 degrees above pre-industrial levels.) We have therefore built a system that encourages the fastest players to transition at the speed that we need the average players to transition at.

Exhibit 2: One half of practitioners today see decarbonization as a serious challenge by 2030, compared with one third today

In your opinion, how much of a challenge is decarbonization to your business in years to come?



Source: Oliver Wyman/Climate Group quantitative survey of corporate climate practitioners, n=180, July 2023

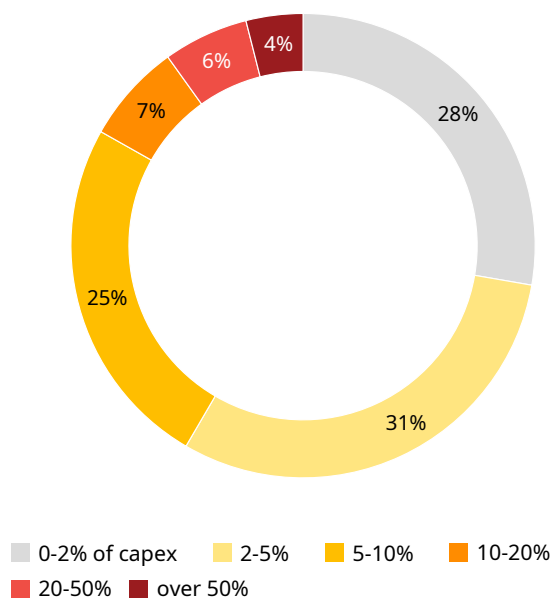
Above 2% of capex, affordability becomes the biggest barrier to climate action. Above 10%, policy support is the biggest barrier.

CONVENTIONAL BUSINESS CASES OFTEN DON'T SUPPORT ACTION AT SCALE

Today's level of investment is generally affordable because it is low. More than a quarter of respondents to our survey say climate action is currently driving less than 2% of their capital expenditure, and most say it is driving less than 5% (see Exhibit 3).

Exhibit 3: Climate action is driving less than 5% of capex in most organizations

What share of your organization's capital expenditures today would you estimate is driven by climate action?



Source: Oliver Wyman/Climate Group quantitative survey of corporate climate practitioners, n=153, July 2023

For companies in which climate action is driving less than 2% of capex, the challenge is less about affordability, and more about the internal allocation of funding (see Exhibit 4, lefthand chart). But as the investment need grows, affordability becomes a limiting factor (see center chart). (For organizations that crack the affordability challenges, as described in Chapter 2, public policy issues come to the fore. We explore these in Chapter 3.)

Investments that pay for themselves directly in reduced costs, for example through operational or energy efficiencies, are low-hanging fruit that has largely already been picked. And some business cases that looked viable on conventional measures of internal rates of return a few years ago now no longer meet the hurdle rate for a minimum acceptable return on investment. At BT Group, Gabrielle Ginér, head of environmental sustainability, describes how the business case for converting the vehicle fleet to electric vehicles has changed since it was approved in 2021. The prices of the vehicles and of the renewable electricity to power them are both higher than forecast at the time, and the United Kingdom's public charging infrastructure is behind plan. BT Group remains committed to its plan, "because it's the right thing to do," says Ginér, and because "decarbonizing our fleet is key to us reaching our net zero targets."

As we explore in Chapter 3, almost no consumers are willing to pay a premium for the investment in decarbonization. Without a pull from the

consumer who sits at the end of every value chain, the drive for decarbonization must be self-generated — either by an organization itself or by its B2B customers. As Renae Kezar, global vice-president for sustainability and regulatory affairs at Johnson Controls, explains, "To meet the ambitious environmental targets in front of us, we need to be creative and open to alternative models of financing carbon reductions."

Even when funds are available and low hurdle rates allowed for, barriers to execution remain. One organization we spoke with makes substantial funds — hundreds of millions of dollars per year — available to spend on climate-related capital projects that don't meet normal hurdle rates. But it can't spend the money, because business processes are too slow and resources other than money — such as people, skills, and management time — are in short supply and are not prioritized by the business for these projects.

Externally, too, the supply of sustainable finance is not the limiting factor. "There's no shortage of finance," observes Sophie Duval-Huwart, director of strategy for Veolia, "but who wants to invest when there is no return?" Exhibit 4 confirms this perspective, with "lacking available funding externally" showing up as a minor barrier.

The offshore wind industry is much heralded for the steep cost curve it has driven itself down, making the choice of renewable energy an easy one by eradicating any "green premium" relative

to fossil fuels. But today the industry is paying the price. “There’s a perfect storm at the moment,” says Rasmus Skov, head of global external affairs and positioning at Ørsted, “with rising costs of capital, inflation, and supply chain bottlenecks, not least due to challenges around profitability and pipeline certainty that have led to lower investments in supply capacity.” Together, these factors are now hurting the industry’s ability to scale. Skov explains that “we need a value chain that spurs investment, but in the offshore wind industry, projects that had a business case two years ago often don’t have one anymore.” The

industry has proved itself and attracted a lot of new players, which has encouraged regulators to withdraw subsidies, and new entrants to pay extraordinary sums for seabed leases.

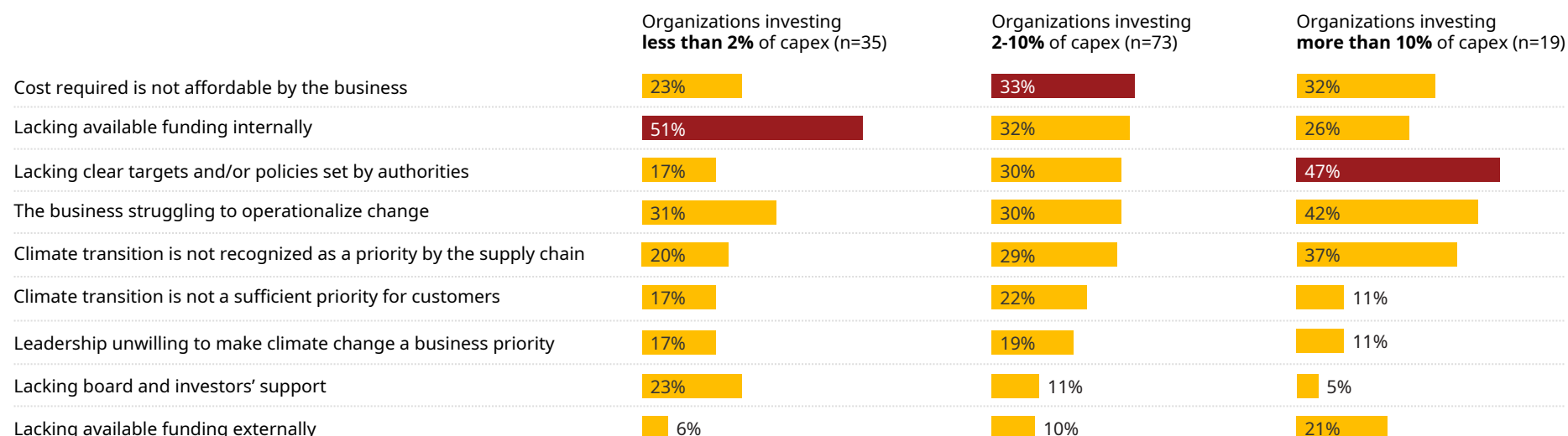
These changes have come just as material costs are rising (steel is up 30% to 50%) and stakeholders expect a continuing Moore’s Law-like reduction in costs. “This is one of the industries with the biggest worldwide growth potential,” says Skov, looking at the need to grow global offshore wind capacity from 60 GW to 2,000 GW by 2050. But today, regulatory regimes are still maturing and

the industry struggling to deliver profitable value chains, which leads to fewer investments than needed to scale sufficiently fast to meet renewable energy buildout targets and the climate challenge. This may be a temporary dip, in a cycle that will improve as costs, stakeholder expectations and competition adjust, but it illustrates the challenges and limitations of an approach based on conventional business cases.

So how can businesses stretch beyond incremental efforts, and beyond conventional business cases, to deliver climate action at the scale and pace we need?

Exhibit 4: For climate action at scale, affordability and then clear regulatory policy become critical

In your experience, what have been the biggest barriers to operationalize a financially robust business case?



Source: Oliver Wyman/Climate Group quantitative survey of corporate climate practitioners, July 2023

02

FINDING THE VALUE

The right rewards and mindsets can unlock investment at scale

Despite the challenges, many businesses are finding ways to scale up their climate action. It is too early to be sure what will succeed over time, but we can see a pattern to the levers that make progress possible. The businesses achieving climate action at scale are not pushing harder in emissions reduction efforts that conflict with their business goals. They are designing decarbonization approaches that align with and reinforce their business goals.

These approaches start with a **positive vision** of the profitable role that the business seeks to play in the low-carbon or decarbonizing future. Such a vision is critical to aligning corporate interests with climate action at scale.

Businesses achieving climate action at scale also recognize and pursue both aspects of the **creative destruction** needed to realize the vision. It's not all about reduction. It's about renewal — of the business, the industrial sector it operates in and the broader economy. They build as well as reduce.

Finally, to progress at pace and scale in an environment that continues to change unpredictably, they use **bold tactics** to move ahead without committing themselves to unknown futures.

Two themes are woven throughout these approaches — through the positive vision, the creative destruction and the bold tactics. The first is how these businesses look out into the world: they focus on finding the **business rewards** that allow them to deploy resources at scale. Without these rewards, the foundations for action at scale will be missing: the investment funding, the leadership focus, and the investor support.

The second theme is how the businesses look into themselves: the **mindsets** they bring to leading and managing their organizations to achieve new goals in new circumstances. These are strong, commercial mindsets. There is nothing soft about them. But these organizations are open to new ways of thinking — about risk and uncertainty, about what makes a business case, and about the capabilities that will matter in the future.

Exhibit 5 sets out a framework that pulls these ideas together, drawing on what we have learned from the practitioners we talked to. In this chapter we walk through the framework and illustrate the different approaches at work.

Exhibit 5: The right rewards and mindsets can unlock investment at scale

	POSITIVE VISION	CREATIVE DESTRUCTION	BOLD TACTICS
	Aligning corporate interests with climate action at scale	Approaches that build as well as reduce	Moving ahead without committing to unknown futures
Looking out (Rewards)	Vision for value-creating roles • Decarbonization support • Circular economy systems • Changing consumer habits	Propositions that create value • Low-carbon substitution • Low-carbon premium • Efficiency solutions	Committing to outcomes, not solutions • Tech investments that drive followership • Driving the supply chain • Collective demand and solutions
Looking in (Mindsets)	Vision-led leadership • Long-term conviction • Sharpening purpose • Rethinking risks and business case	Capabilities that create value • New operating models • New skills • New procurement approaches	Maintaining flexibility • Solving for one generation at a time • Focusing on key breakthroughs • Optimizing locally

Source: Oliver Wyman/Climate Group

2.1 POSITIVE VISION

Aligning corporate interests with climate action at scale

VISION FOR VALUE-CREATING ROLES

Climate action at scale starts with a positive vision of the profitable role that the business seeks to play in the low-carbon or decarbonizing future. That vision is critical to ensuring that the actions required align with corporate interests rather than conflict with them. It is therefore also critical to the task of getting the whole business behind the effort.

Not all of the decarbonization effort will directly support this vision. Investments to reduce operational emissions will remain a burden. But when there is a financial reward through some new business design, for which demonstrated climate leadership and progress on decarbonization is needed for credibility, then the effort becomes easier to prioritize and the burden easier to justify financially.

Most of the stories we heard about climate action at scale involved a positive vision of a business establishing a profitable opportunity for itself by playing one of three broad roles:

DECARBONIZATION SUPPORT

At least for B2B businesses, as one interviewee puts it, “everyone is like a service provider, because you’re someone else’s Scope 3 emissions.” It’s notoriously hard to reduce your Scope 3 emissions, because you can’t easily measure or

control them. But many of the companies we talked to will help you: Johnson Controls, Siemens, and Schneider Electric will all help you run your facilities and operations with less energy and lower emissions. Maersk will reduce the emissions from your shipping and Veolia from your waste. Salesforce will reduce your emissions through digital solutions that avoid unnecessary activities. BHP and Nucor will reduce emissions from your materials, and Sodexo from your staff canteen. “We’ve seen the appetite from clients,” says Gwenaëlle Avicé-Huet, chief sustainability and strategy officer at Schneider Electric.

These roles may be a natural extension of a company’s core business, but they lead to a strategy that goes far beyond the measurement and reduction of carbon emissions. When you make it your goal to help customers or suppliers to decarbonize, the opportunities abound — including commercial opportunities for strategic differentiation and for new value creation.

Sodexo is working to halve its Scope 3 emissions by 2030, and thereby also advance the decarbonization efforts of its corporate clients, by rebalancing the food it serves in its clients’ offices, schools and other institutions. It is doing this through “Low carbon meals”: not plant-based or vegetarian diets, but a shift in the balance of what is on the plate towards less meat and more vegetable. The company needs to bring its entire ecosystem, including clients and consumers, along

with it. When it succeeds, the initiative pays for itself in the shift from animal to vegetable protein, in addition to the decarbonization benefit.

This shift is possible at scale, because corporate clients are attracted to it. Patrick Sochnikoff, group senior vice president for corporate and social responsibility at Sodexo, explains: “Clients are an accelerating force. Some are pushing us to do this if we want to stay as their suppliers. Sodexo is their low-hanging fruit. We have no spare margin: We can’t afford anything that doesn’t give value to our clients. That’s what we love doing, by the way: It fits with our goals, financial and non-financial.”

Whole sectors are discovering their roles in decarbonization support. For many banks, the initial climate mindset was about risk: how to manage the climate risk on their balance sheets by rebalancing their lending portfolios. Increasingly, however, their focus is on what they can help their clients to do, structuring projects so that they become both financeable for external capital providers and attractive investments for the companies involved.

Some companies have formalized their decarbonization support as a service offer to clients, providing advice and software tools to help other companies navigate their own decarbonization agendas, which may also then involve the provider’s products and services. Schneider Electric provides such services to 40% of Fortune 500 companies, individually and

also collectively: Several of the big pharmaceutical and semiconductor companies have collectively engaged the company to help decarbonize their respective value chains. “We’re a trusted advisor to decarbonize their suppliers,” says Schneider Electric’s Avise-Huet.

CIRCULAR ECONOMY SYSTEMS

Evolving a linear value chain from extraction to waste into a circular one is a strategic, industry-wide effort that generates new roles and opportunities to create value. Most obviously, it assigns new value to what is currently scrap or waste, and provides profitable opportunities for companies that contribute to creating that value. The rewards come both from new business opportunities within the new system and from winning business away from competing linear systems that have not adapted to the circular economy. Among our interviewees, companies with a positive vision of the roles they seek to play as part of circular economy systems include Nexans in copper, Nucor in steel, Ball Corporation in aluminum, CPA in plastics and Ingka Group in home furnishing.

Ball Corporation is the world’s largest manufacturer of recyclable aluminum beverage cans. Ramon Arratia, chief sustainability officer, explains the company’s vision: “Ball Corp.’s strategy is based on our belief that circularity will win. People are not drinking more, so growth for us means the growth of aluminum

“Our strategy is based on our belief that circularity will win.”

over less circular substrates in packaging.” This vision has been critical in showing what can be achieved, both in recycling rates (making the case for regulation such as Extended Producer Responsibility and Deposit Return Schemes) and in bringing down costs.

For Ingka Group, the main IKEA retailer, an important driver is to protect the business from the rising cost of materials in the future. “As a low-cost retailer, one of the biggest risks for us is materiality availability and future material cost,” says Simon Henzell-Thomas, global director of climate and nature. IKEA’s public ambition is to be “circular and climate positive by 2030,” while continuing “to make products affordable and accessible. Sustainability must be available for the many, not just a luxury for the few.” Thomas Becker, vice president for sustainability and mobility strategy at BMW Group, says that not only does using recycled aluminum save 80% of the carbon emissions, but also “circularity makes you more resilient to the primary material markets.”

EXAMPLE:

Ball Corporation

In conversation with Ramon Arratia,
Chief Sustainability Officer

VISION

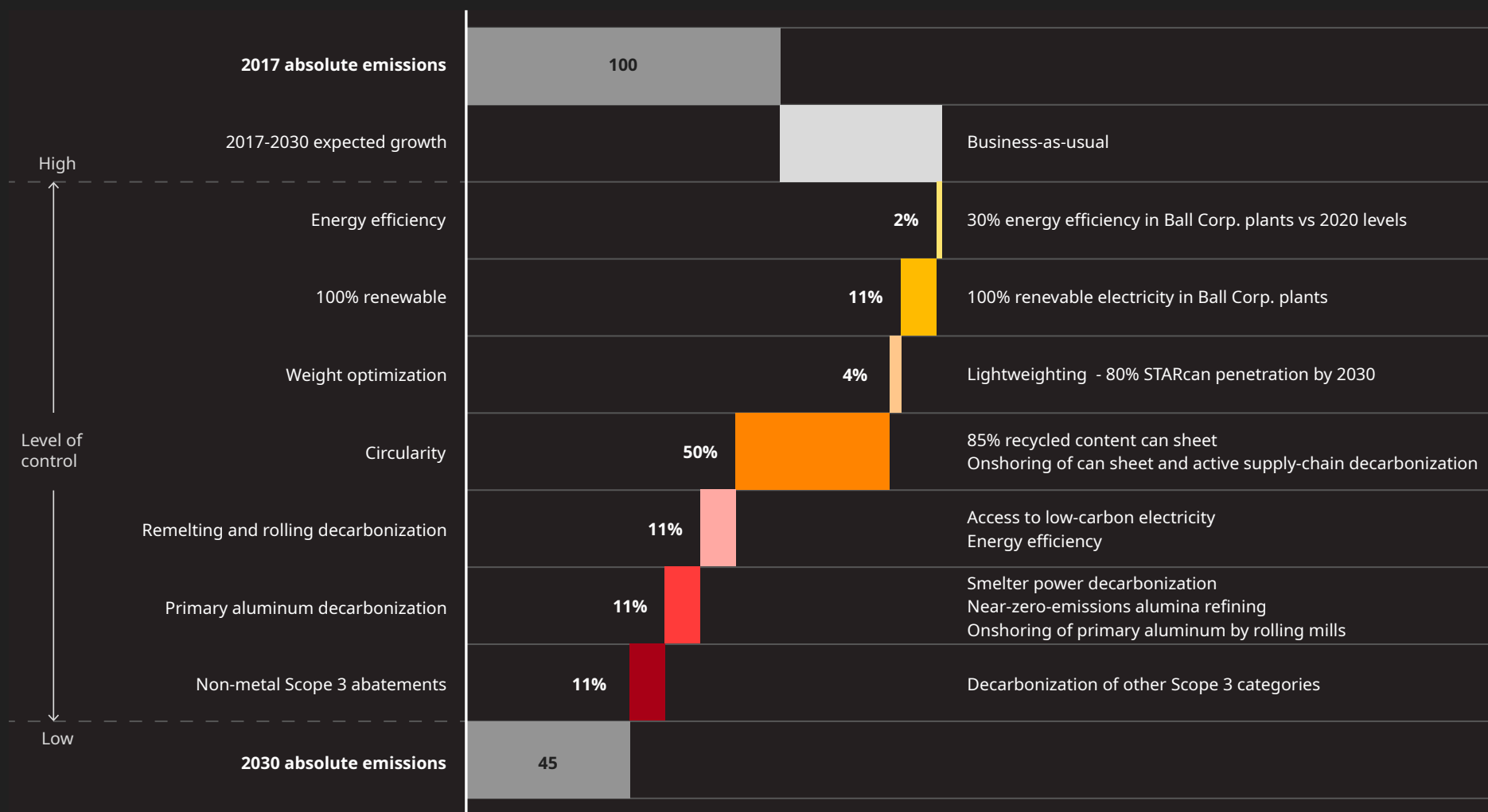
Ball Corp. envisions an expanding market for aluminum packaging made possible by the circular economy. If you can drive circularity in aluminum, “the effect is exponential,” because of the metal’s infinite life and the low amount of energy required to transport and melt it in each cycle compared to packaging alternatives such as glass and plastic. The focus is therefore on the policy support for deposit return schemes that drive the consumer behavior needed to make aluminum circular. “Our whole strategy is based on our belief that circularity will win.”

CREATIVE DESTRUCTION

The decarbonization of beverage packaging by substituting less circular substrates is a growth strategy for Ball Corp., a market leader in aluminum beverage packaging. “People are not drinking any more than before, so growth means growth vs. other substrates.” The win-win is that by incorporating a growing share of recycled aluminum in its cans (currently about 50%), Ball Corp. becomes an agent of decarbonization for its customers, for whom packaging represents up to 40% of their emissions “We position ourselves as the ideal partner to help our customers decarbonize their Scope 3. We show them that our ambitious, robust, and science-based climate transition plan is customized to them.”

BOLD TACTICS

Ball Corp. advocates for taking industry collaboration to new levels of detail, focus and transformation. The company is an active member of the First Movers Coalition, which leverages collective purchasing power from companies to signal demand to scale up critical emerging technologies essential for the net-zero transition. Ball Corp. has also recently invested in a rolling mill in the United States with remelting capacity for recycled aluminum, with which it will enter into a long-term supply agreement. This commitment prompted two of its main suppliers to invest in supplying the aluminum scrap to feed it. The mill also helps to limit the premium the industry has to pay for green primary aluminum, if that product has to compete with circular aluminum in the green aluminum market.

Exhibit 6: Circularity allows Ball Corp. to grow while substantially reducing its and its customers' emissions

Source: Ball Corporation, Defining our future together: Business and sustainability update 2022



While recycling can boost Ball Corp.'s business model, through increased share and reduced costs, re-use can cannibalize its sales, thus constituting a commercial challenge which the company acknowledges and embraces as part of its overall vision.

CHANGING CONSUMER HABITS

Except in very few cases — notably battery electric vehicles, where the driver and ownership experience is an advantage — consumers exert little pull on companies to pursue climate action at scale. It is often the other way round: The pull comes from companies that need the cooperation of consumers in order to make progress. Companies that earn this cooperation can gain the rewards of their decarbonization strategies — both commercially and in terms of climate impact.

Changing consumer habits is critical for some of the initiatives already described. Ball Corporation's vision to accelerate decarbonization relies on matching developments in technology with improvements in policymaking, including a combination of Extended Producer Responsibility regulations, which mandate businesses to collect and recycle, and modern Deposit Return Schemes,

which make collection and recycling of beverage packaging more efficient. "This combination is already proven to work," says Ball Corp.'s Arratia. "These regulations incentivize the industry to rethink packaging, and do not involve any extra cost for governments." While this regulation is more palatable in some countries than others — with the United States presenting the biggest challenge — it has proven to be possible: Some countries in Europe have achieved a target return rate of 90% that makes infinitely circular aluminum practical.

Part of Sodexo's low-carbon meal strategy is to ensure that the end consumer is happy with the rebalanced diet, by playing to its advantages for health as well as climate. Colgate-Palmolive aims to help consumers live more sustainably by designing more sustainable products for them to use at home. It has found that consumers in most parts of the world understand recycling and plastic waste better than decarbonization. So the company developed the first toothpaste tube recognized as recyclable, to help reduce plastic waste — but which also reduces carbon emissions in production by more than 25% compared with the traditional tube.

VISION-LED LEADERSHIP

While these visionary approaches work to align a company's commercial and climate interests, they don't come out of a conventional strategy process or planning process. Instead, they depend on a leadership approach that reinforces and nurtures the commercial and climate alignment.

LONG-TERM CONVICTION

Climate action is fast-changing and full of unknowns. If you need to see a proven financial plan based on historical benchmarks before you act, you will be paralyzed. What is needed instead is not irresponsible guesswork but the conviction to get over the initial hurdle. As Thomas Lingard, global head of sustainability (environment) at Unilever says, "Leadership means doing bold things you're not comfortable with... The leadership role is showing what can be done."

Maersk was the first shipping company to place an order for a container ship powered by green methanol. Morten Bo Christiansen, senior vice president and head of energy transition at AP Moller-Maersk, says that the company felt a moral obligation to make the first move. Christiansen is proud that the company has been "courageous" and embraced the uncertainty. But he also makes the commitment sound straightforward, as it was not a decision for all time: "The only fuel we have deselected is fossil, and I can't see a world where

that's not a good decision. We are only deselecting the technology that can't solve the problem. The risk is that we end up with a 15% methanol fleet [if the world moves to another solution such as ammonia after only a fraction of the fleet has been replaced] — but a pure oil fleet would be worse." There is conviction and courage in Maersk's move, but it is also "prudent and risk aware."

The Maersk leadership conviction is large-scale but with a short timeframe. Other examples are more focused in scope but relentless over long periods. Schneider Electric chose sustainability as a differentiator 15 years ago, so has known for a long time that the sulfur hexafluoride (SF6) gas widely used in industrial circuit breakers (to quench the electric arc when the circuit is opened) is a potent greenhouse gas. An R&D program sustained over 10 years has developed a solution that achieves comparable performance, safety and cost without using the gas.

"The only fuel we have deselected is fossil, and I can't see a world where that's not a good decision."

SHARPENING PURPOSE

Fulfilment of a company's purpose can be a powerful internal motivator, and a support for leaders arguing for climate action that a conventional business case doesn't support. Several interviewees described their sense of responsibility as leaders of their sectors. Purpose alone is not enough, and not an alternative to considerations of risk, return and regulation. But it can help secure internal focus and belief. Chris Minardi, director of communications North America at Nexans, talks about the "clarity of a single-minded role" that Nexans has established for itself as a pure player in electrification, with the purpose to "electrify the future." At Johnson Controls, whose corporate purpose includes building "smarter, healthier and more sustainable tomorrows," Kezar says that "we have total alignment on the productivity and engagement opportunity of operational net zero; and we have in house the solutions to meet the challenge."

A purpose doesn't solve the problem, or allow investments that a company can't afford. But by answering the questions about why or whether, it allows teams to focus on how. Companies with this clarity can better accept short-term costs, and then deploy their teams on the familiar business challenges of working to reduce those costs as new options become available over time. Volvo Cars is open in saying publicly that "we're part of the problem."

So it's our responsibility to change what we do and how we do it." Stina Klingvall, climate action manager, accepts that near-term investment will be important for long-term success. And it helps to focus attention and metrics on your emissions hotspots — steel, aluminum, and batteries, in the case of Volvo Cars.

Sometimes the purpose is long established in the organization's DNA. At CBA, "ESG or sustainability are not new; it started long ago and was driven by our founders," says Leandro Campos De Faria, sustainability general manager. In other cases, the focus is newer but no less effective. "In 2013 there was not a word dedicated to sustainability in our 10-year strategic plan," says Anne Bolot-Gittler, chief sustainability officer at Thales. "Today in the 2030 plan, sustainability is one full pillar alongside people and profitable growth."

RETHINKING RISKS AND BUSINESS CASE

While conviction and purpose create a conducive environment, they are not enough to support climate action at scale. Investments of the required size and centrality to the business depend on a business case. As we saw in Chapter 1, conventional business cases often don't work. But companies have unlocked investment at scale by rethinking risk and what the business case needs to do.

We heard a wide range of arguments used to support investments at scale that would not convincingly generate a competitive financial return relative to the baseline of today's business. They can be broadly categorized as follows (see box for more detail):

- **Competitive differentiation:** Positioning to meet new demand from business customers.
- **Protecting revenue:** Investments to preserve the company's license to operate as stakeholder expectations change.
- **Enabling revenue:** Investments without which some of the value-creating visions described earlier would not be viable.
- **First mover advantage:** Investments to learn, demonstrate and lead.
- **Anticipating or influencing regulation:** Take action to remain competitive in the face of future regulation or carbon pricing.
- **Delegating investments:** Impose decarbonization requirements on the supply chain.
- **Avoiding stranded assets.** Move forward to avoid being left behind.
- **Filling the return gap.** Structure or fund an investment that gets an innovative solution to a tipping point, making a non-commercial solution commercially viable.

Bases for a business case, beyond a typical return on investment

COMPETITIVE DIFFERENTIATION

Positioning to meet new demand from business customers. For many of our business-to-business interviewees, differentiation on sustainability is becoming a commercial opportunity at increasing scale. Sodexo's Sochnikoff, for example, says that "there is no sustainability strategy. Sustainability is the strategy." The Sodexo approach is an all-in, brand-led model of what the company wants to be: a market-maker in sustainable food. This competitive opportunity is rarer for consumer-facing businesses, with the exception of the automotive sector. BMW Group's Becker says of the 100%-electric target for the Group's MINI and Rolls Royce product portfolios, "We think this shift will attract new customers instead of losing some."

Sometimes the demand needs to be stimulated first. Braskem's commercialization of biopolymers got off to a rocky start. Then it started marketing directly to brand owners, as opposed to plastic converters, by advocating the value perception that end users would have of a carbon negative product. This created a market pull for their products, not just a supplier push.

PROTECTING REVENUE

Investments to preserve the company's license to operate as stakeholder expectations change. BHP invests in collaboration partnerships with its steelmaking customers to explore multiple potential pathways toward deep decarbonization, such as carbon capture and/or utilization technologies. These investments are important to the decarbonization ambition in the conventional steelmaking route that is expected to continue even as the steel industry invests in alternative technologies. The abatement achieved by steelmaking customers would translate positively for BHP's iron ore and metallurgical coal businesses in a reduction to BHP's Scope 3 emission inventory, while the company continues to serve a hard-to-abate sector during its transition. Rodrigo Lauria, director of climate change and carbon at Vale, makes a similar argument: "Mining is necessary and will have a role, for materials for the energy transition and for decarbonizing steelmaking. But it needs to be responsible mining — low carbon mining."

ENABLING REVENUE

Investments without which some of the value-creating visions described earlier would not be viable. For example, Siemens and Johnson Controls apply their decarbonization services to their own businesses, for credibility as well as for climate impact. "The things we do for our customers, we are doing for ourselves," says Matt Helgeson, head of sustainability at Siemens USA.

FIRST MOVER ADVANTAGE

Investments to learn, demonstrate and lead. Though there are risks to going first, it can give you first choice of partners, access to limited resources (skills, materials, green energy), provide the data and experience you need for a more robust business case, and establish you as a leader in the space. Mischa Repmann, senior sustainability risk manager at Swiss Re, describes the challenge in insurance: "If you believe in something new, there is value in riding the top of the wave. That value is a bit hidden for insurance: If you're the first out on new risks, chances are that you collect the first losses. It seems better to wait and see. But you then also miss the chance to better understand the new risks, price them properly and come out profitable in the end. So you better go test the waters, e.g. by running sandbox insurance pilots."

ANTICIPATING OR INFLUENCING REGULATION

Take action to remain competitive in the face of future regulation or carbon pricing. Many companies cite preparedness for future regulation, whether that's about prohibitions or a price on carbon, as the basis for their business case. James Close, head of climate change at NatWest Group, points out an organization can do this both as a policy taker, predicting where the world is going, and as a policy shaper, influencing that direction. "It's important to be a policy shaper together with others," Close argues.

DELEGATING INVESTMENTS

Impose decarbonization requirements on the supply chain. Setting targets for others in your ecosystem can avoid the need to make a business case, because there is no explicit investment to justify — just a change in policy. But mutual dependency means that some kind of investment may also be required. "Suppliers make up the majority of Scope 3 emissions, so managing them requires a close partnership with suppliers, especially the high-risk ones, and a combination of policy changes and investment in decarbonization measures," says Robert McCann, head of environment, climate and nature at Virgin Media O2. The business case for this investment is helped by the demands from customers further along the value chain. "Climate performance can account for up to 20% of an overall score in

bids and tenders from our B2B customers," says McCann. "And they are looking for contract-specific data and commitments, not just company-level." The implication will likely be a cost increase, as suppliers have to adapt to the new requirements — but not necessarily a net increase in overall costs. Salesforce was an early mover in requiring its suppliers to take various climate actions as part of their contractual obligations to the company — and also in supporting them to do so, back in 2021.

AVOIDING STRANDED ASSETS

Move forward to avoid being left behind. This is the flip side of the first-mover advantage: the fear of being one of the last movers, stuck with worthless assets, and struggling to catch up with competitors that are further down the learning curve and have access to the best partners, skills and resources. NatWest's Close says that this thinking can help fund the transition: "If we get comfortable that, for example, green steel is lower risk than potential stranded-assets steel, we should be able to lend to the green steel to fund that transition. And if we can do it with senior debt, then we can reduce the cost of capital and make the differential [cost] reduce more quickly, building scale and leading to positive reinforcing feedback." In some sectors, a challenge to this approach is that new technologies could also become stranded assets, if companies bet too early on technology solutions that don't win out over time.

FILLING THE RETURN GAP

Structure or fund an investment that gets an innovative solution to a tipping point, making a non-commercial solution commercially viable. Tim Whitehead, vice president in the sustainable finance group at Goldman Sachs, observes that scale happens where the economics make sense: "Economics is like gravity, pulling capital into the ecosystem where risk-return tradeoffs are balanced." So we need to "create incentives to move up the hierarchy of climate impacts" beyond today's incremental approaches. Sometimes this can be done by de-risking how an initiative is structured, for example by using long-term offtake agreements to guarantee demand ahead of investment in supply. Catalytic capital can target the limited amount of available philanthropic or concessional capital to a point where it can help get a solution to a commercial tipping point, where private capital can be deployed at scale.

2.2 CREATIVE DESTRUCTION

Approaches that build as well as reduce

PROPOSITIONS THAT CREATE VALUE

Companies achieving climate action at scale recognize and pursue both aspects of the creative destruction needed to realize their vision. It's not all about reduction. It's also about renewal — of the business, the industrial sector it operates in, and the broader economy. They build as well as reduce. The reductions then become commercially palatable because of the new value creation that comes with them.

We heard about a wide range of value propositions that companies have developed. Broadly, they fall into three groups: offerings that grow the share of low-carbon solutions at the expense of higher-carbon alternatives; those that earn a premium through low-carbon solutions customers will pay more for; and propositions that save money through operational efficiencies, usually in energy but also in people and materials.

LOW-CARBON SUBSTITUTION

If aluminum can provide a low-carbon option for packaging, the reward for the producers of aluminum containers would be a huge growth in their addressable market. The opportunity comes from the potentially exponential environmental gains from using circular aluminum: If you get to recycle all the material in a closed loop, then the same material can circulate almost indefinitely. Moreover, energy costs in each cycle will be

relatively low because of aluminum's lightness and low melting temperature, compared with competing substrates such as plastics and glass.

To make this happen is partly about capital investment — Ball Corporation has recently invested in a new state-of-the-art rolling mill in the United States with remelting capacity, with which it will enter into a longterm supply agreement — but also means putting together the whole ecosystem. In Ball Corp.'s experience, the 90%-plus recycling rates needed are achievable, but require critical regulatory support. Winning the support of the direct customers who sell the packaged food and beverages, as well as the acceptance of end consumers, is also obviously essential.

Sodexo's rebalanced meals are another example of low-carbon substitution, positively differentiating the company's offer from its biggest competitor. Pernod Ricard has invested in EcoSPIRITS, a Singapore-based venture that aims to reduce single-use glass and eliminate packaging waste in the distribution of premium spirits to bars, restaurants and hotels. It does this through a system of reusable, sealed, and hygienic containers that doesn't compromise the experience for the consumer.

**It's not all about reduction.
It's about renewal.**

LOW-CARBON PREMIUM

In some cases, producers can get paid directly for their low-carbon solution as a price premium for a “green” variant of what is in the market. Nucor is introducing a specification through Econiq™ for a lowest-embodied-carbon steel, reflecting the value to, for example, automotive customers wanting to sell cars that are low-emission in their manufacture as well as at the tailpipe. Brazil’s CBA does not yet charge an equivalent premium for its Alennium low-carbon primary aluminum. “A price premium might be something in the future, not a reality right now,” says CBA’s Campos De Faria. “There are signs customers will pay a premium. Some clearly show they are preferring low-carbon aluminum alternatives, but it is still early stage. The speed at which demand grows will determine how long it will take for these premiums to be a day-to-day reality.” Braskem has branded its carbon-negative, sugar-cane-derived biopolymers, with its “I’m green” working as an ingredient brand intended to drive demand from consumers, increasing product appeal.

Companies wanting to meet their 2030 targets may be prepared to pay such premiums and should value solutions that help them to achieve their goals. Morten Bo Christiansen, senior vice president and head of energy transition at AP Moller-Maersk, explains why consumer-facing businesses are choosing to pay a green premium for shipping powered by green methanol rather than fossil fuels. “A company has set its target. We

are part of how they achieve it. Shipping will be at the expensive end of the abatement curve. But we are making it easy. You can get two percentage points of your emissions reductions at the stroke of a pen.” Christiansen is confident that customers will come, given the commitments that they have made in line with the Science Based Targets initiative (SBTi). They will come “like ketchup out of a bottle”: all of a rush, but with the timing hard to predict in advance.

A practitioner in a different sector put it more bluntly: “Our customers are going to be desperate enough.”

EFFICIENCY SOLUTIONS

In the International Energy Agency’s scenario for achieving net zero emissions by 2050 (its “NZE” scenario), the average appliance in use will need to consume 25% less energy by 2030 compared with 2020, and all new buildings will need to use 50% less energy for heating and cooling. Solutions that help improve energy efficiency can therefore be attractive ways for customers to achieve their decarbonization goals, as well as to save money on energy costs.

Some efficiency solutions show up as reductions in a provider’s Scope 3 emissions — for example, when Johnson Controls improves the operating efficiency of an air conditioner, or Salesforce writes more efficient code that requires less capacity

and less electricity in a data center. But the tech sector, in particular, is beginning to offer impactful efficiency solutions that help customers avoid emissions. They create measurable reductions in Scope 1, 2 or 3 emissions for the customer, but don’t show up in the provider’s Scope 3. Thales, for example, has developed an air traffic control system that can optimize aircraft routing to reduce emissions and avoid leaving contrails, which have a particularly strong greenhouse effect. The system can help to reduce a commercial flight’s effective emissions by 10% to 20%.

BT Group’s Ginér says that customers are increasingly asking, “Show us how your product helps us to reduce our footprint.” BT Group is a member of the European Green Digital Coalition, which is developing use cases for how connectivity can help to avoid emissions. Virgin Media O2’s McCann cites examples in smart grids, integrated renewable energy systems, optimized supply chains, and 5G for autonomous vehicles. To support investment it is important to show the returns, by measuring the enablement effect of connectivity and connected technology across the different players in the ecosystem and policy landscape. The challenges common to all metrics for avoided emissions metrics are ambiguity over what has been avoided (relative to which alternative scenario?) and the need to apportion the benefits among different players in the ecosystem.

“The thing that really works is embedding decarbonization in what guides decision making, which is the capital allocation process.”

CAPABILITIES THAT CREATE VALUE

Looking inside their organizations, how do businesses put all these approaches into practice? We heard stories of new operating models, new skills, and new approaches to procurement.

NEW OPERATING MODELS

The focus in many companies we talked to is on integration, bringing climate considerations and climate action into the core of the business. Virgin Media O2's McCann is among several interviewees emphasizing that the climate agenda is everyone's responsibility. In Virgin Media O2's case, it is managed through the company's objective setting process and systems. "We [the sustainability team] don't always have to be in the room, as delivering our ESG strategy, the Better Connections Plan, is up to everyone in the company. Colleagues in commercial functions are also seeing sustainability and particularly climate change as part of the mainstream trends, risks and opportunities that inform and shape strategy." The transition to mandatory reporting in the United Kingdom and European Union will reinforce the business awareness and pressure.

NatWest's Close finds that much of the value of a transition plan is how it "makes obvious what needs to be done," and specifically that "you have got to combine capital and carbon" in one integrated approach.

"We've tried incidental decarbonization; we've tried ringfence funds," says Fiona Wild, group climate and sustainability officer for BHP. "The thing that really works is embedding decarbonization in what guides decision making, which is the capital allocation process." Integrating carbon metrics in this way not only aligns agendas but ensures that thinking about decarbonization is thought about early on in an initiative, bringing ideas forward.

Volvo Cars achieves a similar dynamic by setting an ambition carbon target for an entire car at the conception of its development program. This target then becomes part of the engineering challenge for the project team, as they look for the best solution. This could involve deciding where to invest in order to meet the set target or finding out whether current or new partnerships can build new solutions.

Engie builds a carbon budget into its three-year planning cycle. "This drives radical change," says Julia Maris, Engie's chief sustainability officer. "By doing so, you create real strategic alignment. Business is given both financial and CO2 objectives and is incentivized on both. It changes the mindset and CO2 becomes a key component of the decision-making processes." Nexans' Minardi uses an American football analogy: Accountability is distributed, with different people playing distinct roles — but in a team, not in silos, with the chief executive as quarterback.

Maersk's Christiansen emphasizes that his team is "not a corporate sustainability team, we're an execution team." The team has direct responsibility for fueling the Maersk fleet, which is an \$8 billion operation. Of his 200 people, 120 manage the fueling of today's ships, and 80 are in the transformation function, exploring technology options and establishing partnerships.

The exceptions we found to this drive for integration happen when a new venture, complementary to (but not competitive with) the core business, needs nurturing. Vale, for example, has separated out its Energy Transition Metals business — principally mining copper and nickel — into a separate entity with external shareholders to accelerate the growth of the energy transition metals business, while the core business is focused on the creation of iron ore solutions to help decarbonize steel production.

NEW SKILLS

Clearly, the diversity of new business approaches described thus far will require new skills in the organization. Some of the need is for new analytical skills, to measure and respond to the new carbon accounting not only in the organization itself, but up and down the supply chain. This may also involve new advisory skills, to exploit the opportunities for new collaborations with customers and suppliers. Transparency along the value chain is not just a matter of data access: It is only useful if you have people who understand

the processes happening at each stage, and so how to interpret the data and contribute to lower-carbon ways of working.

Looking up the supply chain, food companies are building knowhow in regenerative agriculture, while steel companies are doing so in alternative ores, whole new steelmaking processes, and new energy sources including green hydrogen and nuclear power generation. Looking down the chain, banks need to understand their clients' carbon exposure and decarbonization pathways alongside their credit risks. Tech companies need to understand and design solutions for the efficiency use cases described earlier. And software companies need to learn how to design tools for small businesses that lack the resources or attention to focus on climate action.

Much of the reskilling needed at an operational scale is in support of new technologies and the new business opportunities we have been exploring. Sodexo's low-carbon-meal strategy provides one of the clearest examples. The company has 400,000 people working across thousands of autonomous client sites, and on-site teams need to be reskilled to understand the carbon impact and chefs to become low-carbon meal-minded, as they plan menus, buy the right ingredients, and cook.

While several interviewees cited skills and competencies as a factor limiting climate action, the positive side of reskilling is that it gives the companies taking a lead a competitive advantage that is hard and slow to copy.

NEW PROCUREMENT APPROACHES

As the forces of creative destruction shift the sources of value in an industry's ecosystem, using procurement is a critical lever to exert influence up the supply chain. In particular, procurement can be an effective way to reduce Scope 3 emissions, by setting the expectations and delegating the operational implications to suppliers — delegating investment, as we described earlier (p21). In practice, more is required than simple delegation. Salesforce has found, for example, that some of the supply chain companies it most wants to encourage for social reasons, such as small businesses led by women or minorities, may not have the carbon data needed to meet Salesforce's procurement standards. The full benefit of new procurement approaches come from collaboration, not just delegation.

In addition to converting its internal fleet, La Poste is supporting the decarbonization of its (generally smaller) suppliers with their own transport, for instance as part of the company's

last-mile solutions. La Poste offers mobility solutions such as leasing of electric vehicles and installing charging infrastructure. It also beta-tests new technologies and even commits to long-term purchasing agreements to reduce the uncertainties over new technologies such as hydrogen. "If we don't invest, who will?" says Stéphanie Dupuy-Lyon, chief sustainability officer.

One impact of the decarbonization propositions described above is that some previously commoditized businesses become decommoditized. We have described this as a positive trend, creating value for the providers, as their offerings become more differentiated. But it is also a vulnerability for the B2B customers, which may find themselves unable to buy — at least at the price they expect — the inputs that their businesses depend on. If we succeed at climate action at scale, then at least in the near term the world is likely to be short (relative to demand) of numerous commodities: copper, steel scrap, green primary aluminum, circular aluminum, sustainable aviation fuel, renewable electricity, green hydrogen and sustainable agricultural produce, to name just some of those discussed in our interviews. Strategic partnerships that secure access to critical materials and involve a business in their innovation and future development become a core part of the approach to procurement. "You have to accept the cost of green materials, it's increasingly a prerequisite," says Schneider Electric's Avise-Huet.

EXAMPLE:

Sodexo

In conversation with Patrick Sochnikoff,
Group Senior Vice President for
Corporate and Social Responsibility

VISION

“Most of our clients are engaged towards emission reductions and are helping us rethink how to transform our business. The key differentiator of Sodexo versus our biggest competitors is sustainability. It’s a fact and a choice that has been made by the Board.”

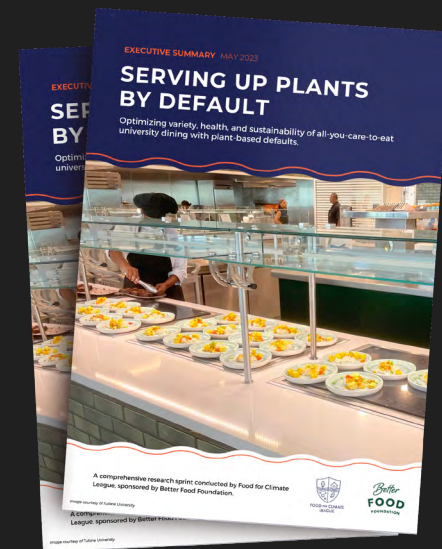
CREATIVE DESTRUCTION

Sodexo recognizes that ultimately net-zero goals will require big changes to the agricultural supply chain. Like the big food groups, Sodexo can help drive the shift to regenerative agriculture. The company wants to “leverage its supply chain” but has not yet found the right business model: “Sustainable agriculture is not obvious today. We are in a process where we are putting the pieces together. We want to accompany and to play a role upstream, but the most efficient way to do so is not yet proven.”

BOLD TACTICS

In the meantime, to achieve its 2030 targets, Sodexo is focused on “Low carbon meals”: shifting the balance of the consumer’s plate from animal to vegetable proteins. The decarbonization potential is substantial: “70% of our US supply chain carbon footprint was linked to animal-based product purchases in 2020.”

There are both environmental and economic interests, as the source proteins have generally less environmental impact and are cheaper, but the operational switch is daunting. Thousands of chefs in distributed client sites need to be retrained in how they plan meals, buy ingredients, and cook them to make them delicious, nutritional, affordable and sustainable. While clients value the decarbonization benefits, the end consumers must also value the food choices. “Strong cultural gaps force us to adapt to local consumption patterns, and this is a challenge when local units operate independently with their own P&L”.



“On days when the plant-based dish was served as a default option, we observed a 23.6% reduction in food-related greenhouse gas emissions.”

Source: Food for Climate League, in a study sponsored by Sodexo among others

2.3 BOLD TACTICS

Moving ahead without committing to unknown futures

COMMITTING TO OUTCOMES, NOT SOLUTIONS

Climate action at scale requires big shifts. These are not just operational efficiencies and enhancements, but whole new business designs to enable the circular economy, provide decarbonization solutions to customers, and embrace the opportunities of new technologies. But the degree and breadth of change makes it hard to commit to those shifts. What if a different technology wins out, or the enabling regulation gets delayed or watered down? What if too many competitors move at once, raising input prices beyond what your business plan assumed? Or too few competitors move, so you end up taking on the first-mover costs and risks that others can avoid, making your solution uncompetitive?

The challenge companies face in this context is the following: How can you make the big advances you need to achieve your transition plan, without being tied rigidly to specific approaches that may or may not prove to be the most attractive? It's a delicate balance. Bold strategies may be too much of a bet on unknown and unknowable futures, creating a new category of stranded assets. But bold tactics can deliver both progress and flexibility: You commit to the outcomes in the plan, but remain open to different ways to achieve them.

TECH INVESTMENTS THAT DRIVE FOLLOWERSHIP

"Everyone wants to be in the pack," says Unilever's Lingard. "And they want the pack to move faster." That means that what looks like a high-risk move "becomes plausible if everybody does it. We're often surprised by people following."

Maersk had the same experience with its investment in ships powered by green methanol. After Maersk made the initial move, Christiansen says that competitors have now ordered more than a hundred container ships power by green methanol. The initial moves required courage given the uncertainty over the fuel that would be available around the world, but followership from competitors should now drive the investment needed by the fuel suppliers.

Bold tactics can deliver both progress and flexibility.

BHP has voluntarily set targets and goals in its effort to decarbonize its mining operations and is supporting them with significant investment. This includes initiatives to electrify its massive haul truck fleet to reduce its Scope 1 emissions and partnering with customers to advance critical initiatives towards reducing Scope 3. How can it do this and remain competitive? “Because we are not doing this in a vacuum,” says BHP’s Wild. “Our peers are also trying to find ways to decarbonize. The ecosystem has changed; financial expectations have changed. All that is changing the context in which you’re making decisions.”

DRIVING THE SUPPLY CHAIN

When companies experience strong B2B customer demand for decarbonization, but no demand from the consumer at the end of the value chain, that indicates that their B2B customers are seeking to make progress in their decarbonization goals through their suppliers — by demanding, but also collaborating.

The demand from car-makers for green steel is felt all the way through the supply chain. It is helping to drive decarbonization in steelmaking, but the interaction is complicated by the scale of the task. “Steel is on the cusp of a very big transformation,” explains Volvo Cars’ Klingvall. “It takes time because of the scale of transformation required. We need to send a clear demand signal for low-emission materials. At this early point, we don’t see that green steel is available in all

automotive grades, but we need to get there. To complement green steel [from iron ore], Volvo Cars is exploring steel with higher percentages of steel scrap.”

One approach to green steelmaking uses electric arc furnaces to process either steel scrap or direct reduced iron. Mills using this approach are inherently low-carbon compared with traditional steelmaking. But they are huge consumers of electricity, so to get towards net zero they need to source carbon-free electricity on a massive scale. Nucor, the world’s biggest operator of electric arc furnaces, used to be simply a customer (albeit an important one) of the local electrical utilities. In its pursuit of decarbonization, Nucor has already become more active in driving its electricity supply chain through power purchase agreements; now, with nuclear tech company NuScale, it is exploring a strategic partnership in which NuScale plants provide carbon-free electricity for Nucor mills, and Nucor mills provide Econiq net-zero steel for NuScale nuclear plants.

“In regenerative agriculture, it’s a win-win, and this is where we are scaling,” says PepsiCo’s Barbieri. “You can estimate in a quantified way the yield benefits to the farmer, so it aligns with their business interest.” PepsiCo has committed to a seven-year partnership (“not coincidentally” reaching to 2030) with ADM, a nutrition and agricultural supply chain business that has put sustainability at the core of its own

competitive strategy. The partnership aims to expand regenerative agriculture to 2 million acres of farmland, working initially with corn, soy, and wheat farmers in Kansas, Minnesota, Iowa, Illinois, Indiana and Nebraska.

COLLECTIVE DEMAND AND SOLUTIONS

Although much of the dynamic that makes the creative destruction work is competitive, collaboration and collective action play a crucial role in building scale. The First Mover Coalition and the Climate Group's various "100" programs work to aggregate and then signal collective demand, so that the supply industry has confidence in investing to meet it.

The need is clearest where many companies are trying to solve the same non-core problem at the same time. This is the case when BT, Siemens and others are each working to electrify their vehicle fleets and find electric solutions for specialist vehicles (the role of EV100). The same applies with sourcing renewable electricity (the role of RE100, and in the US the Clean Energy Buyers Alliance) or helping to finance the growth of sustainable aviation fuel (the Sustainable Aviation Buyers Alliance).

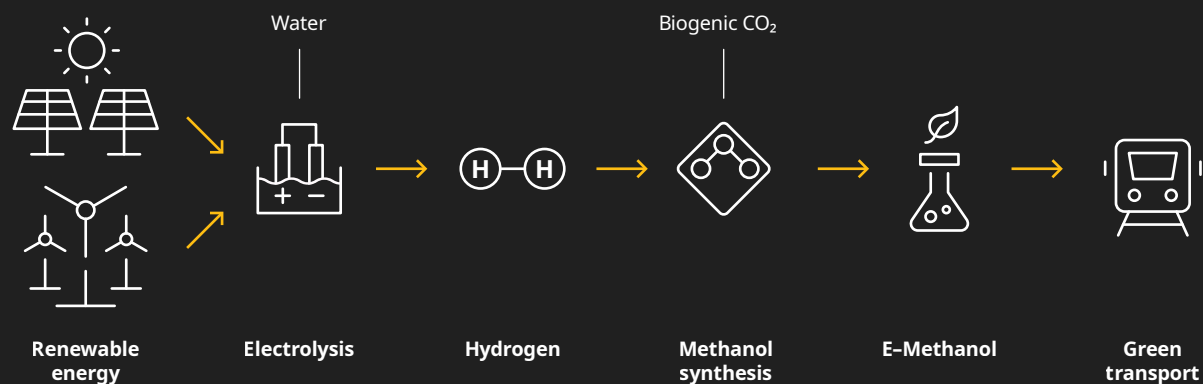
For new ecosystems, a collective commitment from complementary players is critical to get the wheel spinning, particularly to drive the circular economy. This is what Nucor and others have built in steel, Nexans is seeking to drive in copper,

and Ball Corporation in aluminum. Ball Corp.'s circularity and aluminum decarbonization advocacy are focused on the bigger goal of maximizing the opportunity for the aluminum sector overall, in the belief that companies rely on each other's pathways and there is a process of co-creation and co-learning, especially across the value chain and through conversations with governments.

Many companies cite standards as an important way to de-risk investments. These can be a way to approach decarbonization itself, as with initiatives such as SBTi, the Taskforce for Climate-related Financial Disclosures (TCFD), and the Glasgow Financial Alliance for Net Zero (GFANZ) and its various constituent alliances. They can also add clarity and certainty to investments within specific industries, such as by standardizing the definitions and grades of green steel.

EXAMPLE:**AP Moller-Maersk**

In conversation with Morten Bo Christiansen, senior vice president and head of energy transition

Exhibit 7: Producing e-methanol as a green fuel for shipping

Source: AP Moller - Maersk

VISION

Maersk feels an obligation as an industry leader to lead the move away from fossil fuels for shipping. While the future choice among alternative fuels is still unresolved, Maersk has embraced the uncertainty. “The only fuel we have deselected is fossil, and I can’t see a world where that’s not a good decision.”

CREATIVE DESTRUCTION

While low-carbon alternatives are higher cost — currently by a factor of two — they also differentiate Maersk’s offer to customers. Customers choosing to pay the green premium can reduce the Scope 3 emissions from their global shipping — a potentially attractive proposition for the consumer brands shipping goods around the world compared with what other shippers can offer. “A company has set its target. We are part of how they achieve it. You can get two percentage points of your emissions reductions at the stroke of a pen.”

BOLD TACTICS

In 2021 Maersk ordered its first methanol-powered vessel, taking a bold bet to replace part of its fleet with e-methanol ships. But this is not a forever choice: “This is the solution for now.” The risk was in whether the fuel would be globally available, but already several competitors have followed Maersk’s lead. “Now there are over 100 container ship orders; we have four competitors now aligned. The chicken has met the egg.”

MAINTAINING FLEXIBILITY

The common theme in the stories above is how companies have found ways to make substantial strides forward without locking themselves into bets on how the future will be in 2040 or 2050, given the number of moving parts there are and what is still unknowable. We heard about some consistent, pragmatic mindsets that help to navigate that course.

SOLVING FOR ONE GENERATION AT A TIME

Maersk is delighted that other shipping companies have followed its choice of green methanol, creating a scale of demand that is attracting fuel suppliers into the market. But Maersk's Christiansen is clear: "This is the solution for now." It comes from a self-described "bias for action," "embracing the uncertainty." "You can't forecast what the price of different fuels will be in 2040. This is something that works for the next five to seven years." Yes, ships last, and so "you're stuck with the decision for 20-plus years. But that means you are replacing 5% of your fleet each year. So you renew it with the best solutions you can find at that time."

Volvo Cars also solves for one generation at a time. "What is available is evolving over time," says Volvo's Klingvall. "For each new car program, we set a carbon emissions target for the entire car. Then we break this target down, to say this part

must be at x in year y. Engineers and buyers then work together to find the concepts or solutions to meet the set target. Similar to costs, if emissions are exceeding the target on one part, then they need to be reduced somewhere else."

La Poste has a target energy mix for its logistics business for 2030, developed based on the data and technology available at the time. This provides a base case that allows the organization to meet its 2030 goals, "even if we have to make big and costly decisions," says Dupuy-Lyon. But as technologies and prices evolve, "we will change the energy mix. The weights of the different energies can vary a little. We take positions that are reversible."

FOCUSING ON KEY BREAKTHROUGHS

Companies can fall into a trap if they constantly change direction in response to how fast the environment is moving, and so do not follow through. "Expectations are always changing so you can't just be reactive," argues BHP's Wild. "And you can't always optimize for everything, otherwise you'd do nothing. You need to know the focus. You have to determine the priorities and go hard on those." For BHP, those priorities are greenhouse gas emissions from power (electricity and diesel, particularly) and fugitive methane in the company's own operations, as well as how the company can support value

chain (Scope 3) emission reductions, such as in steelmaking and shipping.

Nexans' Minardi accepts that the business has to adapt to changing realities, such as the effect that the cost of borrowing has on the pace of investment in offshore wind. "Risks and adaptation are the normal way of business. But this doesn't derail us from the mission. Timeframes may change, but the goal doesn't change."

As we saw earlier (p18), it took Schneider Electric 10 years to find a switchgear design that worked competitively without using SF6, a greenhouse gas. The company persisted, because it knew the importance to the climate performance of a core product in its portfolio.

ArcelorMittal is investing in multiple alternative breakthrough technologies in steelmaking. Brad Davey, executive vice president and head of corporate business optimization, lists the multiple bets. First, ArcelorMittal is focused on maximizing circularity to the extent that scrap is available. The company has been actively adding scrap recycling firms and electric arc furnace capacity to utilize the ever increasing scrap. However, because the company projects that circularity is likely to meet only approximately 50% of 2050 steel demand, it is investing in three pathways to decarbonizing primary steelmaking. "Smart carbon" is based on the established, carbon-based reduction of iron ore but aims to reduce emissions,

through using partially non-fossil sources of carbon, through capturing and using the carbon dioxide produced, and through gas injection/recirculation. “Innovative DRI [direct reduced iron]” aims to use green hydrogen, in place of today’s natural gas, to reduce the iron ore to iron, and then electric arc furnaces to make steel from the iron. This approach has the potential to produce net-zero steel, but it depends on abundant future supplies of carbon-free electricity, and of green hydrogen — which itself depends on carbon-free electricity. Finally, “direct electrolysis” is an all-electric approach that aims to extract iron from iron ore through electrolysis, then (as above) turn the iron into steel with electric arc furnaces. “It’s less advanced today,” says Davey, “but it has the potential to use the least amount of energy in the most energy-intensive step.”

Similarly in cement, Votorantim Cimentos focuses on three big potential breakthroughs, each with expected positive outcomes. It partially substitutes clinker (which is produced from limestone in an energy-intensive process) with available materials that are by-products from other industries and sectors. The company also substitutes fossil fuels with biomass and other alternatives, such as municipal solid waste and refuse-derived fuel. And it is deploying carbon capture and storage. Alvaro Lorenz, global director of sustainability, institutional relations, product development and engineering, explains that the challenges are technological and operational (will there be sufficient sites available and approved for carbon dioxide storage once captured?), as well as economic. “This is going to make the cost go up — at least doubling. Depending on the region, this may impact construction costs, and green-premium markets are not there yet, despite sustainable products portfolio on offer.”

OPTIMIZING LOCALLY

Geography is a dimension of flexibility mentioned by several interviewees. One reason that ArcelorMittal is pursuing all the different steel decarbonization pathways described is that what works best may vary by region. This is partly because of different availabilities of green energy (particularly electricity and hydrogen), steel scrap, and storage sites for carbon sequestration. It also reflects local demand for green steel, which is driven both voluntarily through customers paying a premium and by governments introducing procurement standards and new regulations for buildings, vehicles, and other factors. Vale is looking for concrete solutions to reduce operational emissions. In Brazil, biofuels in general and the nature-based solutions agenda have a more central role to play in the transition paths.

Localization doesn’t stop at the country level. Veolia’s Duval-Huwart highlights the importance of municipal regulation affecting what Veolia can and cannot do, particularly where climate action needs to be optimized alongside other environmental goals, as is the case with innovations in the incineration of hazardous waste. BMW’s Becker highlights the role of municipalities in stimulating the charging infrastructure that underpins the rollout of electric vehicles. Sodexo’s rebalanced menus have to be developed in the context of local tastes and locally sourced ingredients.

“Our peers are also trying to find ways to decarbonize. That changes the context in which you’re making decisions.”

EXAMPLE:

BHP

In conversation with Fiona Wild,
Group Climate and Sustainability Officer

VISION

Working to make mining more sustainable, including through the company's decarbonization efforts, is foundational for responsible growth and a future for mining that delivers long-term value for shareholders, partners, customers and stakeholders. This strategic insight provides the business rationale for embedding decarbonization in the capital allocation process that guides the company's decision-making. "We understand that growth is enabled when we also prioritize decarbonization solutions."

CREATIVE DESTRUCTION

BHP works with its steelmaking customers and other key players to advance abatement at progressive stages in its steel decarbonization framework. "For customers today, with existing [blast furnace] stock, it's about how to help them lower carbon emission intensity, within today's processes. In the near term, it's about tweaks to optimize those processes. In the transition phase, further abatement progress is likely to require major refits, substitution furnace technology or new build. Finally, as sections of the industry approach the stage where widespread 'near zero emission steel' production could be achievable, it's about a suite of potential technology options including different forms of iron ore [to produce Direct Reduced Iron] and new steelmaking process routes. Our collaboration partnerships in the steel sector play across all three."

BOLD TACTICS

BHP is working with steel customers in Asia to progress the technologies needed to capture carbon dioxide from their steelmaking. This is down the value chain from mining, but is part of the Scope 3 inventory that BHP reports from processing of its iron ore and metallurgical coal in steelmaking. BHP works to bridge gaps in the ecosystem to bring together players from the different industries that need to be involved. "One of the challenges in CCS is that people from different industries don't speak the same language. It's about finding clusters to bring people together, and we have a role to play in that. We can bring together different stakeholders."

Exhibit 8: Focusing on a few levers with big impact**Electricity**

For fixed infrastructure like plants, buildings and ship loaders and electrified transport.

Source renewable power generation.

Diesel

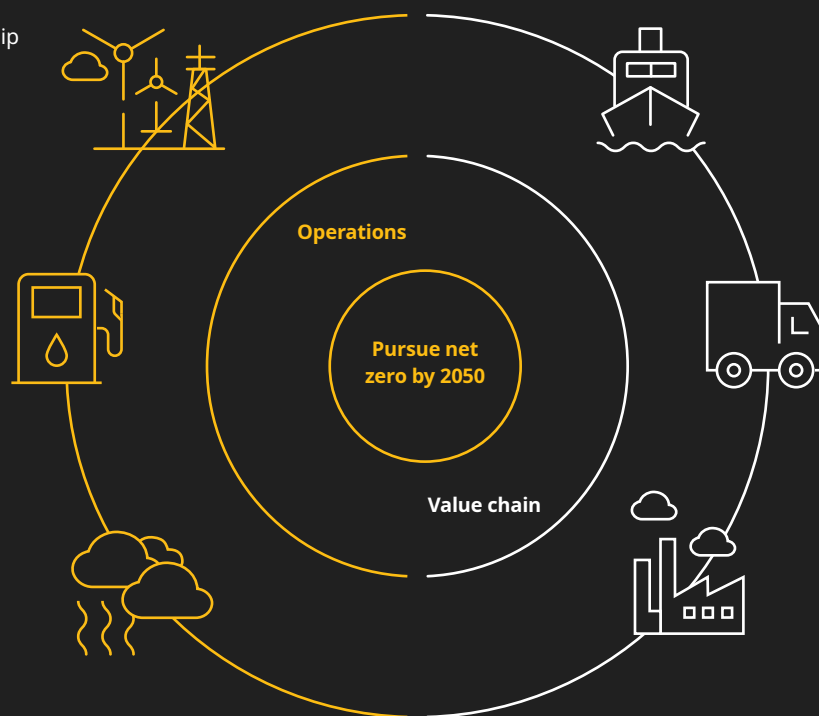
Haul trucks, light vehicles and trains.

Electrify and/or switch to lower greenhouse gas emissions — and partner with others on new technologies to get there.

Fugitive emissions

Coal seam methane released when we mine.

Improve our mine gas models to better forecast baseline fugitive emissions, then set out a plan to reduce them.

**Shipping**

The ships that transport our products.

Lead and collaborate with the shipping industry on alternative fuels and energy-efficient technologies

Suppliers

Where we get products and services.

Engage with suppliers and track and support their progress to reduce greenhouse gas emissions; and consider climate metrics in future supplier selection.

Steelmakers and other customers

The customers that buy and process our products, for example steelmakers that use our iron ore and metallurgical coal in steelmaking.

Partner with steelmakers and innovators to identify and support development of ways to reduce greenhouse gas emissions.

Source: BHP (as per the Responsible Steel International Standards 2.0 Performance Level 4 threshold)

03

SECURING THE FOUNDATIONS

Investors and governments hold the keys to success



In order to make progress, the business system has been working to synthesize a market for which there is little end-consumer demand. Given the enormity of that task, the companies we talked with have built up an impressive amount of self-driven effort and investment — not just commitments — over the past few years. But they face two limitations. One is the greater scale of the task ahead — the core theme of this report. The other is that the effort is built on two insecure foundations: continuing investor commitment and evolving public policy.

LITTLE CONSUMER PULL OR WILLINGNESS TO PAY

Almost none of the action we describe above comes from the normal driver of business activity: consumer demand. And none of our interviewees are expecting that to change. Unilever's Lingard is clear why we can't rely on consumer pull: Consumers are "busy, not as informed, don't have the same agency." He is equally clear that "we can sustain the pressure without the consumer."

Ball Corporation's ambitions for circular aluminum illustrate the more typical consumer "push". The plan depends on getting consumers happy with aluminum packaging — and getting the drinks companies and bottlers happy that consumers are happy. Then it depends on consumer behavior in returning the cans, which "won't cut it," says Ball Corp.'s Arratia, without regulatory pressure. "Consumer behavior is linked to the monetary value. That's the only way to get to 90% returns."

So in practice most corporate climate action is designed to work without any consumer intervention, even though ultimately in

consumers' interest. Where consumers are involved, the drive tends to come from the company more than the consumer. "There are some solutions where we have to engage the consumer to drive demand and adoption to realise the potential for carbon reductions," says Sonia Thimmiah, senior director of global sustainability at Heineken. "A good example of this is with re-use solutions, which drive both circularity and low-carbon outcomes, and here we need to bring the consumer on the journey."

"Our global consumer research shows that consumers are increasingly sensitive to how products are made and what brands stand for," says Vanessa Wright, chief sustainability officer at Pernod Ricard. "However, it doesn't seem to have reached the tipping point yet, where purchases are driven by sustainability and responsibility." Wright argues that it is nevertheless "our duty to use the power of our global brands to embark consumers on the journey."

Research by the Oliver Wyman Forum suggests that the above observations should not be surprising. Even what consumers say shows limited

commitment, let alone what they do in practice. The Forum's global consumer trends survey highlighted an emerging segment of "climate catalysts." These are a concerned group, of whom 80% say that climate change is a "threat to

Exhibit 9: Companies feel the most pressure from their shareholders and business customers

Which external stakeholders place the most pressure on your organization to undertake a climate transition?

Shareholders

60%

Business customers

54%

Company board/C-level executives

43%

Policymakers

38%

Employees

27%

Consumers

21%

Civil society

16%

General public

15%

Media

13%

Source: Oliver Wyman/Climate Group Climate Action at scale quantitative survey of corporate climate practitioners, n=173 respondents, July 2023

humanity's existence." Yet of these same people, only one in four say they would be willing to pay a premium of more than 10% for sustainable products and services.

The research we conducted for this report aligns with this picture. Companies feel the most pressure for climate action from their shareholders and their business customers. Consumers make a relatively minor contribution (see Exhibit 9).

INVESTORS ARE CRITICAL FOR PRESSURE AND SUPPORT

Investors are the number-one source of the pressure that organizations feel (see Exhibit 9). Business customers come a close second. But without consumers pulling from the end of the value chain, the business customer pressure can be seen as investor pressure on those businesses, channeled up the chain. This means that the pressure from investors is foundational.

Our interviewees reinforce the results of the survey. "When major institutional investors start asking for emissions data, it makes the business case even stronger," says Johnson Controls' Kezar. But the relationship with investors is complicated. Several interviewees cite "investor attractiveness" as an incentive to climate action, but almost none say that investors are prepared to accept lower returns as a result. Veolia's Duval-Huwart describes this as a "contradiction in the market," requiring the company and its

investors to be on a "collective journey" to resolve the tension.

We are at what Unilever's Lingard describes as a "moment of reckoning." Investors have encouraged and required companies to set sometimes ambitious emissions reduction targets for 2030, which are generally not explicitly costed. And they are continuing to pressure companies to meet those targets — without lessening the pressure on financial performance. "Investors are expecting a win-win," as one interviewee put it.

This tension works, because companies and investors both see where an industry is going, and want to avoid the risk of their company being left behind. That is why the jeopardy created by the forces of creative destruction is so critical. The temptation to be a free rider, postponing the transition until others have cleared the path and driven down the cost curve, becomes unappealing if it means losing your place in the ecosystem that emerges. "Investors haven't accepted that there are lower margins," one interviewee observed, "but over time [and across businesses] there will be an inflationary effect."

NatWest's Close draws analogies with previous technology transformations to illustrate what such a collective journey looks like. "It is important to understand whether the traditional, historical technologies will go up the S-curve quickly enough, and creatively adapt their business to models that can be competitive in the future.

Examples from other industries show that some may make it across, but most will not. This is very interesting for the shareholders and lenders, who need to identify who are going to be the long-term winners in this, and who are going to be the ones who ultimately lose. Pricing of this is very challenging, because you need to understand not only what the business model is today, but what the potential business model is going to be in the future... If we can enable our customers' transition plans by mobilizing capital to help them to win the transition then there is a much better alignment, with our customers being in much better spot."

One need is for investors to recognize and support companies that contribute to the climate agenda through the way they help drive decarbonization in the overall system, rather than focusing just on their own emissions. BHP's Wild describes the challenge in mining, as the company contributes by growing the supply of metals critical for the energy transition, such as copper and nickel, while also working to meet its target and goal for reductions in its own absolute greenhouse gas emissions and supporting the emission reduction efforts of its customers and suppliers. Veolia faces a similar challenge. "We have this debate with investors," says Duval-Huwart: "You want a green company, but you don't take into account how we help the world to be greener."

"Investors haven't accepted that there are lower margins, but over time there will be an inflationary effect."

BUSINESS CASES ANTICIPATE INCENTIVES AND REGULATION

Companies and their investors have worked something close to magic to try to align carbon goals and financial goals, making possible the wide scope of climate action we have described. But in the absence of regulation — including the expectation of regulation — they would indeed have to depend on magic.

Today the contribution from policymakers is insufficient. Policymakers show up in Exhibit 9 as a moderate source of pressure — higher than in a similar survey we conducted in 2022, perhaps reflecting significant regulatory and policy moves in Europe and the United States over the past year. Our interviewees are particularly clear on the essential role regulation and policy need to play in enabling climate action at scale, and on what is missing today.

The primary appeal from companies is for policy initiatives that make climate action affordable for companies in competitive markets. To give just some examples:

- "Carbon is the cheapest fuel. Alternatives will be higher cost. So we need policies for a fair and level playing field," explains ArcelorMittal's Davey. "Today, projects are slow off the mark because there is limited ability to get paid for them. We won't hit our targets just on our own — and no-one should be surprised at that: That's why we are 'hard to abate.'"
- "There is often still a real cost difference in procuring sustainable materials," says Ingka Group's Henzell-Thomas. "To help the industry move forwards with the sustainable business transition, we need enabling policies and frameworks to help lower the cost for more sustainable materials, for example taxation on carbon."
- "This doesn't happen without regulation," says Unilever's Lingard. "We need high-ambition NDCs [Nationally Determined Contributions under the Paris Agreement]. We need agricultural subsidies to encourage the right sort of farming."
- "If there is a carbon price regulation, all the actions and trade-offs will be clearer," says Vivian Mac Knight, climate change manager at Vale.

“We won’t hit our targets just on our own — and no-one should be surprised at that: That’s why we are ‘hard to abate.’”

- “It’s important to remember that governments need to help to make this work,” says Votorantim Cimentos’ Lorenz. The company is exploring carbon capture ventures in Spain, as a direct result of the EU’s Innovation Fund.

Beyond incentives and regulation, industrial policy can help foster industry-wide initiatives to build a business system that is structurally lower in carbon. Examples are the shift to battery electric vehicles (from materials sourcing to charging infrastructure) and the transformation of steelmaking, which has significant implications for, and dependence on, the local supply of renewable electricity and green hydrogen.

Consistency is vital for companies looking to make long-term investments. “Regulation has a clarifying role, says Goldman Sachs’ Whitehead. “Longterm policy can help unlock the private capital needed.” Volvo Cars’ Klingvall makes a similar point: “It’s critical that regulation keeps up. If policy starts to roll backwards, we are in a terrible situation.” As we saw in our survey in Exhibit 4 (p9), for companies investing more than 10% of their capital expenditure in climate action, “lacking clear targets and/or policies set by authorities” becomes the biggest barrier to operationalizing a financially robust business case. The same is true when trying to define the business case in the first place (see Exhibit 10).

Recognizing this dependence, some companies are relying on governments to lead. “My CEO doesn’t care unless governments are motivated,”

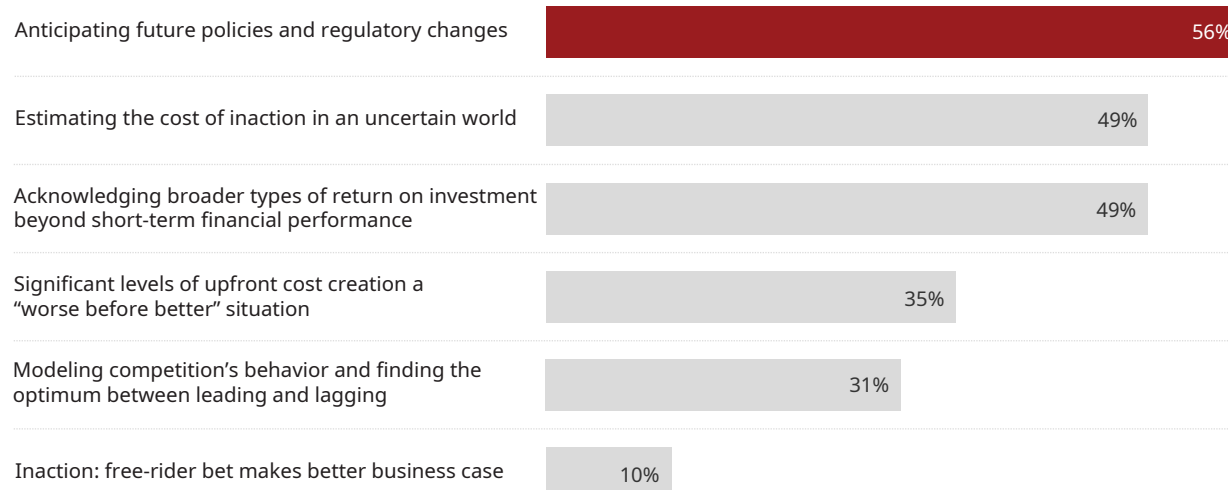
one interviewee admitted to us. Others are more proactive: “We can present what needs to be done,” says NatWest’s Close, “but we need government policy to enable it.”

Dan Needham, executive vice president of commercial at Nucor, emphasizes industry’s role in shaping how regulation should be. For example, regulation in the US today does not support industry (as opposed to utility) investment in nuclear electricity generation. Nucor, working in partnership with NuScale Power, can help to bring forward regulation that enables such investment.

The appetite is strong for a clear policy environment that will make companies’ plans for climate action at scale viable, both practically and commercially. The general sentiment is captured in a remark from Renae Kezar at Johnson Controls: “Regulatory intervention will accelerate decarbonization.” Meanwhile, the leading companies we interviewed are not passively waiting. They are positioning themselves, making the moves they can, and working together with business partners, investors and policymakers to shape a future in which they can scale up their climate transitions.

Exhibit 10: Policy uncertainty is the biggest barrier to defining a financially robust business case

In your experience, what have been the biggest barriers to define a financially robust business case for decarbonization?



Source: Oliver Wyman/Climate Group Climate Action at scale quantitative survey of corporate climate practitioners, n=173 respondents, July 2023

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