

Towards a *Collective* Approach:

Rethinking Fashion's Doomed Climate Strategy

Global denim suppliers identify a worrying disconnect between the industry pursuit of science-based targets and feasibility, equity and financing.

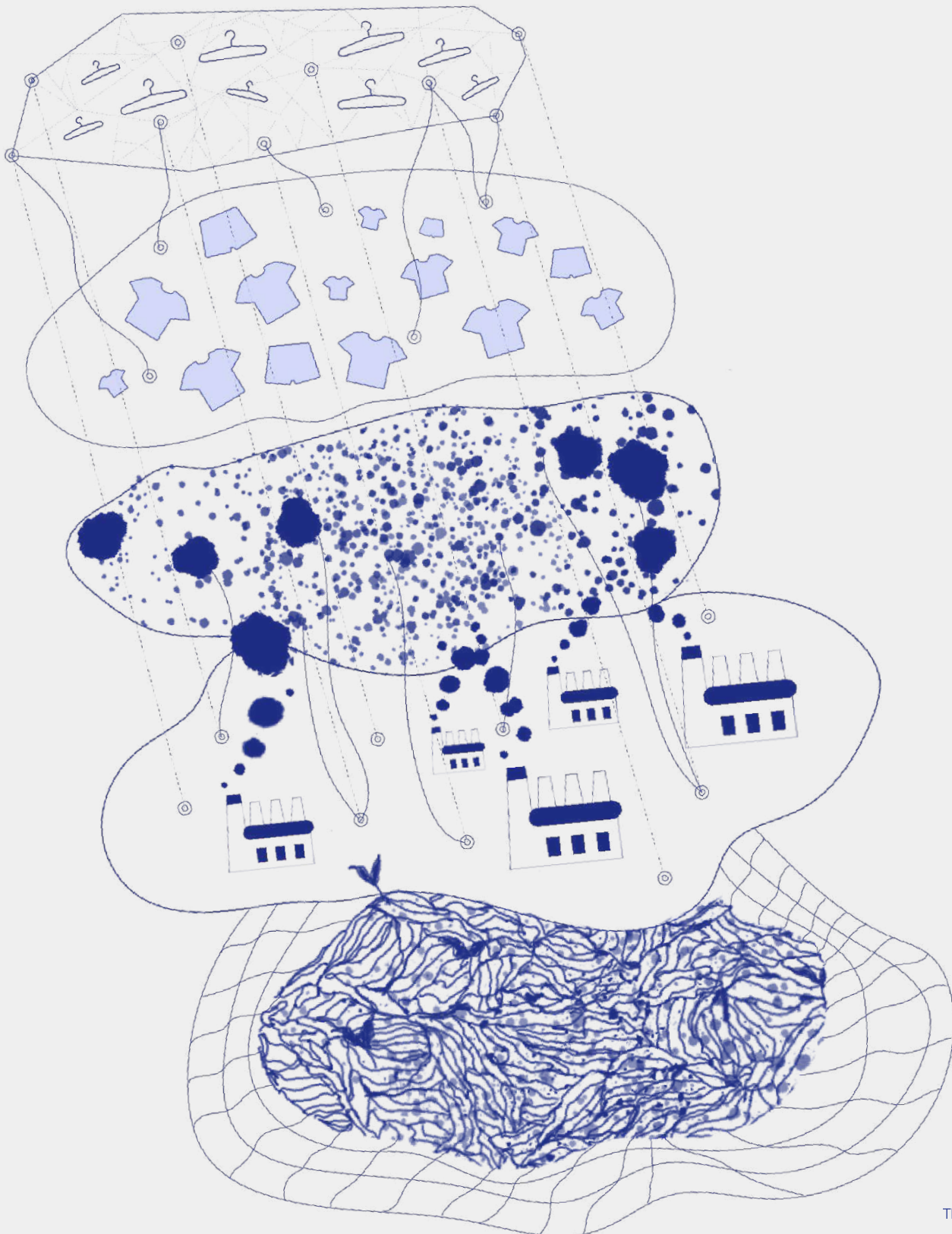


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ACKNOWLEDGMENTS

This report was commissioned by the Transformers Foundation. Our goal is to help suppliers share their expertise and opinion on industry threats and solutions. Though this report represents the views of the Transformers Foundation only, the authors would like to thank all the organizations and people who contributed their expertise and ideas.

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This report would not have been possible without the generous contributions of our founding members:

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EXECUTIVE SUMMARY

The apparel industry's massive contribution to the climate crisis — estimated at 2% to 8% of global greenhouse gas emissions annually¹ — is not only garnering mainstream attention, it's now put the sector in the crosshairs of regulators. More than 400 apparel, footwear, textile, and luxury companies have committed to or set science-based targets (SBTs) to reduce emissions in line with the Paris Agreement,² a 20-fold leap in just four years.³ And now regulators in the EU and the US are pushing the private sector to do the same through unprecedented new legislative efforts. In the US, the proposed New York Fashion Sustainability and Social Accountability Act (The Fashion Act) would, if passed, require fashion brands to not only set — but meet — targets to reduce emissions. In the EU, the forthcoming Corporate Sustainability Due Diligence Directive (CSDDD) and the recently enacted EU Corporate Sustainability Reporting Directive (CSRD) also require companies to set and report on targets respectively. On its face, this combination of ambitious target-setting and tough regulation marks an incredible leap from empty promises towards climate action in one of the world's most emissions-intensive sectors.

However, the primary findings of this report are that responsibility for climate action in fashion is not shared, it is largely approached as a supplier problem. This approach is not only inequitable, it's impracticable and doomed to fail. One of the main ways that responsibility has been pushed down the supply chain is through the industry's pursuit of SBTs. Most companies setting SBTs are setting targets that cover their entire supply chain emissions (where most emissions are concentrated), but without input from their suppliers. And suppliers say they're increasingly required or expected to set their own SBTs, which require individual companies to reduce their greenhouse gas emissions by about half by 2030 and to achieve Net Zero emissions by 2050. While seemingly egalitarian — by asking all companies along the value chain to set the same or similar targets to reduce emissions to the same extent — SBTs have institutionalized the logic that the work of decarbonizing fashion is the supply chain's responsibility. And yet, because SBTs are set without consideration of feasibility and context, many suppliers — through no fault of their own — are limited in their ability to deliver those targets.

What's more, the industry is not engaging in a wider reckoning about funding. In practice, suppliers are not only expected to do most of the work to decarbonize, but to pay for it (even when no financial returns are possible). This not only goes against industry platitudes and established international frameworks, including the Paris Agreement, about a need for equitable and just transition, but it also ensures climate mitigation will stall.

Thirdly, this broken climate action strategy is flowing out of fashion's decades-long, top-down approach to sustainability that is not equipped to tackle the problems of our climate change era. Finally, regulators are missing a chance to enable climate action in part by reinforcing targets as a solution and an end in themselves.

TOWARDS A COLLECTIVE APPROACH

It would be tempting to conclude that if SBTs are inequitable and likely to fail, the solution must be a more equitable approach to target setting. And, in fact, we do advocate for the industry to explore a differentiated approach to target setting — one that takes context, feasibility, equity, financing, and other enabling conditions into account — as part of the solution, but it is not sufficient. A differentiated approach to target setting would mean that some entities will do more than others based on what's actually feasible, but it would not change the reality that the decarbonization that must take place sits largely in the supply chain. And it doesn't solve the underlying dynamics, which are the inequities built into global value chains and the broader operating context constraining a supplier's ability to act. What's ultimately needed is a collective approach to action centered in equity.

We define collective action as shared ownership and shared responsibility. This requires shifting responsibility for climate action from suppliers to one that's shared across the apparel value chain. Climate action must be **our** problem. This includes sharing financial resources, but also other types of resources. No target, not even a differentiated target, is viable without collective action.

Adopting a truly collective approach — meaning that targets, funding, risk, and activities are a collective responsibility rather than a supplier responsibility — is key to dramatically accelerating climate action, enabling decarbonization, and even allowing for companies to set higher targets and attain even deeper rates of emissions reductions than under the current paradigm.

The first step towards collective action is decoupling the “who does how much” question from the “who pays” question. In other words, just because a company needs to deeply decarbonize to meet our collective climate goals, that does not mean they're automatically responsible for paying the tab. These two pieces of the puzzle — where does the work need to be done and who pays — need to be solved separately. Contributions should be linked to ability to pay and could factor in equity, margins, and historical emissions, for example. Decoupling is the first and most important step towards a collective approach.

INTRODUCTION

The apparel industry's massive contribution to the climate crisis—estimated at 2 to 8% of global greenhouse gas (GHG) emissions annually⁴—is not only garnering mainstream attention—it's now put the sector in the crosshairs of regulators. More than 400 apparel, footwear, textile and luxury companies have committed to or set science-based targets (SBTs) to reduce emissions in line with the Paris Agreement,⁵ a twenty-fold leap in just four years.⁶ And now regulators in the EU and the US are pushing the private sector to do the same through unprecedented new legislative efforts. In the US, the proposed New York Fashion Sustainability and Social Accountability Act (the Fashion Act) would, if passed, require fashion brands to not only set—but meet—targets to reduce greenhouse gas emissions. In the EU, the forthcoming Corporate Sustainability Due Diligence Directive (CSDDD) and the recently enacted EU Corporate Sustainability Reporting Directive (CSRD) also require companies to set and report on targets respectively.

On its face, this combination of ambitious target-setting and tough regulation marks an incredible leap from empty promises towards climate action in one of the world's most emissions-intensive sectors. But in practice, targets are putting pressure on the supply chain to tackle most of fashion's emissions footprint, all without addressing underlying roadblocks surrounding feasibility and financing.

As an organization that strives to present the unified voice of denim suppliers and their ideas for positive change, Transformers Foundation set out to survey suppliers in major garment-producing nations to understand how approaches to decarbonization in the sector—which they quickly identified as setting and meeting SBTs to reduce greenhouse gas emissions—were impacting them, as well as their perceptions of the coming regulation and to identify any roadblocks to adoption.

Suppliers identified three overarching and interrelated issues with fashion's current decarbonization strategy: First, suppliers say they're increasingly required or expected to set SBTs, which require individual companies to reduce their emissions by about half by 2030 and to achieve Net Zero emissions by 2050. Suppliers say there is a worrying disconnect between the denim sector's dominant decarbonization approach—pursuing SBTs—and suppliers' own needs, goals, and abilities. The targets are set without consideration of feasibility, context and fairness, and suppliers say that they're setting them (and thus the industry and society) up to fail. Funding

climate action, likewise, has largely fallen on suppliers' shoulders, overlooking equity and practicability. Finally, current climate action strategies are also reinforcing a broken top-down approach to sustainability that ignores supplier input and experience and that has served the industry poorly for decades. This approach is out of step with the transformational needs of the climate change era.

Without a pivot to these three questions shaping the climate change agenda — **Who does how much? Who pays? And who or what drives change?** — the potential to meet our mitigation goals will fade from view, our findings show.

We chose to focus our paper on suppliers in denim supply chains both because the Transformers Foundation convenes them but also because so much of the work of decarbonizing fashion falls on manufacturers. **The vast majority — over 80% by one estimate — of the apparel and fashion sectors' emissions happen in the supply chain, in the making of apparel and textiles.**⁷ Industrial processes like spinning yarn and weaving, knitting, and dyeing fabric use large amounts of heat and electricity and are emissions-heavy. More than 60% of all textiles in production are synthetic and are fossil-fuel derived.⁸ Decarbonizing these processes and materials is daunting and complex and doing so is not just a question of will or effort: Instead, it's highly context-specific and often extraordinarily expensive.

To be clear, this paper does not at all dispute the collective goal of the Paris Agreement, which commits nations to work to limit global warming to 1.5°C to avoid the worst impacts of climate change, nor the scientific consensus regarding the need to slash emissions by about half by decade's end and to reach net zero by 2050 in order to meet this goal. Nor is this collective goal in dispute among the suppliers we interviewed, all of whom are considered leaders in sustainability in their sector and most of which have already pursued various projects to decarbonize. What our findings call into question is the roadmap and approach for achieving fashion's climate goals — and the assumptions that underpin this approach, including calling on all companies to set SBTs.

We surveyed suppliers and listened to the multitude of challenges to decarbonization that they're facing, organizing the roadblocks around these three main findings:

OUR FIRST FINDING

SCIENCE-BASED TARGETS ARE FLAWED, AS THEY IGNORE CONTEXT, FEASIBILITY, AND EQUITY

Science-based targets are one pathway for companies and financial institutions to reduce greenhouse gas emissions in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement, meaning limiting warming to 1.5°C and well under 2°C.⁹ It's important to point out that the Paris Agreement set a collective society-wide goal to limit global warming to well below 2°C and to strive to limit it to 1.5°C.¹⁰ ***It was the Science Based Target initiative (SBTi), launched in 2015, that translated that goal for the private sector into SBTs.*** In practice, this translates into individual company-level goals to rapidly and deeply reduce emissions by 2030 and reach net zero 2050. For sectors like apparel — in which the emissions are heavily concentrated in the supply chain — targets set by brands and retailers must be set not only for retail stores and direct emissions but for the supply chain as well. According to SBTi, emissions in a company's supply chain are on average 11 times higher than operational emissions and reflect >70% of total emissions.¹¹ What's more, increasingly brands and retailers also require (and SBTi recommends) that their suppliers set their own SBTs.¹² And even prominent industry multi-stakeholder initiatives require members (including manufacturers) to set or report on their own SBTs.

We trust that those promoting SBTs are well-intentioned, including lawmakers who are working to enshrine these targets into law. SBTs are, in part, a noteworthy attempt to hold companies accountable to the targets they set and to ensure targets are ambitious and not just another way for brands and retailers to greenwash. And yet there is a fundamental disconnect between suppliers' experiences and the SBT model. The two fundamental flaws with asking all companies to set SBTs is that, first, they promulgate the assumption that all companies are able to deeply and swiftly decarbonize to a similar extent and at a similar rate and that apportioning responsibility equally to companies is itself scientific. And yet in Chapter 1, suppliers recount numerous structural, financial, geopolitical, and other contextual factors that shape the extent to which they can decarbonize. And for reasons mostly beyond their control, many suppliers say they can't meet the targets, which in turn threatens to paint those suppliers as unmotivated or even "unscientific."

What the science says and what nations committed to under the Paris Agreement is that we must limit warming to “well below” 2°C and that in order to do so we as a collective global society agree to work to reduce emissions by about half by 2030 and achieve net-zero by 2050.¹³ There are many ways to apportion this collective goal of the Paris Agreement — with some actors, sectors, or countries doing far more than others based on context, equity, and feasibility, for example. What we warn against here is asking all companies to set similar or “flat” targets that have no basis in feasibility and, given the enormous power inequalities in the fashion supply chain, do not address issues of equity or roadblocks to financing. As many other sectors have emissions concentrated in the supply chain, our findings are relevant to other sectors as well.¹⁴

This brings us to the second flaw with the current approach to target-setting: While the notion that all companies must set the same or similar GHG emissions targets sounds rigorous, ambitious, and egalitarian (with every company doing their part), in practice in the apparel industry, it’s anything but. Within the apparel sector (and many other consumer goods sectors), it’s suppliers, mostly in the Global South, who have the most significant emissions burden and the most substantial roadblocks to decarbonization. Giving them aggressive, timebound targets does not make this work any easier, more affordable or realistic. As a result, SBTs — regardless of whether this is the intention or not — are in practice helping to further institutionalize the logic that the work of decarbonizing fashion is the supply chain’s sole responsibility, and that brands and retailers can simply pass on this work by command (suppliers aren’t for the most part signing up to set SBTs on their own volition). Some suppliers told us they felt “overwhelmed,” “deceived,” “exhausted,” and “alone” by these mandates, as a result.

OUR SECOND FINDING

MUCH OF THE DEEPER WORK NEEDED TO DECARBONIZE FASHION IS AN EXPENSE, SUPPLIERS SAY, NOT A MONEY-MAKER. AND YET SUPPLIERS ARE EXPECTED TO FOOT THE BILL.

Our second finding is that not only are suppliers required to do much of the work to rapidly reduce GHG emissions in fashion — and targets are institutionalizing this logic — ***they’re also being asked to pay for it.*** This ask (really more of an implicit assumption) is often built around the myth that most decarbonization projects will or should generate financial returns. In fact, suppliers say much or most of the work ahead of them is an expense. There is more discourse around fairer ways to finance decarbonization in fashion of late, yet much of it remains focused on innovation or projects

that offer a financial return within a “fast payback” period, which we define in this paper as generating returns within two years or less. Not only is current funding insufficient and hard to access, for reasons we explore, the industry has no coordinated plan to equitably and collectively fund much of the deeper work to reduce emissions in fashion that requires very long payback periods — or no payback periods (meaning work that simply costs suppliers’ money).

OUR THIRD FINDING

FASHION’S TOP-DOWN AND DIRECTIVE APPROACH TO SUSTAINABILITY IS INCAPABLE OF TACKLING CLIMATE ACTION.

Finally, our paper finds that fashion’s tendency to approach sustainability in a top-down and directive way is at odds with the challenge at hand. There is a power inequality between brands and suppliers and the Global North and Global South that is well-known in the apparel sector and threaded throughout our findings. The ways in which SBTs are being promulgated and pushed onto the supply chain is a continuation of the top-down, directive approach to change, as targets are almost always issued from the top of the supply chain — from brands and retailers and Global North lawmakers — down to manufacturers, most of whom are in the Global South. This is not only unfair, suppliers say, it perpetuates a disconnect between problems and solutions. Suppliers are the ones with the first-hand knowledge and experience of how to decarbonize their own facilities. They also have visibility into the context-specific realities that enable or discourage decarbonization described in detail in this report — like the available roof space, for example, for solar PVs or the existence of power purchasing agreements (PPAs) or the cost of primary energy sources versus renewable alternatives in their area. ***What’s needed to achieve fashion’s climate goals is a change in approach and mindset, where brands and retailers give up the directive approach and suppliers are not only listened to but also enabled to co-develop targets, solutions and roadmaps.***

IMPORTANT!

AS A SOLUTION TO THESE FINDINGS, WE NEED A TRULY COLLECTIVE APPROACH TO DECARBONIZING FASHION

Our findings are not an excuse for inaction in the apparel sector, or to move slower to lessen the effects of climate change. When taken together, these three findings demonstrate an urgent need to rethink the approach to decarbonization in the denim sector and in the apparel sector more broadly, in order to move at the speed that’s needed.

What's needed is a collective approach to reducing GHG emissions fashion centered in equity. **We define collective action as shared ownership and shared responsibility.** This requires shifting responsibility for climate action from suppliers to one that's shared across the apparel value chain. Climate action must be **our** problem. This includes sharing of financial resources and beyond. In fact, the first step towards a collective approach requires decoupling the "who does how much" question from the "who pays" question. It also requires sharing of other types of resources, including knowledge and expertise, supplies, equipment, assets, influence, and political and decision-making power. A collective approach also means challenging mindsets and the inequitable business-as-usual context that dominates fashion and is blocking progress.

We can also imagine developing a differentiated approach to target setting — one that takes context, feasibility, equity, financing and other enabling conditions into account (which would also mean that many Global North companies would be responsible for doing more than their Global South counterparts) — this could in theory allow certain actors to set far more ambitious targets and others to set more realistic ones. But this can only be one part of the solution. A differentiated approach to setting targets simply shifts which individual entities are responsible for delivering results — and it would not change the reality that the supply chain is the locus of most of the sector's emissions. No target, not even a differentiated target, is viable without collective action.

If it sounds too daunting — given this late hour — to pivot, consider that it could be because of your vantage point. **We hope that one of the most valuable outcomes of collating the experiences and first-hand knowledge of suppliers is that the work of decarbonizing fashion supply chains becomes much less fuzzy and aspirational; It becomes clearer.** Throughout this report, the pain points are visible. What's actionable and solvable (with industry collaboration) has been brought into view. And with this information out in the open, we think it's possible to rethink targets, financing and leadership in fashion. And in doing so, we would have a far greater chance of getting ahead of one of the greatest threats to humanity and to the sector's continuation: The climate crisis.

HOW TO READ THIS REPORT

Through workshops and one-on-one interviews conducted with denim suppliers and other stakeholders, we aimed to identify any barriers to the goal of reducing emissions in fashion. We've organized our research around their answers to the following questions:

- * **WHO SHOULD DO HOW MUCH?** How should the work of reducing emissions be distributed among stakeholders? What is the most effective and equitable way to distribute responsibility for a collective goal (a roughly 50% reduction target by the decade's end) to individual companies?
- * **WHO PAYS?** How is the financial burden of decarbonizing currently distributed and what is the most effective and equitable way to distribute this responsibility?
- * **WHO AND WHAT DRIVE CHANGE?** Which stakeholders and institutions within the denim space are empowered to drive decarbonization and set the climate agenda? What is a realistic, appropriate, and equitable approach to leadership in this space?

Chapters 1, 2, and 3 of this report examine suppliers' thinking on each of these questions respectively and end with proposed alternatives and Calls to Action. Chapter 4 – Regulation: The Dangers of Setting SBTs Into Law – explores the hidden burdens regulatory initiatives could place on suppliers if SBTs are set in stone by legislation. These initiatives include the EU Directive on Corporate Sustainability Due Diligence Directive (CSDDD); the EU Corporate Sustainability Reporting Directive (CSRD); and The New York Fashion Sustainability and Social Accountability Act (The Fashion Act). Decarbonizing Denim: A Pocket Guide for Legislators is a standalone guide within Chapter 4 directed at policymakers that summarizes key insights and further analyzes discrepancies between the report findings and the approaches policymakers and legislators in the Global North are pursuing.

SCOPE

Denim is produced globally. However, given our own internal resource limitations, we decided to focus on suppliers in four of the world's largest denim textile and garment-producing nations by volume: China, Bangladesh, Pakistan, and India. The report initially intended to also cover Turkey given its market size, but due to the February 2023 earthquakes, it proved too difficult to access Turkish stakeholders to interview in time for this report.

This report includes interviews with the following types of suppliers: fiber processors, yarn spinners, textile mills, dye houses, garment assembly, and laundry facilities. Interviewees are primarily top executives who work at both independent facilities and vertically integrated companies across these phases. For practical reasons and to narrow our research, raw materials, and pre-processing were rendered out of scope. This is despite the recognition that significant climate impacts occur in these phases and that decarbonization efforts remain important for these phases.

It's also important to note that our sample is largely made up of suppliers who are considered leaders in sustainability. They are not necessarily always representative of all denim suppliers, and we make note of instances in our paper where we believe their unique industry position and experiences have influenced our findings. Their experiences and opinions provide a glimpse into the significant challenges posed to decarbonizing even for companies that are motivated to change. We can assume the situation is even more burdensome for other companies.

METHODOLOGY

The research for this report was conducted through one-on-one interviews as well as a series of research workshops with a smaller group of denim suppliers, and online research. The research workshop approach was adopted because we wanted to encourage participants to step away from their day jobs to explore the challenge of decarbonization from a collective perspective. We also put out an open call to the Transformers Supplier Community, allowing interested members, irrespective of location or tier, to share their feedback on the workshop findings, which we've incorporated into the report.

The qualitative stakeholder research for this report was led by Brooke Roberts-Islam, independent journalist and author, and founder of sustainability consultancy Techstyler; Dr. Divya Jyoti, an ethnographer specializing in apparel supply chains at Lancaster University (UK), and Kim van der Weerd, Intelligence Director at Transformers Foundation. The report was co-authored by Kim van der Weerd, Brooke Roberts-Islam, and Elizabeth Cline, an independent consultant and researcher. The legislative case studies in Chapter 4 heavily rely on An Apparel Supplier's Guide: Key Sustainability Legislations in the EU, US, and UK, a July 2023 report written and researched by the Remedy Project and commissioned by a group of apparel suppliers: Epic Group, Norlanka, Shahi Exports, and Simple Approach. In addition, these factsheets were also supported by the Transformers Foundation and GIZ FABRIC.

In writing this report, we engaged a total of 27 individuals (some of whom requested not to be named in the table below) working for companies supplying denim or related components (many of which own multiple production facilities and produce for some of the world's largest apparel brands and retailers) as well as six other individuals from educational institutions and NGOs connected to fashion. While we do not claim this is a representative survey, the suppliers represent a broad spectrum of countries and business types that are not affiliated with one another, and we stand behind the significance of our findings. The following individuals, whether through one-on-one interviews or through the research workshops, or both, participated in the research for this report and make up our sample:

Company	Name	Title	Description	Has the company set an SBT?	Countries of Company Operation
Acticell GmbH	Christian Schimper	Managing Director	Supplier (Chemical manufacturer)	No	Austria
Advance Denim	Michael Lam	Director	Supplier	No	China Vietnam
Artistic Milliners	Saqib Sohail	Responsible Business Projects	Supplier	Yes	Pakistan USA Mexico Central America
Arvind	Abhishek Bansal	Head of Sustainability	Supplier	Yes	India
Bangladesh Garment Manufacturers and Exporters Association (BGMEA) / Bitopi Group	Miran Ali	Vice President / Managing Director	Industry Association / Apparel Manufacturer/ Supplier	No	Bangladesh
bluconnection pte ltd	Alexander Bock	COO	Supplier	No	Singapore
COLOURizd	Jennifer Thompson	CEO	Manufacturer of coloration machinery	No	USA
Diamond Denim	Saqib Shahzad	Head of Sustainability	Supplier	Yes (as part of Sapphire Group)	Pakistan
	Ali Abdullah	Managing Director			
Epic Group	Dr. Vidhura Ralapanwe	Executive Vice President of Sustainability and Innovation	Supplier	No	Bangladesh Ethiopia India Jordan
Ereks-Blue Matters	Romain Narcy	General Manager Partner in charge of Innovation & Strategy	Supplier	No	Turkey

Company	Name	Title	Description	Has the company set an SBT?	Countries of Company Operation
Lenzing	Dr. Krishna Manda	Vice President of Corporate Sustainability	Supplier	Yes	China Brazil Europe US Indonesia Thailand UK
	Michael Kininmonth	Business Development & Project Manager			
	Tuncay Kılıçkan	Head of Global Business Development for Denim Segment			
National Textiel University	Dr. Muzzamal Hussain	Assistant Professor (Textiles)	Academia	n/a	Pakistan
NDL	Kamran Zia	Executive Director Services & Sustainability	Supplier	No	Pakistan
	Rashid Iqbal Nasir	Executive Director (Rashid Iqbal)			
	Usman Tariq	Product Development Manager			
	Faisal Yaqoob	GM R&D			
New Standard Institute	Maxine Bedat	Executive Director	NGO	n/a	USA
Orta Andolou	Selba ONDER	Sustainability Chief	Supplier	No	Turkey
Pacific Jeans	Syed Tanvir	Managing Director	Supplier	No?	Bangladesh
Pakistan Environment Trust	Wardah Zaman	Programme Manager	NGO	n/a	Pakistan
	Talha Khan	Executive Director			

Company	Name	Title	Description	Has the company set an SBT?	Countries of Company Operation
Shahi Exports	Anant Ahuja	Head of Organizational Development	Supplier	No	India
	Kritika Chauhan	Assistant Manager Communication and Sustainability Innovations			
Soorty Denim	Ebru Debbag	Executive Director	Supplier	Yes	Pakistan
STS BluWin	Dr. Siva Pariti	Senior Technical Marketing Officer	3rd Party Verifier (including assessments related to decarbonization)	n/a	Carrying out verifications globally.
Tufts Fletcher School	Ken Pucker	Professor of Practice	Academia	n/a	USA

Chapter 1

**WHO SHOULD DO
HOW MUCH?**

1 WHAT IS THE SECTOR'S PREVAILING APPROACH TO THIS QUESTION?

This chapter examines assumptions about how the work to reduce emissions in fashion is distributed. There are many ways the apparel and textile sector is approaching decarbonization, such as through scaling up renewable energy in retail stores and distribution centers, investing in lower-emission textile innovation and resale efforts, and leveraging design to switch to different types of materials and shift processes. There are also multi-stakeholder initiatives (MSIs) and other industry convenors that are organizing brands around this work.

But undergirding these industry strategies, suppliers identify a singular mandate: Setting and meeting science-based targets, which are individual company-level targets to reduce emissions in line with the Paris Agreement, aiming to limit global warming to 1.5°C above pre-industrial levels. SBTs were launched in 2015 and are overseen by the Science Based Target initiative (SBTi), a collaboration between the United Nations Global Compact, World Resources Institute (WRI), the World Wide Fund for Nature (WWF) and the We Mean Business Coalition launched in 2015 to mobilize the private sector to take the lead on urgent climate action. Of the more than 6,000 businesses that have set or committed to set SBTs to date, 402 of these companies are textiles, apparel, footwear, and luxury goods companies.¹⁵

Once companies commit to setting an SBT, they have 24 months to submit their targets to SBTi for validation. While companies have several avenues for setting SBTis, according to SBTi the absolute reduction method is the most commonly used by companies setting science-based targets – four out of five companies with approved science-based targets use this method. Companies with emissions-intensive supply chains, including apparel, are required to set targets that go beyond their own emissions and that apply to their supply chain as well, known as Scope 3. According to SBTi, supply chain emissions are on average 11 times higher than most companies' own operational emissions.¹⁶ Scopes refer to a method of emissions accounting for companies outlined by the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, with Scope 1 referring to direct emissions, Scope 2 to purchased electricity, heating, cooling, etc., for a company's own use, and Scope 3 referring to all indirect emissions, including purchased goods manufactured in the supply chain.¹⁷ Scope 1 through 3 is considered a company's full value chain. It's important to keep in mind that once a supplier in a brand or retailers' Scope 3 sets their own targets, those targets

apply to their own Scope 1, 2 and 3 emissions. ***In other words, a brand and retailers' Scope 3 emissions is a factory's Scope 1 and 2 emissions.***

To give some examples of how this looks in practice, Levi Strauss & Co. has under its SBTi commitment pledged to reduce absolute Scope 1 and Scope 2 GHG emissions 90% by 2025 from a 2016 base-year and to reduce absolute Scope 3 emissions from purchased goods and services 40% by 2025 from a 2016 base-year. Nike, meanwhile, has set a target to reduce absolute Scope 1 and 2 GHG emissions 65% by 2030 from a 2015 base year and to reduce absolute Scope 3 GHG emissions 30% within the same timeframe.¹⁸

Until recently, companies were more reticent to set targets that applied to their supply chain, given that they do not, for the most part, own their suppliers and have less control over their operations. But investor, consumer, and institutional pressure has changed the dynamic. The now over 400 apparel, footwear, textile and luxury companies who have set SBTs all have Scope 3 targets that cover their supply chain, as per the requirements of SBTi. According to SBTi, most companies set absolute emissions targets to reduce emissions by half by 2030 and to reach Net Zero emissions by 2050, which puts enormous pressure on the supply chain. What's more, it's now becoming increasingly expected and required that every company in an apparel company's value chain set targets. Indeed, the Apparel and Footwear Sector Science-Based Targets Guidance, published by SBTi and the World Resources Institute, encourages that signatory companies "should recommend that their suppliers use the SBTi guidance and tools available to set science-based targets."¹⁹ While this isn't a requirement for SBTi approval, suppliers say that the expectation is nonetheless present and increasing. Within our sample, a majority have been pressured by brands to set their own SBTs.

Key to understanding this approach is that SBTs distribute responsibility for achieving our collective goal via flat or "equal" targets (more on why they're not, in fact, equal in a moment). By flat, we mean, all signatory companies to SBTi (or initiatives that promulgate similar targets) commit to decarbonize largely to the same extent and at the same pace. For example, if the sector collectively strives to reduce its emissions by 45% by 2030 and reach net zero by 2050, and uses SBT as its approach to this goal, then all companies within the denim value chain from the yarn mill and dye house to the cut-and-sew factory and the brand or retailer are working towards the same aggressive target to reduce their emissions by 2030 and reach net zero by 2050.

2

HOW HAS THIS APPROACH BEEN OPERATIONALIZED WITHIN THE FASHION SECTOR?

In addition to companies directly engaging with the SBTi, the concept of science-based targets is promulgated by many other well-known multi-stakeholder initiatives (MSIs), including some of the most established in fashion.

For example, the UN's Fashion Industry Charter for Climate Action, a leading steering body for the industry's climate commitments, requires signatories to either commit to and set SBTs or independently commit to a 50% emissions reduction by 2030 for Scopes 1 through 3.²⁰ Some suppliers are members of the Charter (and presumably more would like to join), meaning it's not just brands and retailers but factories that must set these targets. And as of 2023, the Sustainable Apparel Coalition (SAC), a powerful multi-stakeholder initiative with 280+ members (including Amazon, Gap Inc., H&M Group, Kering, and Nike and a number of prominent suppliers), requires its members to commit to and set science-based targets.²¹

What's more, the updated version of the SAC's Higg Facility Environmental Module 4.0 (FEM),²² a widely-used assessment tool that standardizes how brands and retailers evaluate and measure the environmental performance of factories that produce for them, will include new questions for suppliers about whether they've set their own SBTs and had them approved. This version is set to launch in November 2023. Many suppliers produce for brands that use SAC's Higg tools, and any supplier that does not answer these questions in the affirmative could be labeled as underperforming, which suppliers say could hurt their reputation and could lead to a loss in business. What's more, these requirements will apply to any facility producing for a brand that is an SAC member (and not only to the suppliers that themselves are SAC members).

Finally, policymakers are set to enshrine an emphasis on target setting into law, which will likely result in increased pressure on suppliers to set SBTs, via the forthcoming EU Corporate Sustainability Due Diligence Directive (CSDDD) and the proposed New York Fashion Sustainability and Social Accountability Act (The Fashion Act). The EU's Corporate Sustainability Reporting Directive (CSRD), already in effect, asks companies to report on such targets. We delve into this in more detail in Chapter 4: The Dangers of Setting SBTs Into Law.

Of course, if Science-Based Targets were effective and feasible, this approach would be welcome. But that's not at all what suppliers conveyed.

3

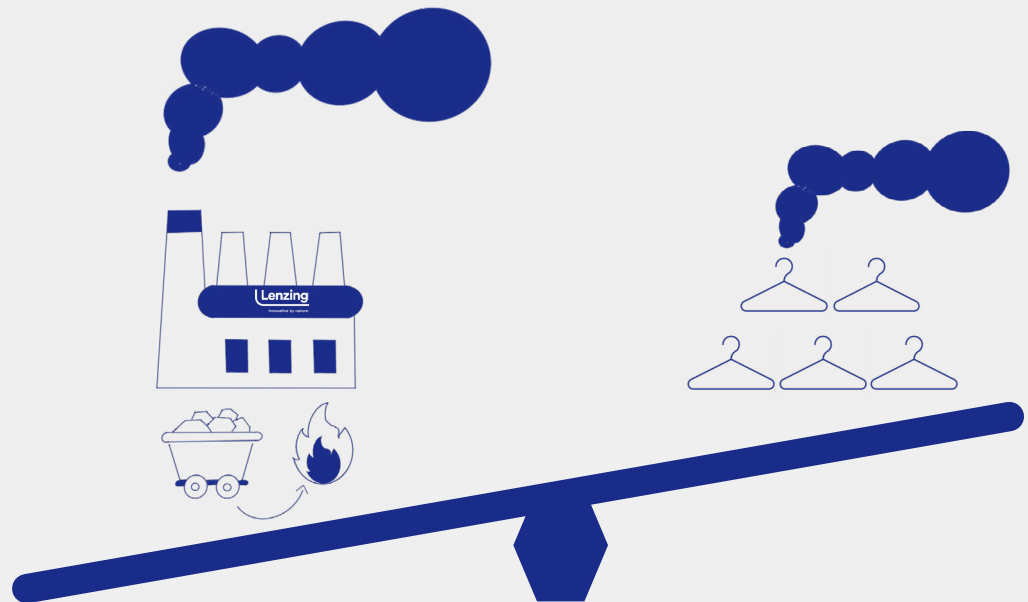
DEBUNKED: SCIENCE BASED TARGETS APPORTION RESPONSIBILITY FOR CLIMATE ACTION EQUALLY

The pursuit of SBTs all along the supply chain seems ambitious and egalitarian on its face. It seems to indicate that everyone is doing their part and all companies are contributing to an equally significant amount of work by setting similar targets, and yet this is not the case at all – the industry’s embrace of SBTs has placed enormous demands on apparel and textile suppliers specifically.

This makes sense on its face, as manufacturing is emissions-heavy. If we leave out the consumer-use phase (which is, in itself, a contentious subject among some suppliers),²³ more than 90% of a brand’s or retailer’s emissions occur in what’s known as Scope 3,²⁴ which refers again to a range of upstream and downstream business activities that brands and retailers do not own. And within Scope 3, at least 80% of emissions are concentrated in the process of making and manufacturing raw materials and apparel.²⁵ What’s more, according to a report by Apparel Impact Institute (Aii) and World Resources Institute (WRI), most emissions in fashion (over half) are concentrated just within material production (what’s known as Tier 2), especially in textile formation (e.g. knitting and weaving), fabric preparation (e.g. scouring), coloration (e.g. dyeing), and additional coloration and finishing (e.g. heat setting). These are the sections of the supply chain that our interviewees oversee.



To give a real-world example, Dr. Krishna Manda, the Vice President and Global Head of Sustainability for fiber manufacturing company Lenzing, which is a large global viscose manufacturer, shared in a recent podcast that if the company was to switch a single one of its large fiber-processing facilities from coal to natural gas, this would save 200,000 tons of CO₂, more than the combined Scope 1 and 2 emissions of five large brands.²⁶ What this means is that, as suppliers are being asked or required to set their own SBTs, this has set into motion a highly unequal way to apportion responsibility for climate action. While everyone may have similar-sounding targets to meet, suppliers, in fact, have more work to do by several orders of magnitude than brands and retailers to reach about a 50% reduction in emissions by 2030 and net zero by 2050.



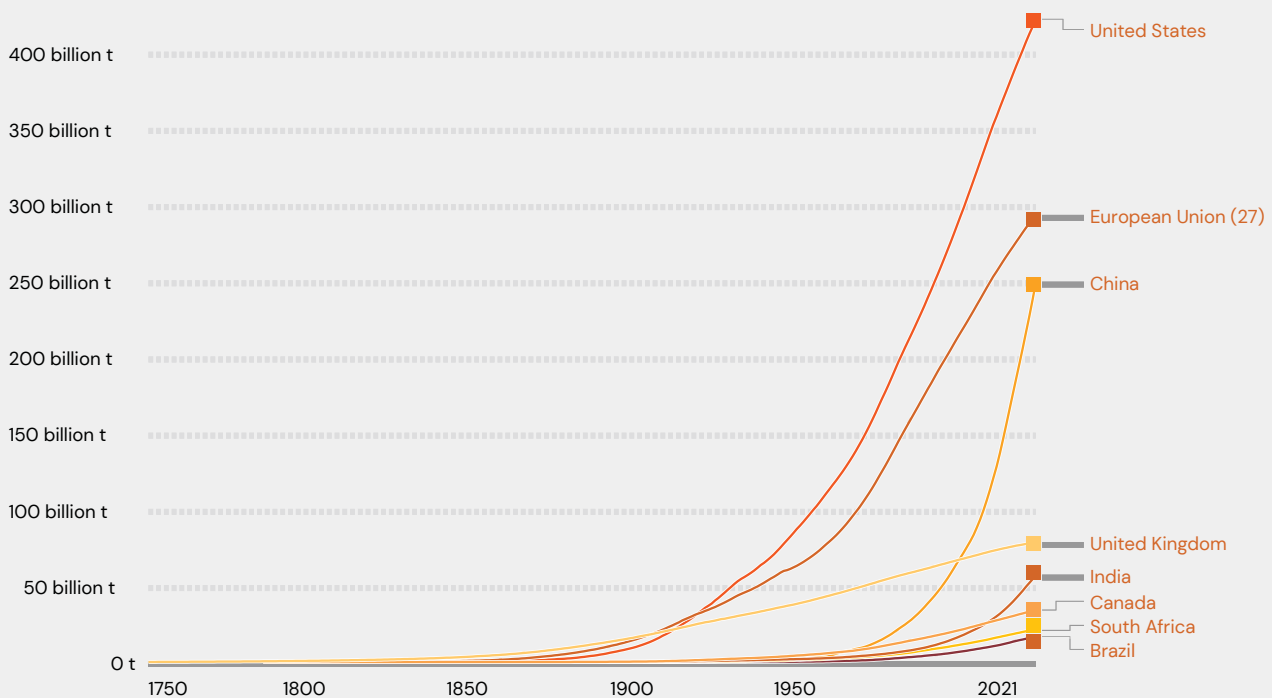
Lenzing switching one of its large fiber-processing facilities from coal to natural gas would save more than 200,000 tons of CO₂, according to Dr. Krishna Manda

He estimates that this is more than the combined Scope 1 and 2 emissions of five large brands

Not only are SBTs distributing responsibility for climate action unequally in practice – perhaps more importantly is that **this approach is not equitable, as it mostly requires action from factories in Global South nations** that on the whole have not contributed much to climate change, both historically or presently.

CUMULATIVE CO2 EMISSIONS

Cumulative emissions are the running sum of CO₂ emissions produced from fossil fuels and industry since 1750. Land use change is not included.



Source: Our World in Data based on the Global Carbon Project

For example, several denim suppliers underscored that their countries of operation do not contribute to global emissions equally. Indeed, in 2020, Bangladesh's total emissions accounted for just 0.47% of global greenhouse gas emissions and Pakistan 0.93%.²⁷ While China accounts for the most annual emissions (over 25%) and India was the third-largest global emitter at 6.67% in 2020,²⁸ it's important to factor in historic emissions that are causing climate change today. As has been widely cited, the U.S. is still the world's largest total emitter historically.

What's more, encouraging companies to set SBTs, which cover their supply chains, and further recommending or requiring all suppliers to set SBTs seems to go against principles set out by the UN Framework Convention on Climate Change (UNFCCC) in 1992, which enshrined the concept of "common but differentiated responsibilities" at the first Earth Summit in Rio de Janeiro, recommending that richer countries responsible for the most emissions bear more responsibility for reducing them. What's more, the Paris Agreement itself commits countries to consider the state of development and for developed nations to take the lead on emissions reductions and funding, including funding projects in the developing world.²⁹ Thus, it seems contradictory that the sector is pushing an approach—**SBTs—that in practice pushes the burden back onto Global South companies, and by proxy, nations.**

There's also the ethical issue of profitability and margins in fashion. **Many large global brands now generate hundreds of millions if not billions of USD dollars in annual profits.³⁰ While some suppliers do well for themselves, there is a vast gap in margins and access to resources between brands and retailers and their suppliers.** This gap between the Global North and Global South nations, companies and people could in all likelihood widen if the work and financing of decarbonization is not pursued equitably. Asking companies in supplier countries to rapidly and suddenly transition and in a way that could cause economic and social strain was repeatedly described as both "unfair" and "colonial" during the stakeholder interviews for this report — especially in light of the fact that brands are asked to do — and thus fund — so relatively little.

4 DEBUNKED: ALL COMPANIES ARE CAPABLE OF DECARBONIZING TO THE SAME EXTENT AND AT THE SAME PACE

Setting aside the issue of equity for a moment, a very practical and pressing issue is that many suppliers say these roughly 50% reduction targets are **simply impossible in their facilities**. The targets are described as “science-based,” but in practice they’re often illogical, because they’re set without regard for what’s actually possible in a given context in the supply chain. A critical assumption underpinning SBTs is that all companies are equally capable of decarbonizing largely to the same extent and at the same rate — and that setting stringent and equally-apportioned targets is a question of will and that targets themselves will motivate the sector to act. **But suppliers say that asking all companies to set similar targets while overlooking physical and technical constraints and context can be counterproductive and discouraging.**

As one supplier put it:

“What we have is a collective target as an industry: we want to reduce 45% of our emissions against a 2019 baseline by 2030, and then completely decarbonize by 2050. So that’s a collective target, but what we’ve done is we’ve broken it down and given the same target to everybody, irrespective of whether you’re a mill, whether you’re a cut and sew manufacturer, irrespective of your [company] history, how much work you have already done, what issue or difficulty you’re facing.”

What’s more, suppliers identified layer upon layer of contextual factors that determine a denim supplier’s decarbonization potentiality — and that have nothing to do with ambition. In the following section, we outline some of the main contextual factors that shape a suppliers’ ability to decarbonize that are absolutely critical to consider when developing any decarbonization targets or roadmaps.

AS IT'S QUITE TECHNICAL, WE'VE
BROKEN THIS SECTION INTO TWO
MAIN PIECES:

- * THE FEASIBILITY OF SWITCHING TO
ALTERNATIVE ENERGY SOURCES
- * AND THE FEASIBILITY OF ENERGY
EFFICIENCY GAINS

SWITCHING TO ALTERNATIVE ENERGY SOURCES

NOT ALL COMPANIES HAVE THE SAME ACCESS TO RENEWABLE ELECTRICITY

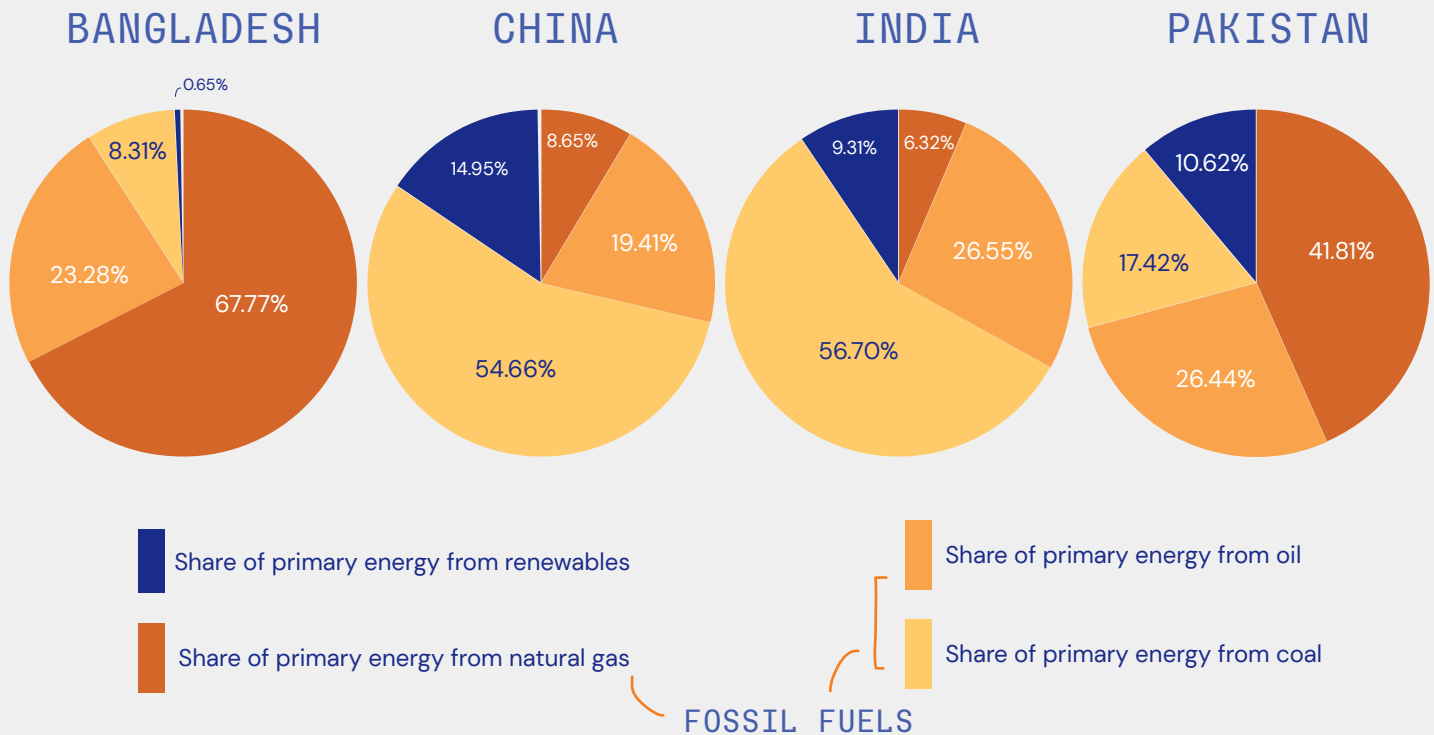
One significant factor that determines a denim supplier's ability to reduce GHG emissions is the primary energy sources available to it.³¹ Primary energy sources are used to power electricity grids. ***Thus, a supplier's ability to decarbonize depends in part on the extent to which its electricity demand can be fueled by primary energy sources that are renewable.***

Primary energy sources for electricity are mostly set at the national level and fossil fuels remain dominant in most nations, with renewable energy comprising just a small fraction of the available energy, including the four major denim-producing nations in our scope (see Figure 1). China has the largest renewable energy share of the four countries, with only around 15% of its available primary energy from renewables, while in Bangladesh renewables account for less than 1% of primary energy available. What's more, China and India also remain heavily reliant on coal, the most emission-heavy energy source, with China still drawing more than half its primary energy consumption from coal.³²

China, Bangladesh, India, and Pakistan are all rapidly investing in renewable energy, but the pace and success of this expansion depends on economic, infrastructural, and regulatory conditions beyond suppliers' control. Suppliers also emphasized the role of infrastructure-level roadblocks, specifically the lack of renewable energy available in their operating contexts from their local power grids and suggested that these are being overlooked by brands stipulating decarbonization reduction targets for suppliers.

PROPORTION OF OVERALL FOSSIL FUEL CONSUMPTION BY COUNTRY (IN 2021)³³

Fig. 01



Source: <https://ourworldindata.org/>

Note: Data refers to all energy used, not energy used for electricity.

* A note on national targets versus SBTs

Another overlooked factor that's shaping the timeline of renewables investments on a national level are Nationally Determined Contributions (NDCs), which are self-defined national climate pledges made under the Paris Agreement. Though the extent to which NDCs are actually driving concrete action can be debated, they are hypothetically what guide energy infrastructure and availability on a national level – and they are sometimes set at a target that is less stringent or follow a longer timeline than SBTi. India, for example, has a 45% emissions reduction goal, but it's set against a 2005 baseline when emissions were much lower than the minimum 2015 baseline required by SBTi. Several interviewees noted that SBT's industry approach to target setting is incongruous with this broader geopolitical context.

THERMAL ENERGY SOURCES CANNOT RELIABLY BE DECARBONIZED

Even if a supplier was, in theory, able to source its electricity from 100% renewables, suppliers still need a way to meet their thermal energy needs – in other words, heat. In a recent report on the energy requirements of the textile industries of China, Japan, and Taiwan, heating was found to represent over half of total energy demand.³⁴ In many cases, apparel suppliers, especially those doing wet processing (like mills and laundries), *require thermal energy sources that cannot be rapidly decarbonized*, whether through electrification (like through heat pumps and electric boilers) or by meeting thermal energy needs through biofuels instead of fossil fuels.

ROADBLOCKS TO ACCESSING RENEWABLE ENERGY SOLUTIONS

If renewable energy is not sufficiently available through the national grid, denim producers hypothetically have other options available to them – and these alternatives are crucial to meet carbon mitigation goals:

In this section, we will analyze contextual factors and the feasibility and effectiveness of six dominant alternative approaches to primary energy usage. In our interviews, suppliers pointed out roadblocks they're facing with all six approaches and stressed that the feasibility is influenced significantly by context. They emphasized that the extent to which these options might be available to suppliers depends on technical constraints, economic and practical feasibility, and total energy requirements, which have to be factored in. Amongst the six approaches we analyze, the first three are used to meet electricity needs and the last three are used to meet thermal energy (heat) requirements:

RENEWABLE ELECTRICITY SOLUTIONS



1) Generate their own renewable sources for electricity, through, for example, rooftop or offsite solar panels, or wind farms.

2) Set up a power purchase agreement (PPA),³⁵ under which a third-party developer installs, owns, and operates a renewable energy system offsite.

3) Purchase Renewable Energy Certificates (RECs), which are a market-based instrument that certifies the owner as owner of one megawatt-hour (MWh) of electricity from renewable energy.

THERMAL ENERGY SOLUTIONS



4) Electrify the thermal load through, for example, heat pumps or electric boilers (assuming the electricity is renewable).

5) Switch to lower-carbon fuel sources that emit relatively fewer emissions (for example, move from coal to natural gas).³⁶

6) Meet thermal energy needs through biofuels instead of fossil fuels.³⁷

1) GENERATE THEIR OWN RENEWABLE SOURCES FOR ELECTRICITY



Feasibility of Renewable Electricity Solutions by Country

Table 01.1

Bangladesh	China	India	Pakistan
Depends on regional policy, space, and a facility's total energy requirements.			

Source: based on interviews

Let's consider alternative solution #1—suppliers generating their own solar and wind electricity. Many suppliers do supply some of their own renewables and plan to expand these initiatives, but the ability to, for example, install rooftop solar or access wind power be constrained by a number of factors. In Bangladesh, factories tend to be built vertically over multiple stories, limiting roof space, for example, and wind farms can be limited by zoning and building code rules.

A Pakistani interviewee echoed a similar sentiment:

“We can't make our unit go green because we don't have space [for more solar panels], and we can't have wind due to our location. A wind farm can't be installed within the proximity of the [other buildings] due to building codes and regulatory laws.”

Interviewees also noted that electrical infrastructure within a factory or shared building complex sometimes isn't adequate for supporting solar panels. Even factory owners who install rooftop solar panels may only be able to generate a fraction of the power needed to run their factory, as one supplier in Pakistan explained, noting that on-site solar covering the entire facility rooftop produced 1.4MWh daily compared to the 4MWh daily electricity required for denim production alone at the facility. One vertical facility – which houses spinning all the way to cut and sew – requires 40MWh daily and solar was only able to provide a fraction of the electrical demand needed.

As a supplier summarized it:

“It is not possible to cover the entire electricity requirement from available space in factory premises.”

In India, one interviewee was able to buy renewables from offsite solar and wind farms but still maxed out at generating 50% of their electricity consumption from these sources. From there, they hit up against the technical limitations of the grid:

The supplier told us:

“[Our] next step is storage solutions since the government is not allowing us to go beyond 50% renewables.”

The other issue is that solar yield varies by location.³⁸ Two identical solar installations – one in Bangladesh and another in Pakistan, for example – will not have the same output of renewable electricity. This also impacts the payback period and need for other instruments like RECs.

2) SETTING UP POWER PURCHASE AGREEMENTS (PPAS)



Feasibility of Renewable Electricity Solutions by Country

Table 01.2

Bangladesh	China	India	Pakistan
Not feasible	Unevenly feasible, in part due to provincial rules	Unevenly feasible due to many states restricting purchasable power to 50% and requiring total energy consumption in excess of 1 megawatt	Not feasible

Source: based on interviews

What about alternative solution #2: Setting up power purchase agreements (PPAs), by which third-party companies install, run, and provide energy offsite. PPA availability varies significantly by nation, with suppliers in some countries not having access to them at all.

For example, one supplier noted:

“Use of direct Power Purchase Agreements with renewable energy is available in India but not available in Pakistan and Bangladesh.... Since Bangladesh or Pakistan [don’t have that option], asking them to use that to decarbonize doesn’t make sense.”

3) PURCHASE RENEWABLE ENERGY CERTIFICATES (RECS)



Feasibility of Renewable Electricity Solutions by Country

Table 01.3

Bangladesh	China	India	Pakistan
Limited feasibility (due to cost)	Feasible	Unevenly feasible	Feasible

Source: based on interviews

Moving on to solution #3: purchasing Renewable Energy Certificates (RECs), which are market-based instruments that certify the owner as the owner of one megawatt-hour (MWh) of electricity from renewable energy. Although I-RECs (a verification standard for RECs, overseen by the International REC Standard Foundation) are technically available in all four countries in scope,³⁹ the cost varies dramatically (as does availability) and is too high to be feasible in some, suppliers say. But the bigger issue perhaps is that I-RECs are offsets, and the industry is moving away from this approach.

As one supplier noted:

“REC’s are available but are useless for most because the majority of our customers don’t want offsets, they want to see real reduction. Plus, acquiring them is expensive and the selling price is not very high.”

4) ELECTRIFYING THE THERMAL LOAD



Feasibility of Thermal Energy Solutions by Country

Table 01.4

Bangladesh	China	India	Pakistan
Depends on the size and type thermal load			

Source: based on interviews

Moving on to alternatives available for thermal every (AKA heat), beginning with option #4: Electrifying the thermal load. First, it's important to note that whether electrification leads to meaningful emissions reductions depends on whether the electricity source is renewable, which is currently mostly fossil fuels in the manufacturing countries in scope. Whether a supplier can electrify its thermal load depends on the type and size of the thermal load.

For example, using heat pumps is one way to electrify thermal loads, but they tend to be limited in how much heat they can produce. If a supplier needs hotter water (as many denim mills and laundries do), heat pumps won't work. It should also be noted that heat pumps are only useful for heating water, they cannot create steam, which is needed for processes such as dyeing, shaping and pre-shrinking.

Could electric boilers be a solution to thermal energy requirements? As several interviewees noted, electric boilers are only technically viable for facilities requiring boilers with a capacity of 2–3 tonnes per hour. This might work for a garment factory that has more limited steam requirements and doesn't also have a laundry facility, for example (rare in the world of denim). According to suppliers, it would not work for facilities, like mills and laundries, that likely require boilers with a capacity of 20 tons per hour.

Assuming the industry was able to innovate its way out of this limitation, would electric boilers then be a solution for suppliers' thermal energy requirements? Probably not. Again, it's important to emphasize that electrical boilers' emissions reduction capacity depends on what the energy source for that electricity is, which is currently mostly fossil fuels in the manufacturing countries in scope. Moreover, one interviewee expressed concern that the volumes of wet processing demanded by the denim sector could create a surge in excessive electrical requirements likely not currently feasible (the grid would have to likely be bolstered on both the generation and network side). Suppliers are also concerned about affordability, as in some contexts paying for large amounts of electricity is more expensive than buying coal, gas or oil.

5) SWITCHING TO LOWER CARBON FUEL SOURCES SUCH AS NATURAL GAS



Feasibility of Thermal Energy Solutions by Country

Table 01.5

Bangladesh	China	India	Pakistan
Already using. Less relevant ⁴⁰	Unevenly feasible	Unevenly feasible ⁴¹	Already using. Less relevant ⁴²

Source: based on interviews

Let's explore option #5: Switching to non-renewables that emit relatively fewer emissions, e.g. from coal to natural gas. Interviewees reported highly varied and conditional access to alternatives, depending on the nation and the region or province. One supplier noted having to negotiate with state-owned companies to get permission to use natural gas in China, for example. If granted, there were still significant infrastructure costs for building a pipeline from their facility to the point of access to the national pipeline. In some countries, like Pakistan and Bangladesh, where natural gas is already common, the "switching" strategy isn't relevant as many suppliers are already using a lower-emissions fossil fuel. Some suppliers said they simply aren't able to switch from coal at the moment, and this is impacting their ability to bring in new business, as brands increasingly have a coal phase-out policy.

As one supplier said:

"There isn't a viable way for us to replace coal overnight. The emphasis and thing we should be held accountable for is how much we're reducing our emissions, not how we're reducing those emissions. The brands are now dictating how we achieve our emissions reduction targets. It's like forcing on suppliers how they should meet their targets, instead of giving them the space to look at different options for achieving the goal."

6) SWITCH TO BIOFUELS



Feasibility of Thermal Energy Solutions by Country

Table 01.6

Bangladesh	China	India	Pakistan
Uneven feasibility (due to Inconsistent supply and a facility's total energy requirements)	Due to limited interviewees operating in China we were unable to determine whether biofuels are a viable option for companies operating in China	Uneven feasibility (due to inconsistent supply and a facility's total energy requirements)	Somewhat feasible due to industry-level infrastructure for biomass supply chains but still dependent on a facility's total energy requirements

Source: based on interviews

And finally, we arrive at option #6: Meeting thermal energy requirements through biomass fuel. Biomass is fuel sourced from plants or animals, and typically in supplier countries it is sourced from agricultural waste such as rice or corn, and can be less emissions intensive than fossil fuels or carbon neutral.⁴³ However, the viability of developing biofuel supply chains is also uncertain, as its availability varies significantly based on context and region. For example, storage and transportation is an issue, as biomass tends to be less energy-dense than coal and takes up much more space and can therefore be more expensive to transport. Other suppliers expressed concern because switching to biomass might require expensive machinery upgrades.

For example, one interviewee reported:

“Current steam generators need to be replaced with biomass boilers and the availability of biomass is a challenge.”

WHAT ABOUT IMPROVING ENERGY EFFICIENCY?

USE LESS

Renewable energy is not the only way to cut emissions. Suppliers can also increase energy efficiency, also known as energy optimization or process optimization, so that less energy is used up and wasted. Interviewees reported that brands, retailers, and multi-stakeholder organizations tend to treat decarbonization primarily as a utility issue, meaning that their focus is on renewable sources of primary energy rather than on optimizing and reducing energy consumption. They also noted that brands and retailers tend to treat energy optimization as “a supplier’s private business,” yet energy efficiency improvements are greatly needed and also depend on contextual factors that are often not within a single company’s control, like import costs on machinery, the cost of primary energy and availability of skilled labor. Moreover, failing to address process optimization will result in precious renewable energy being wasted.

In order to ground this discussion in tangible examples, Figure 2 gives **simplified scenarios of what energy efficiency optimization in a factory could look like** for different types of equipment and processes. It is **not an exhaustive or comprehensive list**, but the examples included are those that, according to suppliers, tend to consume the most energy within facilities involved in making denim: boilers used for generating steam power, chillers (air conditioners), air compressors, pumps, and blowers, such as those used in effluent treatment plants. We call these **energy consumption hotspots**.

According to suppliers, when the industry is willing to pursue energy efficiency projects, it tends to focus on tackling the most energy-intensive processes, like wet processing. **But suppliers say that the most energy-intensive equipment and processes are not always the processes with the most energy savings potential — and potential should be the focus.** Some processes are energy-intensive but quite efficient, for example. Others are not that energy-intensive but massively inefficient and could be greatly improved. The following pages help to clarify which types of hotspots are relevant for which types of production processes and where there is potential for improvement. A further analysis of the following pages demonstrates that focusing exclusively on Tier 2⁴⁴ and specifically on wet processing — the most energy-intensive part of production — could lead to missed opportunities at other Tiers where less energy is used but might have greater optimization potential.

EXAMPLE ENERGY CONSUMPTION HOTSPOTS

Source: based on interviews

BOILER (STEAM POWER GENERATION)

WHAT IS IT? A centralized system powered by a boiler for generating dry steam power that is distributed to different points of use throughout a factory. Used to heat water, dry,⁴⁵ or iron.

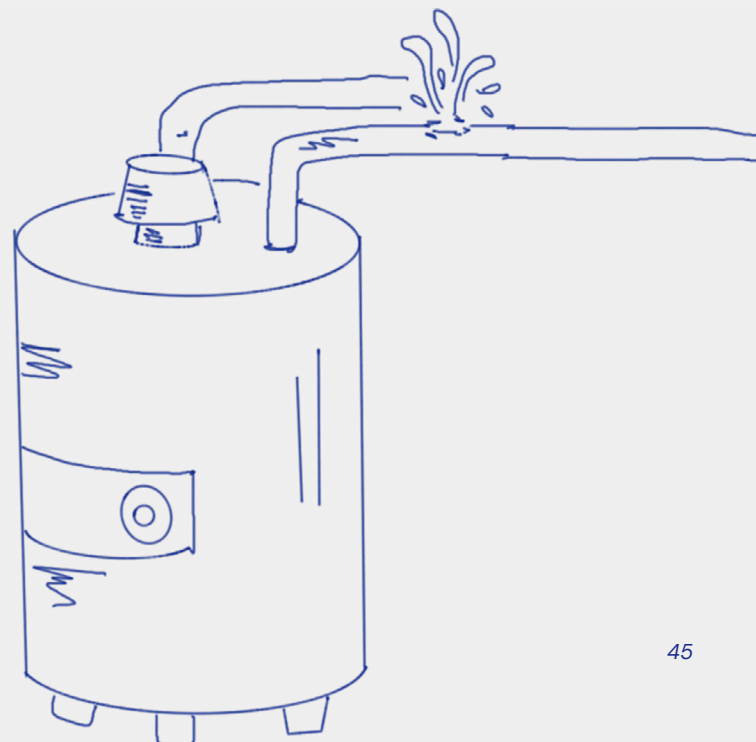
EXAMPLES OF ENERGY OPTIMIZATION POTENTIAL Distribution is more efficient if steam traps effectively reduce “leakages.” An inefficient distribution network likely results in extra energy generation (to compensate for suboptimal distribution).

Improved wash recipes or other technological interventions could reduce the amount of hot water needed.⁴⁶

Energy-inefficient laundries, which dry garments rather than fabric rolls, are moving towards air-drying belt systems. Most feasible in low-humidity countries.

PRODUCTION PROCESSES THAT REQUIRE IT

- Yarn
- Dyeing
- Weaving
- Cut & sew (ironing)
- Laundry (wash down & finishing)



EXAMPLE ENERGY CONSUMPTION HOTSPOTS

Source: based on interviews

COMPRESSED AIR

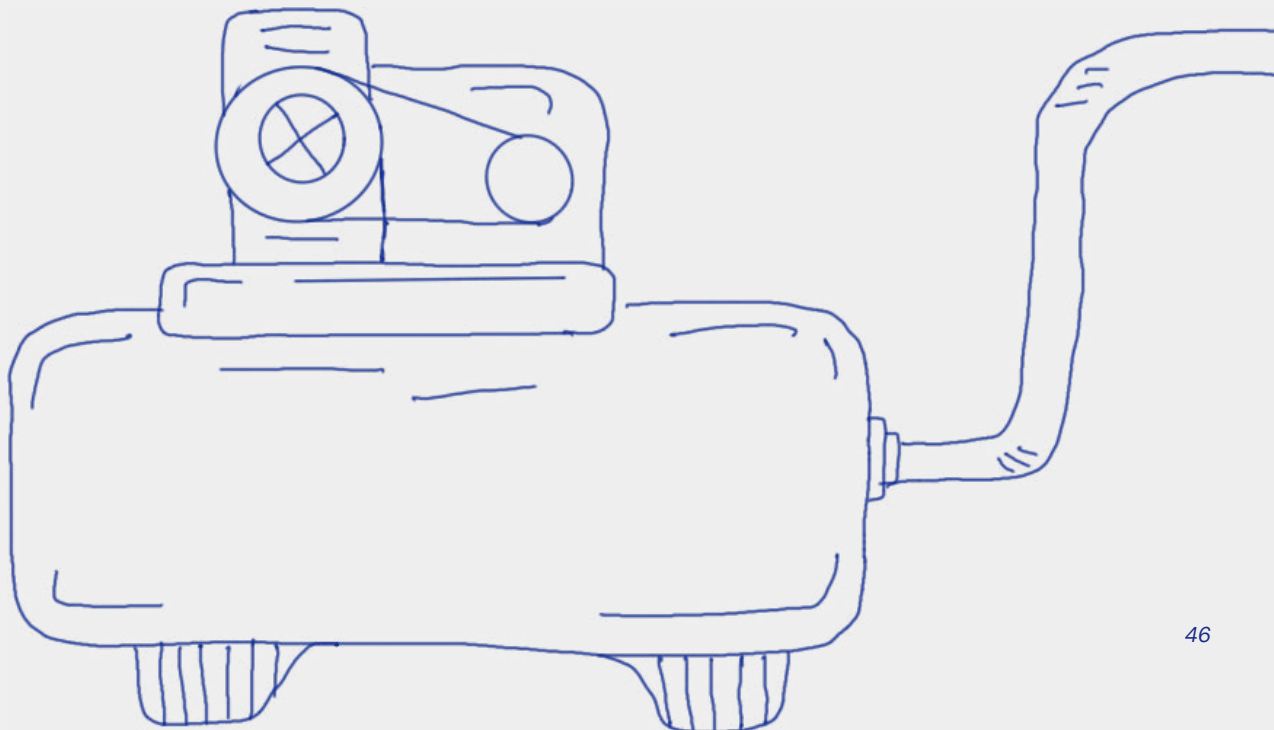
WHAT IS IT? A centralized system for distributing compressed air throughout a factory. Used, e.g., for weaving, spinning, embossing, and heat stamping.

EXAMPLES OF ENERGY OPTIMIZATION POTENTIAL An efficient distribution network requires minimal bends in piping and friction. It also requires an effective system for moving hot air exhaust, so that the temperature of the air going into the compressor is not too hot, preventing the need for additional cooling.

Control devices can also be added to ensure air compressors are only blowing when necessary.

PRODUCTION PROCESSES THAT REQUIRE IT

- Yarn
- Dyeing
- Weaving
- Cut & sew
- Laundry (wash down & finishing)



EXAMPLE ENERGY CONSUMPTION HOTSPOTS

Source: based on interviews

CHILLING

WHAT IS IT?

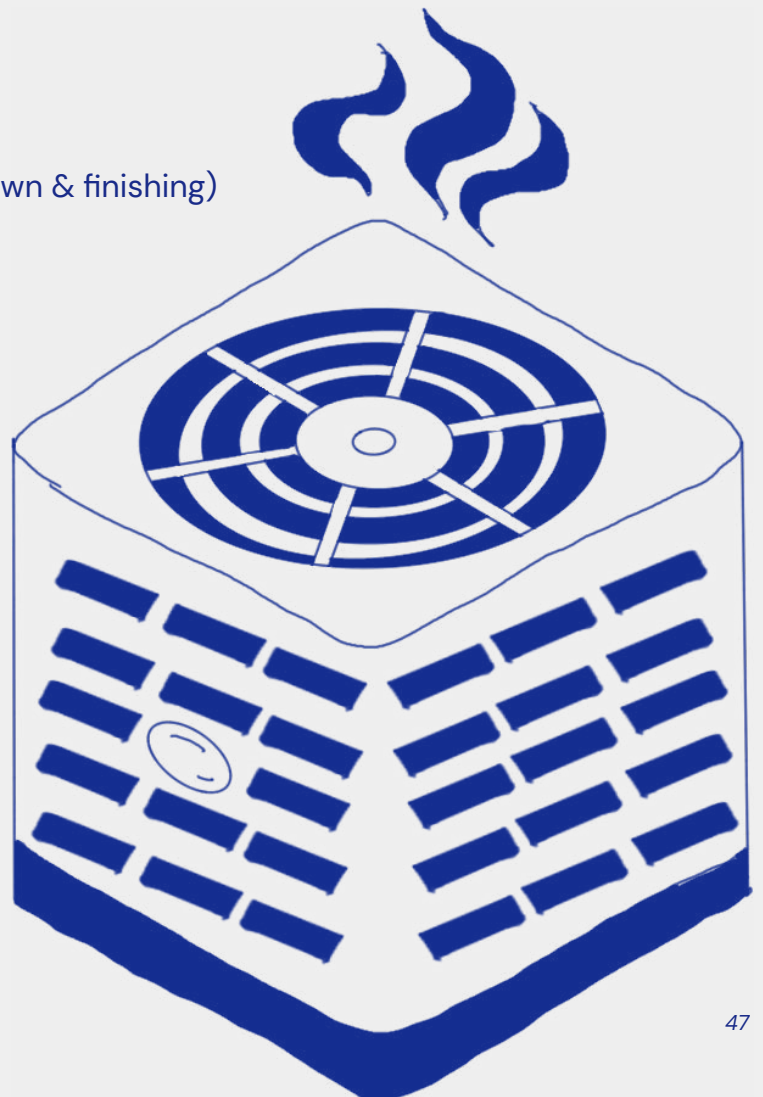
Cooling room temperature, usually through air conditioners. Relevant for equipment that needs to be kept at a consistent temperature.

EXAMPLES OF ENERGY OPTIMIZATION POTENTIAL

Use of energy-efficient equipment, typically by investing in newer machines.

PRODUCTION PROCESSES THAT REQUIRE IT

- Yarn
- Dyeing
- Weaving
- Cut & sew
- Laundry (wash down & finishing)



EXAMPLE ENERGY CONSUMPTION HOTSPOTS

Source: based on interviews

PUMPS

WHAT IS IT? Used to transport water or fluid. For example, to transport the water needed for dyeing.

EXAMPLES OF ENERGY OPTIMIZATION POTENTIAL Powered by electric motors. Motors have different classes. For example, suppliers could update up to IE4. Placement is also important for ensuring efficient disbursement of fluids. Requires equipment that is well-designed, properly installed, and maintained.

PRODUCTION PROCESSES THAT REQUIRE IT

- Yarn
- Dyeing
- Weaving
- Cut & sew
- Laundry (wash down & finishing)



EXAMPLE ENERGY CONSUMPTION HOTSPOTS

Source: based on interviews

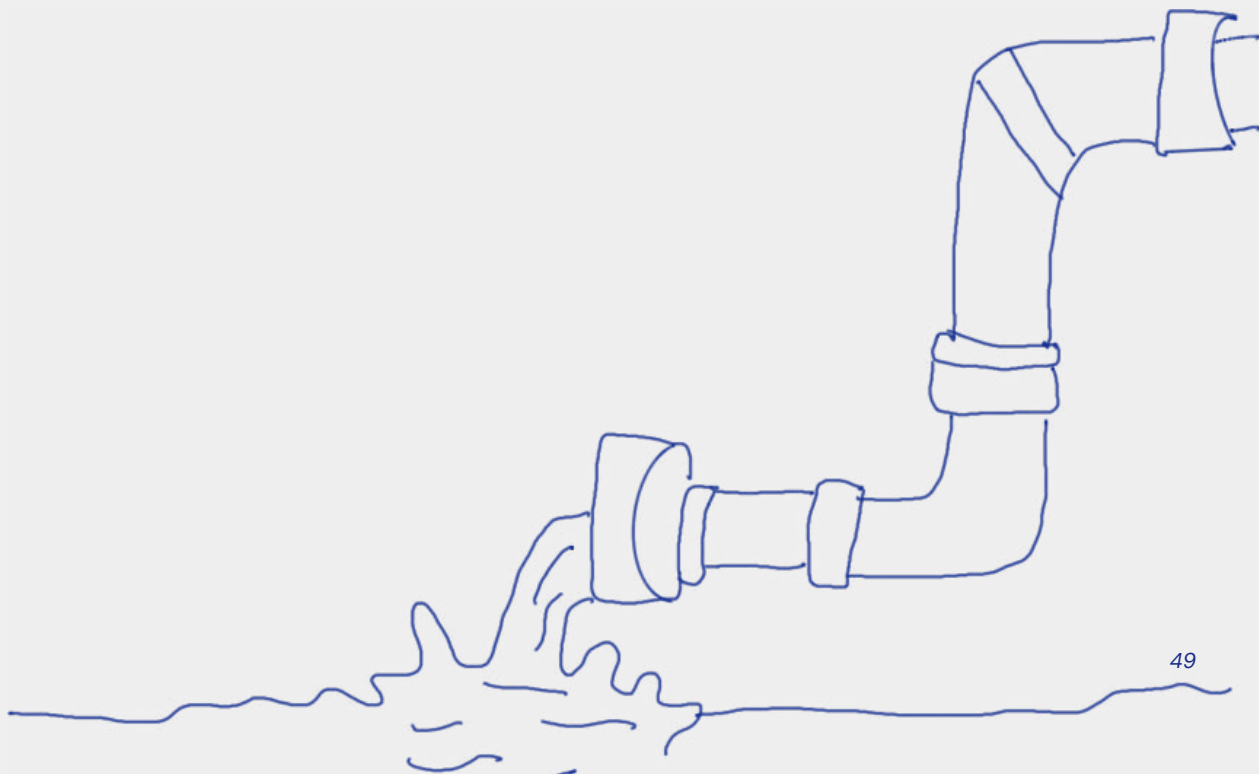
BLOWERS

WHAT IS IT? Used to clean wastewater. Air is blown through a pipeline to create air bubbles in the wastewater to create carbon dioxide.

EXAMPLES OF ENERGY OPTIMIZATION POTENTIAL Powered by electric motors. Motors have different classes. For example, suppliers could be updated to high efficiency ratings. Optimization requires a system designed to ensure that just enough air is blown into waste water (rather than too much, as is often the case). Requires a wastewater treatment plant (ETP) that is well-designed, properly installed, and maintained.

PRODUCTION PROCESSES THAT REQUIRE IT

- Dyeing
- Laundry (wash down & finishing)



CONTEXTUAL FACTORS THAT INFLUENCE THE FEASIBILITY AND POTENTIAL FOR SUPPLIERS TO INCREASE ENERGY EFFICIENCY WITHIN THESE HOTSPOTS AND BEYOND:



SKILLED LABOR IS CURRENTLY LIMITING ABILITY TO MAKE CERTAIN UPGRADES AND IMPROVEMENTS

Though there is enormous potential to improve efficiency in the denim supply chain, *the extent to which a company is able to implement energy efficiency programs depends in part on the availability of a skilled engineering labor force*, not only on staff but also within a nation's available workforce of consultants and contractors. Interviewees noted that in Bangladesh and Pakistan, the education system struggles to produce high-quality mechanical engineers because of a historical lack of industry and subsequent weak demand for engineers. Engineers are likely to be competent at maintenance and following standard operating procedures but not at designing or installing optimized systems, they say. By contrast, India and China have very robust industry demand for engineers, which has supported strong educational programs. Thus, simply based on current educational demand and the available labor pool, a factory running a set of processes in Bangladesh likely will not have the same energy optimization potential as another factory running exactly the same processes in a country with more highly skilled contractors and consultants.

As one supplier in Bangladesh noted:

"75% of [denim manufacturing] facilities [in Bangladesh] could reduce emissions by 20% simply by improving on efficiency in steam recapture," but noted that they don't capitalize on it because of inadequate engineering skills, among other factors."

CONTEXTUAL FACTORS THAT INFLUENCE THE FEASIBILITY AND POTENTIAL FOR SUPPLIERS TO INCREASE ENERGY EFFICIENCY WITHIN THESE HOTSPOTS AND BEYOND:



COST OF ENERGY AND HIGH IMPORT COSTS CAN LIMIT EFFICIENCY IMPROVEMENTS

There are also numerous financial considerations impacting energy optimization potential, which we go into in more detail in Chapter 2: Who Pays? Among those considerations, we felt it important to fold into this section a mention of the cost of energy in the supplier country. In textile-producing nations where fossil fuels are cheap, the financial return on investment into energy efficiency processes and machinery is much longer (or, in some cases, even non-existent) than in countries with pricier fossil fuels because savings can't be generated quickly relative to the inefficient machine currently being used. Another interviewee noted that the government import duties on energy-efficient equipment, such as steam traps, vary significantly from country to country, also impacting return on investment. Thus, the financial feasibility of optimization also depends on context.

What's more, the cost of research and development into new energy-efficient processes is very high and suppliers say that brands don't view this investment as their purview. Lastly, energy efficiency improvements can change the nature and quality of the product – and suppliers stressed that efficiency efforts have to factor in commercial viability, too. For these reasons, suppliers urged a focus on improving processes with the most optimization potential, defining potential not just as room for efficiency improvements but also factoring in commercial potential.

* A note on pre-existing investments

Some suppliers also identified another concern: That operationalizing SBTs may ignore pre-existing investments, and some are concerned they could put early adopters at a disadvantage. A supplier's ability to reduce GHG emissions in line with SBTs depends on the degree to which they had already reduced emissions prior to setting SBTs and determining a baseline year. This was a key concern in particular for our sample, as many are leaders in sustainability who started their environmental protection programs years ago (some nearly a decade ago). Some of the denim suppliers participating in this research set SBTs after their implementation of solar power and during their transition to energy-efficient processing, making further emissions reductions comparatively much more difficult and expensive. Some of those who got a head start are worried they are now at a disadvantage because they have already invested in efficiency gains and solar panels to their full extent. Thus, it's important that SBTs avoid creating a perverse incentive of punishing early adopters and companies who have already done the most work to decarbonize.

As one interviewee put it:

"I used to work for a different company...and the carbon reduction journey for that company started in 2011. They've done a huge amount of work [prior] to [the] 2019 baseline [set by SBT]. [By contrast, a lot of the work at my current company] started in 2019. So if you're asking both parties to reduce by 50% by 2030, [my current company] actually has the easier way and capability to reduce it because it has a lot of low-payback projects [that haven't been done yet]. But [my former] company is different...The decarbonization effort would be very different."

5

CONCLUSION: MOVING FROM TARGETS TO CONTEXT, FEASIBILITY, AND EQUITY

As Chapter 1 has demonstrated, *under current conditions, it is simply not possible for all suppliers operating in diverse contexts to reduce their emissions as swiftly and deeply as is being demanded – and at the pace required by brand-imposed SBTs.* Among the factors shaping the potential for decarbonization in the supply chain are the availability of renewables and other alternative energy solutions, labor force engineering skills, the physical space available for solar, and the commercial viability of energy efficiency, among others.

These contextual factors must be considered when apportioning responsibility for decarbonization if we hope to build a practicable roadmap to decarbonization. While some of these contextual factors are quite challenging, *it's possible to imagine if the industry came together to share responsibility—and financing—for solutions, many of these roadblocks could be overcome.* We explore these solutions more fully in the final chapter: ***Towards a Collective Approach to Climate Action in Fashion.***

6

WHO SHOULD DO HOW MUCH? CALLS TO ACTION

These calls to action are relevant to legislators and policymakers, brands and retailers, multi-stakeholder organizations and industry convenors, as well as NGOs and advocacy organizations.

Rethink how our collective goal – the Paris Agreement – is distributed to the private sector. It's time for individuals to stop conflating our collective goal – the Paris Agreement – with mechanisms for distributing responsibility for that collective goal to individual companies (i.e., science-based targets).

Acknowledge and accommodate the fact that companies have different technical and contextual potential to decarbonize: It's time to let go of the often implicit and unacknowledged belief that all companies can decarbonize at the same pace and to the same extent – this is not only a matter of equity but of efficacy. Context, technical feasibility, and sociopolitical factors all determine decarbonization potentiality.

Energy efficiency must be enabled to the same degree as renewables: It's time to emphasize optimizing energy sources and using energy more efficiently, alongside the pursuit of renewable energy. Both strategies are needed. Without energy optimization, renewable energy will simply be wasted.

Pursue a differentiated approach to target setting that factors in feasibility, context and equity. It's time to work with suppliers to experiment with alternative approaches to target setting. This is not an excuse for inaction: the collective goal remains unchanged. Instead, experimentation should focus on differentiated ways of distributing responsibility for that goal within a given value chain. Differentiated target-setting, however, is only effective and should only be used as part of a collective approach to decarbonization, outlined in Chapter 5.

Chapter 2

WHO PAYS?

1 WHAT IS THE SECTOR'S PREVAILING APPROACH TO THIS QUESTION?

It will require a breathtaking sum — at least **\$4 trillion USD** a year by 2030 invested into renewable energy alone⁴⁷ — to transition the global economy to net zero emissions by 2050. One commonly-cited figure in the fashion industry, put forward by the Apparel Impact Institute (Aii), is that at least \$1 trillion is needed to finance decarbonization in the sector.⁴⁸ While the figure to decarbonize denim is less certain, we can assume it will be substantial, as the denim sector is a significant segment of the fashion industry (a \$65 billion global market⁴⁹ within an estimated \$2.6 trillion fashion sector).

Some of the work to decarbonize the supply chain will save suppliers money and generate returns, to be sure, for example, by improving energy efficiency. **But suppliers say not all or even most decarbonization projects in the supply chain will generate returns.** They say there's a need for substantial outlays of financing that may never generate returns, from building alternative energy supply chains and buying electrified machinery to constructing new low-carbon factory units from the ground up. Some projects may even increase costs.

Chapter 1 explored who should do how much to decarbonize fashion, this chapter asks the industry to rethink who will pay to reach the sector's climate goals.

The research for this chapter found that the “who pays” for decarbonization question is rarely explicitly addressed in conversations between brands and suppliers, even when brands ask suppliers to decarbonize and set science-based targets. Instead, suppliers say it is implied from the outset that manufacturers will be the ones to pay. This, in turn, means that suppliers are expected to pay for the bulk of the apparel sector's decarbonization activities, as it's their facilities and operations that must do the most work in order to meet the sector's climate goals. While brands could support these initiatives through higher prices and longer-term contracts and business commitments, at a minimum, suppliers say — and extensive research confirms⁵⁰ — that brands continue to push down further on prices.

This assumption that suppliers will pay is sometimes implicitly justified on the basis that decarbonization-related investments will generate financial returns. A 2020 McKinsey report noted that 55% of the abatement measures identified for the fashion sector would generate net cost savings,⁵¹ but it's important to note that this report doesn't factor in that suppliers aren't encouraged or even permitted to pursue their own abatement paths based on feasibility or financial return; their sustainability programming is often dictated by brands (we explore this top-down approach to climate action in Chapter 3).

One of the few publications that has looked at the "who pays" question for the apparel sector is the 2021 Aii and Fashion for Good report, "Unlocking the Trillion-Dollar Fashion Decarbonisation Opportunity: Existing and innovative solutions."⁵² As the title of the report suggests, many industry initiatives assume that once processes have been effectively optimized or innovations have been proven and scaled, they will generate financial returns. Suppliers say that brands also assume investments will lead to cost savings if only suppliers put more effort into figuring out how.

As one supplier commented:

"As of now, whenever we find out any alternate solution [to decarbonization], the cost is much too high. At the same time, the brand is saying "we are your business partner," but when we [share these] challenges with them, [all of the financial] responsibility is on the manufacturers' shoulders. So this... is the main challenge...it [should be] a collaborative problem for everyone...not just a manufacturer's problem."

Thus, some of the critical questions we sought answers to from suppliers in this chapter are:

- Which investments and projects needed to achieve the deep and rapid decarbonization demanded by the Paris Agreement actually generate returns and which ones do not?
- Are suppliers, in practice, able to access financing to decarbonize at the rate and to the extent needed?
- And what other funding models exist—or should exist—that distribute the financial responsibility equitably?

2

HOW HAS THIS APPROACH BEEN OPERATIONALIZED WITHIN THE FASHION SECTOR?

There are some noteworthy initiatives that support factory-level decarbonization projects in apparel supply chains. *This isn't a comprehensive overview of available financing but rather a space to share supplier experiences and viewpoints of the available approaches.* We've also chosen to focus on project financing initiatives that invest in facilities and infrastructure, rather than other types of funding like trade financing initiatives. The reason we've focused on factory-level financing is, as our findings show, bespoke, factory-level decarbonization is required to reach the rapid and deep levels of emissions reductions the industry must achieve.

There are industry initiatives focused on what we refer to as "fast" payback projects, those that we define as generating a return on investment in under two years. *We can think of these as the "quick wins" of climate action.*

CLEAN BY DESIGN (CBD)

Most notably, the Clean by Design (CbD) CbD program created by the Natural Resource Defense Council (NRDC) in 2007 offers factories technical support with energy efficiency improvements that lead to quick cost savings. The program is now run via the Apparel Impact Institute (Aii). It does not support companies with access to finance. Savings are instead achieved through practices such as boiler efficiency, plugging leaks, recycling heat, and making insulation improvements, which, according to Aii, generate returns within nine months and an average savings of 700k USD per year for individual suppliers, as of 2021.⁵³ This is a good return and a fast payback period, and while suppliers were generally complimentary of the CbD program, some suppliers said that despite the promise of future savings, they were unable to access the financing they needed to take part in these projects.

A larger concern among this group of suppliers (keeping in mind they are leaders in sustainability in the industry) is that many have already pursued and cleared the "quick wins" in their facilities, and they feel there's not enough honesty in the industry that "quick wins" represent just a sliver of the decarbonization that needs to be done. They feel that energy efficiency programs are being oversold as a climate solution, and that many other aspects of decarbonization in factories are going unacknowledged.

One supplier noted:

“Clean by Design is a necessary start for factories who are not even thinking about energy efficiency. It’s the basic building block that encourages companies to invest in fast payback projects... But this program is insufficient for going beyond fast payback projects and creates a false narrative among factories around project paybacks. I still support it as fast payback projects done at scale having a huge decarbonization benefit. But listening to Aii speak, one might end up thinking these guys have already solved the whole problem.”

However, Aii recently launched a Carbon Leadership Program that they say⁵⁵ helps suppliers support “holistic decarbonization plans” by moving beyond energy efficiency to also include renewable energy and thermal solutions.

GOOD FASHION FUND (GFF)

Two other notable industry initiatives are the Netherlands-based Good Fashion Fund and H&M Group’s Green Fashion Initiative. Good Fashion Fund (GFF) is an impact financing initiative that provides long-term USD debt financing (up to \$2.5M USD) with a focus on wet processing, wastewater treatment, and recycling technologies for the textile industry.⁵⁵ It is not specifically focused on decarbonization, but perhaps the bigger issue is that it only offers debt financing, meaning issuing loans with interest to manufacturers.⁵⁶

H&M GROUP’S GREEN FASHION INITIATIVE

On the other hand, H&M Group’s Green Fashion Initiative is pioneering, as it provides funding to its own suppliers so that they can invest in energy efficiency and “replacing fossil fuels.”^{57 58} An earlier version of the report described the GFI program as debt-based, but according to new information from H&M Group shared after the report’s initial release, the program traditionally focused on loans but now also offers direct financial support in addition to loans, and which takes into consideration the Group’s business share at a given facility. An H&M Group representative notes that although this can limit the company’s ability to offer direct financing, they also support multi-brand funding options, and are still seeking similarly motivated brands. According to H&M Group, the loans they offer have “favorable terms”. However, suppliers noted that many of them are in no position to take on this kind of debt, either because they’re already overleveraged, they can’t accept the risk because of industry instability, or they have other more urgent capital expenditures that come first. Beyond these points, many decarbonization projects don’t offer returns, and thus suppliers can’t and won’t take them on even if debt financing is available.⁵⁹

FASHION CLIMATE FUND (FCF)

Finally, Aii's Fashion Climate Fund (FCF) is a new initiative which aims to raise \$2 billion in blended capital from a mix of philanthropy, brands, manufacturers, and debt and equity for "proven" climate solutions, specifically third-party solutions providers and technical experts working in the supply chain.⁶⁰ Aii also says that the FCF is not intended to make financial or capital investments at the supplier level, but that suppliers will "benefit" indirectly from this funding.⁶¹ Nevertheless, as it stands, it's unclear how much of a solution this new initiative presents for suppliers given the great need they identify for supplier-level financing.

Though moves by the industry to support suppliers with access to finance should be both celebrated and encouraged, it is important to emphasize that most available funding for factory-level decarbonization projects are, primarily, still debt-based — and thus assume that the work generates returns and that suppliers can take on debt.

3

DENIM IN CONTEXT: TWO TYPES OF FUNDING NEEDED TO DECARBONIZE AND THE ROADBLOCKS TO ACCESS

There are two broad categories of decarbonization funding needs in the supply chain identified by suppliers, and they say both are being underserved and ignored in different ways.

The first is financing for projects that will offer suppliers a financial return in a relatively short period of time (the “quick wins” or fast and medium-term investments). The second is financing for projects that offer no returns (or have very long payback periods) that are too risky for suppliers to shoulder themselves — these are the long-term or no-return projects (See Table 2).

Across both of these funding needs, suppliers identified specific challenges related to availability, accessibility, and affordability of funds

In other words:

- * IS THERE ENOUGH FUNDING AVAILABLE TO FINANCE THESE PROJECTS?
- * CAN SUPPLIERS ACTUALLY ACCESS IT?
- * AND HOW CHEAP OR EXPENSIVE IS IT RELATIVE TO THE FINANCIAL RETURNS THE INVESTMENT WILL GENERATE?

In the following section, we outline our findings.

IS ENOUGH FUNDING AVAILABLE?

Funding Challenges for Decarbonization Projects

Table 02.1

Fast & medium-term payback projects	Long or no-payback projects
Not always	Rarely

Source: based on interviews



AVAILABILITY OF FUNDS IS INSUFFICIENT

Numerous suppliers participating in the research for this report pointed out that the amount of capital available to denim suppliers—whether as debt for fast or medium-term payback projects or grants for long or no-payback projects—is **simply insufficient**. Grants available through the Fashion Climate Fund, for example, range from \$50–250k USD, and suppliers say this is often just **a fraction of what's needed for new equipment or changes in energy sources in a factory**.

One supplier reflected that funding limits are too low, for example:

“One project that I’m pursuing [right now] requires a couple of million dollars. So we have looked at the various funds.... [but] the limits are way less than [what’s needed]... There are many organizations in Europe and in other places that are willing to fund decarbonization. But the [funding] limit is [too low] – like some of them are not even going above 500,000 Euros...We won’t be able to achieve our targets by 2030 or 2050 if the pace of funding is at the current level.”

This same supplier also clarified that this particular funding opportunity was 2.5% grant and 97.5% debt.

One of the most pressing issues is that there is little to no available funding for projects that offer no returns. A significant number of the suppliers participating in the research for this report stressed that if the sector is serious about delivering emissions-reduction targets, numerous investments with extremely long payback periods (or no paybacks) must be made. In fact, suppliers say that many decarbonization efforts are not in fact investments that generate returns, but additional expenses that suppliers must absorb. For example, a Pakistani supplier explained that developing biogas as a potentially lower-emission energy source for their company requires \$2 million USD in capital expenditure and actually adds \$1 million USD in additional operational expenditure. The supplier is betting on securing new customers willing to pay a higher price to cover these increased costs — a risky proposition. ***Suppliers also say that there is ultimately little industry acknowledgment of and no coordinated plan for how to fund the “no payback” projects.***

As one supplier put it:

“There are certain decarbonization efforts that may not offer immediate or any financial gains, such as replacing cheap fuels like coal or natural gas with solar thermal or biomass. To bridge this gap, we must recognize that external funding support that is not debt is the catalyst that empowers us to invest in rapid decarbonization of the supply chain.”

IS THE FUNDING ACCESSIBLE?

Funding Challenges for Decarbonization Projects

Table 02.2

Fast & medium-term payback projects	Long or no-payback projects
Not always	Rarely

Source: based on interviews



ACCESSING FUNDS IS A CHALLENGE, PARTICULARLY IN GLOBAL SOUTH NATIONS

Numerous suppliers also noted that access to finance remains a big barrier to decarbonizing, even for projects that demonstrate a return on investment. Several suppliers stressed that a supplier's ability to borrow money is dependent on context — and this is greatly shaped by the nature of global monetary policy and economic and political conditions. In several key denim-producing countries, suppliers say they are often stymied from borrowing hard currency, meaning foreign currency that's more stable than the national currency, which is, according to suppliers, largely how loans are distributed under, for example, H&M Group's Green Fashion Initiative. According to H&M Group, "the loans we offer are available in both hard currency and local currency wherever feasible."⁶² This is of particular concern in Bangladesh, where in May 2023, the government announced a 20% tax on interest for foreign loans.⁶³ Another interviewee noted that their loan application was denied by the Bangladesh central bank because it was too expensive.

This supplier shared:

"All foreign loans must be approved by Bangladesh Bank (Central Bank) and I know of specific instances where Bangladesh Bank did not approve some loans saying their terms are not good for Bangladesh."

IS THE FUNDING AFFORDABLE?

Funding Challenges for Decarbonization Projects

Table 02.3

<i>Fast & medium-term payback projects</i>	<i>Long or no-payback projects</i>
Not always	No

Source: based on interviews



BRAND AND RETAILER PURCHASING PRACTICES AND THE GEOPOLITICAL CONTEXT IMPACTING FUNDING AFFORDABILITY

Suppliers also stressed that the affordability of funds, which impacts whether there's a strong business case for a supplier to accept funding opportunities, varied by context and was, in large part, contingent on brand and retailer sourcing practices.

One problem is the fickle nature of the fashion industry and that brands rarely make long-term commitments to suppliers, which makes it difficult for a supplier to demonstrate to banks and other financiers that it has future orders and thus solid income necessary to pay down a loan well into the future.

For example, one supplier shared:

"We've seen plenty of companies who are not doing the investment, not because they don't have fast payback projects, but [because]...there are constraints that block them from accessing finance, which could [simply be] not having future visibility to orders."

Some suppliers felt brands have a responsibility to at least raise prices — or offer longer-term contracts and committed visibility into future orders — to enable lower-impact production and make the investment paybacks more viable. Some felt that, from their perspective, brand and retailer purchasing practices will determine whether a particular innovation will scale and become financially viable (others felt it was necessary but not sufficient). **Several also expressed frustration that brands' and retailers' are not only unwilling to share costs to decarbonize but will not pay suppliers a higher price for products with a lower GHG emissions impact.**

For example, on interviewee noted:

“We see that [European brands and retailers’] priority is really to keep low prices. They have no intention to increase [prices], and I think decarbonization is [falling down on their list of] priorities.”

Another shared:

“Climate change should be our first priority when you think about it. But we also need to keep our financial stability ... So that’s the biggest challenge... the increasing price on the production costs, that really holds us back. Because no [brands] wants to pay for the price. That’s the main issue here.”

Other suppliers noted that brands will not even offer long-term contracts or explore other mechanisms that would give them a vested financial interest in their suppliers’ continued existence and help them meet their SBTs. As one supplier put it:

“If the brand says the speed of decarbonization is your [the supplier’s] job, it does not tie the decarbonization commitment to any commercial or business relationship, initial financing efforts or anything else. It’s my...solitary burden to deliver.”

Another issue, especially for short-and medium-term payback projects, has once again to do with foreign currency loans — but this time in the context of affordability not access. **Because some financing is offered in Euros or dollars, even if suppliers are able to access these opportunities, the risk of local currency devaluations make this option unviable for some.**

For example, one supplier reflected:

“There is a currency risk on foreign borrowing. For example, [one company] took a USD loan to fund a large group-wide solar project in 2018. The project had a solar PPA (purchasing power agreement) with the local government based on a fixed [local currency] tariff. When the company borrowed, the dollar was 150 relative to local currency. By the end of the year, it was 180. Last year it was at 360. So the company took a massive loss.”

4 CONCLUSION: DECOUPLING “WHO DOES HOW MUCH” FROM “WHO PAYS”

Suppliers are tasked with taking on the bulk of fashion’s work to decarbonize. As this chapter demonstrates, the assumption is they should also pay for it. They must do most of the work — and foot the bill. ***This assumption that the supplier pays is not only inequitable — it’s impracticable.*** Suppliers do not always have access to financing for numerous contextual reasons, available financing is currently too low, and much of it is debt-based, yet many emissions-reduction endeavors will not generate returns.

LEAVING SUPPLIERS TO SELF-FUND DECARBONIZATION IS NOT ONLY INEQUITABLE AND UNFAIR, IT ALL BUT GUARANTEES THAT THE WORK WILL NOT GET DONE AT THE RATE AND TO THE DEGREE IT NEEDS TO BE DONE.

After all, no company — no matter how much they believe in the urgent need to address climate change — can take on substantial debt without a promise of return. This would put them at an enormous disadvantage that simply no business can accept. Companies also have competing claims on capital, such as capital that funds growth (like new factories), machinery upgrades, or capital that funds sustainability initiatives. Even if a sustainability project does generate returns, capital is likely to be used for growth and upgrades before sustainability.

This is not unique to suppliers but a general business principle.

How do we move beyond this conundrum?

To start, ***the apparel industry needs to stop perpetuating the idea that reducing GHG emissions always, or even often, leads to cost savings and returns.*** It needs a strategy to address projects that offer no returns. Without honesty about the cost of decarbonization, climate goals simply cannot be met. ***Here is the two-part solution:***

THE FIRST KEY TO UNLOCKING DENIM'S DECARBONIZATION PUZZLE IS DECOUPLING THE "WHO DOES HOW MUCH" QUESTION FROM THE "WHO PAYS" QUESTION. IN OTHER WORDS, JUST BECAUSE A COMPANY NEEDS TO DEEPLY DECARBONIZE TO MEET OUR COLLECTIVE CLIMATE GOALS, THAT DOES NOT MEAN THEY'RE AUTOMATICALLY RESPONSIBLE FOR PAYING THE TAB. THESE TWO PIECES OF THE PUZZLE—WHERE DOES THE WORK NEED TO BE DONE AND WHO PAYS—NEED TO BE SOLVED SEPARATELY.



FROM THERE, RESPONSIBILITY FOR FINANCING DECARBONIZATION IN FASHION SUPPLY CHAINS MUST BE COLLECTIVE—WITH BRANDS AND RETAILERS CONTRIBUTING ALONGSIDE, FOR EXAMPLE, BANKS, GOVERNMENTS, AND PHILANTHROPISTS. CONTRIBUTIONS SHOULD BE LINKED TO ABILITY TO PAY AND COULD FACTOR IN EQUITY, MARGINS, AND HISTORICAL EMISSIONS, FOR EXAMPLE.

SUPPLIER-GENERATED SOLUTIONS FOR COLLECTIVE FUNDING STRATEGIES

The suppliers participating in this research offered several other practical suggestions for how to move to this collective model and achieve more equitable financing approaches through clearer mandates on brands and retailers, and advocating for new reporting and classification mechanisms. **Here is an overview of their ideas:**

EXPLORE EQUITY-BASED SOLUTIONS OR LOANS WITH ALTERNATIVE COLLATERAL

The industry should explore equity-based solutions, meaning solutions where the risk is not borne entirely by the supplier and where multiple value-chain actors have a vested interest in the success of a given investment. For example, alongside debt-based solutions, brands and retailers could acquire equity in their suppliers to supply them with the cash they need to make capital-intensive investments. This would ensure that brands and retailers have a vested financial interest in their suppliers and the investments they're making to address emissions, making it harder for them to switch suppliers when prices are cheaper elsewhere. This is an area in need of much more exploration beyond this paper, but one supplier offered a solution and an example along this vein:

"The brand should come in with equity-based solutions... [so] the financial risk of the project is actually shared. But there could be other [solutions too]... For example, I've seen the European Central Bank underwriting decarbonization incentives so that banks can lend to factories without collateral... at a lower rate because their risk is covered in some other way."

ESTABLISH NEW REPORTING MECHANISMS OR BRAND RANKINGS THAT REFLECT COMPANY CONTRIBUTIONS

Several interviewees advocated reporting mechanisms that differentiate companies based on the extent to which they invest in their supply chain's decarbonization. For example, one supplier advocated revising the Greenhouse Gas Protocol to introduce the following three levels of Scope 3 reductions that convey to the public how much work is being done or how much support has been contributed by the company claiming the reductions (in order to incentivize more action):

- *Level 1 would differentiate emissions reductions made without any active engagement or support from the company claiming the Scope 3 reductions.*
- *Level 2 would differentiate emissions reductions made with active technical support from the company claiming those reductions as part of their Scope 3 reductions.*
- *Level 3 would differentiate emissions reductions made with financial support from the company claiming the Scope 3 reductions*

This supplier noted:

"I would think that [a reporting system focused on actual investment would] force some of the companies – and here I'm not specifically talking about brands [but also] people who are in the middle of the value chain – to actually [make] active investments and engagements in the supply chain for decarbonization."

The supplier suggested that publicly classifying brands and retailers based on the extent to which they invest in their supply chain's decarbonization would be another way to push for redistributed responsibility for the "who pays" question. This supplier further suggested that legislators in countries where brands and retailers are headquartered could also create incentives for brands and retailers to further encourage this.

MANDATE BRAND AND RETAILER INVESTMENTS

Several suppliers suggested that brands and retailers should be mandated to invest in their supply chains' decarbonization. For example, one participant made reference to the Companies Act in India, which obliges in-scope companies to spend a minimum of 2% of their average net profit over the preceding three years on corporate social responsibility.⁶⁴ This strategy is of course dependent on the political conditions in a given nation but this expectation could also be part of MSI and NGO standards-setting procedures and pressure campaigns.

This supplier elaborated:

"[Companies should be required to make] a minimum investment in supply chain decarbonization. Something like 0.5% of the annual revenue – that type of thing will unlock financing and then brands will start running after manufacturers looking at projects because they got a pot of money and if they don't spend it, they [will be] penalized."

The supplier suggested developing a carbon market that unlocks funding for decarbonization:

"If you can come up with a proper quantification mechanism, there could be a Scope 3 carbon market in the EU. In the same way [that] the carbon market EU Emissions Trading System works, each brand gets a particular amount of carbon allowances and when they need more they have to buy it at that market. And that money goes into decarbonization."

THE INDUSTRY MUST CONCEPTUALLY ALIGN ON THE IDEA THAT DECARBONIZING AS QUICKLY AS TECHNICALLY POSSIBLE AND IN A WAY THAT IS ALSO EQUITABLE MEANS LETTING GO OF THE BELIEF THAT COMPANIES CAN SELF-FINANCE THEIR GHG EMISSIONS REDUCTIONS, PRIMARILY THROUGH DEBT. THE INDUSTRY MUST ALSO EMBRACE THE NEED FOR AND MORAL IMPERATIVE OF COLLECTIVE FINANCING – IT IS THE ONLY JUST AND PRACTICABLE WAY TO ACHIEVE OUR CLIMATE GOALS.

PRACTICALLY, A COLLECTIVE APPROACH TO FINANCING REQUIRES A FUNDAMENTAL RETHINK OF HOW DIFFERENT ACTORS ACROSS DENIM SUPPLY CHAINS ENGAGE WITH EACH OTHER.

TO SUPPORT SUCH A TRANSITION, WE CAN AND SHOULD DEBATE THE REPORTING SYSTEMS AND INVESTMENT MODELS THAT WOULD MORE EQUITABLY DISTRIBUTE THE FINANCIAL RISK AND COST OF DECARBONIZATION – AND IDEALLY, THIS PAPER WILL TRIGGER THAT EXPLORATION.

5

WHO PAYS? CALLS TO ACTION

These calls to action are relevant to legislators and policymakers, brands and retailers, multi-stakeholder organizations and industry convenors, NGOs and advocacy organizations, as well as financial experts.

Acknowledge and accommodate that decarbonization is not cost-neutral and does not always (or often) generate returns: There is a pervasive belief that all investments needed to achieve the deep and rapid decarbonization mandated by the Paris Agreement will generate a return. Decarbonization requires investment, much of it with no payback.

Funding GHG emissions reductions should be accomplished collectively and based on equity and margins: It's time to let go of the often implicit and unacknowledged belief that all companies can or should self-fund their decarbonization. Responsibility for funding decarbonization must be collective and equitable relative to the margins at each step of the chain. This is especially important for long-term or no-pay-back investments. This means that the Global North should do more.

We need new and creative ways to fund climate change mitigation – and not just debt-based options: We need to work together to more systematically evaluate the questions raised in this chapter and design new financial models for financing decarbonization.

This call to action is relevant to legislators and policymakers, multi-stakeholder organizations and industry convenors, as well as NGOs and advocacy organizations.

Brands should be evaluated not on the climate targets they meet (which takes credit for work done by suppliers) but on their investments: It's time to recognize the companies making investments in their supply chains' decarbonization.

For example:

- *Require companies to report on direct investment in their supply chain's decarbonization as a % of total revenue.*
- *Require brands and retailers to disclose whether and how much they contribute funds for supporting climate resilience and supporting garment supply chain workers impacted by climate disasters.*
- *Reformulate brand-ranking tools to evaluate companies on climate funding.*

This call to action is relevant to legislators and policymakers, brands and retailers, multi-stakeholder organizations and industry convenors, NGOs and advocacy organization.

Brands must commit to fair purchasing practices and more equitably distributed financial risk and reward (which would help enable rapid emissions reductions): Brands and retailers need to make long-term contracts or commit to other ways of ensuring they assume their fair share of financial risk as well as pay fair prices to help stabilize the transition to a net zero future. Policymakers can help by mandating fair purchasing practices, and NGOs and MSIs can encourage it through standards-setting.

Chapter 3

**WHO AND WHAT
WILL DRIVE
CHANGE?**

1 WHAT IS THE SECTOR'S PREVAILING APPROACH TO THIS QUESTION?

In this chapter, we explore who exactly is empowered to drive change when it comes to decarbonizing fashion. This is perhaps one of the most unexamined – and important – aspects of the conversation. The prevailing apparel industry approach to climate action is directive and comes from the top – from brands and retailers down to their factories, suppliers, and farms. **By “directive,” we mean that brands and retailers set the standards for suppliers and often by command and as a condition for doing business.** Sustainability in the supply chain is not a two-way conversation. In this chapter, we set out to find out who or what drives change – quickly identified as brands and retailers – and how this approach is operationalized in apparel, and what alternative approaches should be considered.

2 HOW HAS THIS APPROACH BEEN OPERATIONALIZED WITHIN THE FASHION SECTOR?

A comprehensive explanation for how the directive approach came about as the way to address environmental and social impacts in fashion is beyond the scope of this paper, but it manifests itself in many ways in the industry and stretches back decades, at the least (or, we could easily argue, centuries, with its roots in colonialism). For example, the industry has a common practice of requiring suppliers to adopt a Code of Conduct, an agreement under which suppliers pledge to not violate human rights and to follow basic local labor laws and environmental standards, among other requirements — and by which they regularly audit their factories for infractions.⁶⁵ Brands also require suppliers to adopt sustainability requirements related to, for example, hazardous chemicals, waste, and so on.

The assumption underlying the directive approach in fashion is that companies at the top of supply chains are best-positioned to dole out orders on social and environmental progress and that suppliers will not take action until brands and retailers tell them to. The directive approach also ignores that labor issues and environmental impacts can flow from the brands' own actions, such as purchasing practices. The directive paradigm has become a self-fulfilling prophecy whereby both brands and suppliers are accustomed to brands setting the sustainability agenda, suppliers, in turn, do not feel empowered to take action on their own.

On this point, one supplier remarked:

“In this sector very few [suppliers actually make their own sustainability plans. If you’re a manufacturer...a lot of them just cobbled up what the customers [are] asking them. And that’s our sustainability plan. So our ambition is actually not determined by us. It’s not determined by ..our local or global environmental issues. It’s determined by what the brands tell us to do. So we’ve created this dependency structure, especially in the space of sustainability....”

Suppliers emphasized that this top-down, directive approach to change is also reflected in brands and retailers requiring that factories adopt SBTs or reduce GHG emissions at a certain pace without any input from suppliers.

One stakeholder (asked to set an SBT even higher than the more typical 45% target) admitted:

“65% is not our target, it’s the SBT target of the brand. Our approach is to fulfill the requirements of the brand.”

3 DEBUNKED: CLIMATE ACTION IS BEST ACHIEVED WHEN TOP-DOWN AND DIRECTIVE

The consequences of the directive approach are twofold.

First, the nature of supply chains means that the *brands and retailers setting the sustainability agenda are not equipped with the right insight or knowledge to appropriately direct the climate change agenda*, as they are distanced to what's going on on a day-to-day level inside of factories and all along their supply chain.

Second, *the directive approach acts as a roadblock* to the more relational, collaborative exchanges that the fashion industry needs to develop in order to slow the effects of climate change.

HERE IS AN OVERVIEW OF
HOW SUPPLIERS THINK ABOUT
THESE ROADBLOCKS AND THEIR
CONSEQUENCES:



A DIRECTIVE APPROACH PRODUCES A LACK OF OWNERSHIP AND DUBIOUS DIRECTION

Participants noted that the top-down and directive approach to decarbonization leads to a lack of ownership over climate change mitigation strategies. ***A supplier's decarbonization strategy is not based on what they think makes sense or what works in their context, nor is it based on feasibility or what is beneficial for the supplier, the workers in the supply chain, or their community.*** A suppliers' climate strategy is only based on what their customers (e.g. brands and retailers) want.

As one supplier put it:

"You know, there have been times when the sustainability teams come up with a charter [or something] they want ... without realizing if those things are even doable."

For many, accepting sustainability standards, including SBTs, handed to them by brands is a requirement for continued business relationships. Some also set their own targets as a part of ongoing compliance with brand-established standards and a desire to adopt internationally recognized frameworks. Compliance with this growing number of standards requires significant resources and staffing. One interviewee at a vertically integrated facility reported that it would require at least 10 staff members dedicated to data entry to meet the various reporting and auditing requirements of brands.

Whether brands perceive it this way or not, some suppliers feel that SBTs enable brands and retailers to portray themselves as taking bold action on climate change while actually disengaging from the complexity of these goals, whether that's understanding which renewables are or aren't available to a given supplier or the challenges of efficiency improvements. Even though the work to achieve SBTs is largely done by suppliers, any reductions can be claimed by brands and retailers themselves.

In reality, and as we discuss in more detail below, *it would be nearly impossible for a brand or retailer to develop the necessary, nuanced, and bespoke emissions reduction plans for hundreds or thousands of suppliers operating across multiple countries and provinces, running different combinations of processes, using different types of machinery, and with their own unique decarbonization journey to date.* Thus, simply dictating that all suppliers meet similar goals — a 45% reduction by 2030, for example — is the path of least resistance.

One imagined the logic of a brand this way:

“If my principle [as a brand] is that I want to manage my supply chain transition using a simple (for me) mechanism, the SBTs are convenient.”

TOP-DOWN LEADERSHIP CAN ACTUALLY DISCOURAGE AMBITIOUS CLIMATE ACTION

In the public discourse about climate action and target-setting, it is implied that if companies — whether brands or suppliers — simply tried harder, cared more, or invested more, they would be able to achieve science-based targets and reduce their emissions year-after-year in line with the Paris Agreement. **One of the most dangerous consequences of ignoring feasibility is that some suppliers, in turn, feel that the only viable path is to advocate for a slower pace of decarbonization, such as advocating for targets to be set at less ambitious NDCs.** Others advocate for setting targets based on current resource availability, which would also lead to far less stringent targets.

For example, one supplier shared:

“When the resources are available, then we are all for equal targets. But until that happens, then we would like to see equitable targets based on the resources available of the sector or the region or the country.”

WITHOUT SUPPLIER LEADERSHIP, CLIMATE ADAPTATION AND RESILIENCE IS IGNORED

The bigger-picture consequence of a top-down and directive approach to climate action is a very narrow and privileged framing of the issue of climate change itself. Many suppliers are located in some of the countries most vulnerable to climate change and employ some of the people most vulnerable to climate change-related disruption, and suppliers participating in the research for this report emphasized that the climate change conversation within the fashion space has become synonymous with the word “decarbonization” and they say that this reflects the brand-driven — and Global North-driven — nature of the conversation.

Many suppliers are already living in countries, such as Bangladesh and India, facing extreme heat, weather-related disasters, and displacement related to climate change and with large populations of highly vulnerable people, including their own workers.

Manufacturers say they need the climate conversation to include a lot more emphasis on adaptation — meaning investing in protections needed to live securely in an already-warmer world — and protecting workers’ wellbeing, which is vulnerable to climate disasters.

For example, one participant reflected:

“Brands want solar panels for instance on factory rooftops, but what good are those panels if the factories are going to go underwater, or the area becomes too hot to humanely live [in] or the water runs out?”

Another supplier noted:

“The issue is that if you think about us as a manufacturer, I think there are three funding requirements that we will need. One is the funding that is needed for decarbonization. Second will need funding for climate resilience. Third, will be [funding to support] employees who may be highly vulnerable [to] climate-related disasters. Okay, so long as we keep our conversation purely on decarbonization, the other two areas go out of sight and out of mind and become exclusively a manufacturer’s commitment...”

The participant goes on to say:

“Resilience and adaptation [and] worker well-being related to climate is never part of the conversation, because it’s not useful for a brand to have that conversation, right? So if we want to really change that, we have to really talk about this power...”

Indeed, the disproportionate impact of climate change on key denim-producing countries has only recently become part of the mainstream public discourse.⁶⁶ And that adaptation is not part of this discussion is indicative of who has a seat at the table, and who is driving the agenda.

TRANSACTIONAL BUYER-SUPPLIER RELATIONSHIPS MAKES EFFECTIVE SOLUTIONS IMPOSSIBLE

Our findings show that suppliers require bespoke, context-specific solutions to decarbonization. Each factory is facing different structural and efficiency issues, using a mix of different processes and machinery and each region is facing a political and local reality shaping what's possible. Brands and retailers rarely have sufficient knowledge to understand these context-specific solutions both because complex and fragmented supply chains make it impossible — and because of the transactional nature of the apparel industry.

Suppliers describe brands that only interact with them through agents and a supply chain where every piece (spinning, weaving, finishing, and coloration) might happen in a different place, making top-down change difficult to impossible. This creates a practical conundrum: on the one hand, the industry's approach to sustainability, including the setting and meeting of SBTs by brands, is premised on the assumption that change must be directive and come from the top down. On the other hand, extremely long and fragmented supply chains that minimize risk for global brands and retailers make it difficult, if not impossible, for those same brands and retailers to direct the bespoke and context-specific approaches needed to make a meaningful decarbonization impact. ***It's difficult to evaluate a supplier's decarbonization potential if a brand or retailer does not have a relationship with that supplier. It's also difficult to scale approaches to thousands of suppliers.***

One supplier shared:

“A lot of brands rely on this transactional model because that gives them the best pricing advantage. That gives them flexibility...and is one of the biggest things that allows them not to put people on the ground [i.e. avoid hefty fixed payroll costs by pushing the responsibility for employing people to the suppliers].”

4 CONCLUSION

It's time to let go of the often implicit and unacknowledged belief that change must be directive and top down from brands and retailers to their supply chain stakeholders. We must open our imaginations to alternative, collaborative leadership models that share power and responsibility. In this altered scenario, brands and retailers would seek out the technical knowledge in the supply chain and enable suppliers to pursue and co-create strategies based on that knowledge. Instead of being responsible for directing their supply chains' sustainability journeys, brands should shift into the role of partner. This requires an investment of time, an open mind, and a willingness to let go of deeply held and usually implicit beliefs about why decarbonization is not happening to the extent that it needs to.

The suppliers participating in this research also expressed that decarbonizing ultimately requires the industry to rethink what supply chains should look like. Are long and complex supply chains designed to minimize risk for brands and retailers appropriate or fit-for-purpose in an age of climate crisis and social and environmentally conscious business? Reorganizing the industry or moving away from this model is a long-term project, but may be necessary to meet the demands of climate change.

5

WHO AND WHAT DRIVES CHANGE? CALLS TO ACTION

These calls to action are relevant to legislators and policymakers, brands and retailers, multi-stakeholder organizations and industry convenors, as well as NGOs and advocacy organizations.

Change must be bottom-up and producer-led: It's time to let go of the belief that brands and retailers must be the ones to direct change through a directive, top-down approach. Because 80% of emissions are in the supply chain and because suppliers all have their own bespoke decarbonization opportunity space contingent upon multiple layers of context, decarbonization of fashion must be bottom-up.

Localized decarbonization roadmaps are needed: The sector needs to swiftly develop decarbonization roadmaps that are specific to a location and context.

Challenge the industry's culture of long, complex supply chains that offload risk: It's time to let go of the pervasive belief that long complex supply chains are both inevitable and desirable. They are the result of inequitably distributed financial risk and though they may mitigate short-term financial risks for brands and retailers, they are inherently wasteful (overproduction) and are getting in the way of long-term collective goals. A necessary but not sufficient start to shifting the business model would be holding brands and retailers accountable for their purchasing practices.



Chapter 4

**REGULATION:
THE DANGERS
OF SETTING SBTs
INTO LAW**

IN THIS CHAPTER, WE BRIEFLY ANALYZE THE KEY POLICIES IN THE GLOBAL NORTH THAT INCLUDE COMPONENTS REGARDING GHG EMISSIONS REDUCTIONS THAT WOULD AFFECT THE APPAREL AND DENIM SECTORS, NAMELY THOSE THAT ENCOURAGE OR REQUIRE SCIENCE-BASED TARGETS, AND WE IDENTIFY THE HIDDEN BURDENS THESE INITIATIVES COULD PLACE ON SUPPLIERS.

This is not an exhaustive mapping of all relevant legislation in the Global North related to climate change. *Instead, it analyzes three different legislative initiatives that are uniquely positioned to influence the behavior of global brands and retailers selling in their markets: The EU Corporate Sustainability Due Diligence Directive (CSDDD), the EU Corporate Sustainability Reporting Directive (CSRD), and the New York Fashion Sustainability and Social Accountability Act (The Fashion Act).* All three of the legislative efforts we examine emphasize — and in some cases mandate — science-based targets as a primary tool to reduce emissions or to demonstrate action around climate change in the private sector.

As our findings throughout this report show, the approach to translate the Paris Agreement emissions reduction goal into company-level targets is, although well-intentioned, flawed. In the apparel and textiles sector, where the bulk of emissions are in the supply chain, these legislative initiatives threaten to further incentivize the industry to simply pass targets (and thus the responsibility for decarbonization) down the supply chain to suppliers, all without any consideration of feasibility, equity, or financing. Setting science-based targets is often confused for action, and yet suppliers warn that these targets are not feasible in many current contexts. Thus, mandating targets in the apparel sector is unlikely to help us reach our collective climate goals. We recommend that regulators focus their powers instead on addressing contextual roadblocks and enabling decarbonization in fashion supply chains, rather than promulgating targets as a climate solution.

EU Directive on Corporate Sustainability Due Diligence and Amending Directive (CSDDD)

Overview and scope:

The EU Corporate Sustainability Due Diligence Directive (EU) 2019/1973 (CSDDD) is a proposed piece of legislation that will require some companies inside and outside of the EU to undertake human rights and environmental due diligence. Under the latest draft, large companies established in the EU with more than 500 employees and a net turnover of EUR 150 million+ worldwide will be in scope, as will those in high-impact sectors like textiles with more than 250 employees and a global net turnover of EUR 40 million+ worldwide. What's more, companies established outside of the EU are also in scope if they meet much of the same criteria.⁶⁷ Once adopted, the EU countries will have two years to transpose the CSDDD into their national laws. Although the timeline is still unfolding and the final language is being negotiated, it is expected to come into effect in less than five years.

How it strives to hold companies accountable for climate change:

All companies within scope must "adopt a plan to ensure that the business model and strategy" are in line with the objectives under the Paris Agreement to limit global warming to 1.5°C. This plan should include time-bound targets for scope 1, 2, and, "where relevant," Scope 3, including absolute emissions targets for 2030 based on "scientific evidence." In the June 2023 CSDDD proposal adopted by the EU Parliament,⁶⁸ all companies within scope are to set targets on emissions.

Discrepancies, potential consequences, and who pays:

Our concern based on the findings of this report is that mandating companies to set targets in Scope 3, "where relevant," will result in brands and retailers imposing science-based targets on suppliers, regardless of feasibility, equity, or financing. Even though not all companies are in scope of the directive, it could normalize the process of setting SBTs all along the supply chain for companies both within and outside of scope. This approach to climate action in the private sector will likely fail.

There is some promising language in the EU Parliament's position on the CSDDD that requires companies to "avoid passing on the costs of the due diligence process to business partners in a weaker position," and to ensure any codes of conduct that outline due diligence procedures also apply to corporate "pricing practices and purchasing decisions." This seems to indicate that retailers are obligated to at least share in the financial burden of decarbonization — but does not address the feasibility issue. However, given that neither the EU Council nor the EU Commission includes language around purchasing practices in their positions, it's unclear whether these provisions will be adopted.⁶⁹

EU Corporate Sustainability Reporting Directive (CSRD)

Overview and scope:

The EU Corporate Sustainability Reporting Directive (CSRD), which took effect in January 2023, sets out how companies must report on their performance in “sustainability matters,” which broadly encompasses environmental, social, and human rights and governance factors. The CSRD will primarily apply to companies headquartered in the EU (though companies that are not headquartered in the EU but have a significant presence in EU securities will also fall within scope). Companies in-scope are not required to report under the CSRD until FY2024, with more companies being phased in between 2025 and 2028, but work is being done now to prepare for the reporting requirements.

How it strives to hold companies accountable for climate change and who pays:

The language of the CSRD stipulates that reporting should include company plans “to ensure that its business model and strategy are compatible with the transition to a sustainable economy and with the limiting of global warming to 1.5°C in line with the Paris Agreement.” It also requires that companies report on its absolute greenhouse gas emission and reduction targets at least for 2030 and 2050 and report progress against those targets. Notably, transition plans must ensure that a company’s “business model and strategy are compatible with the transition to a sustainable economy”⁷⁰ and include an explanation of the company’s investments and funding supporting the implementation of the transition plan.

Discrepancies and potential consequences:

Like the CSDDD, the approach outlined in the CSRD places heavy emphasis on an expanded universe of companies setting emissions reduction targets. While the CSRD does not itself require targets (instead requires companies to report on any targets), it is likely to put pressure on in-scope companies, and, in turn, their suppliers, to set SBTs. This outcome is especially likely given that target-setting puts a much larger burden on Scope 3 businesses that brands and retailers do not own. The CSRD’s requirement that transition plans include an explanation of the company’s investments and funding to support the implementation of the transition plan is potentially promising, especially given this paper’s finding that many denim suppliers struggle to finance their decarbonization efforts due to barriers outside of their control. However, the language is vague in places (saying, for example, that companies can report on financing transition plans “to the extent applicable”). What’s more, as a reporting directive, the CSRD is not mandating investments in supply chain decarbonization. As our report shows, the industry’s default is to offload financing onto the supply chain, and thus the CSRD is unlikely to shift this paradigm.

The New York Fashion Sustainability and Social Accountability Act (The Fashion Act)

Overview and scope:

The Fashion Sustainability and Social Accountability Act, also known as The Fashion Act, is a proposed piece of legislation introduced in New York State. If passed, businesses that sell apparel, footwear, and handbags in New York State and whose annual global revenues exceed \$100 million USD would be in scope. The bill was initially introduced to the New York State Legislature in October 2021 and the current amended version is pending review by the state Senate Consumer Protection Committee. It will need to pass both the New York State Assembly and the New York State Senate and be signed by the Governor before it can become law. As such, there are significant hurdles to overcome before The Fashion Act can be passed into law, and it remains unclear when or if The Fashion Act will pass or take effect.

How it strives to hold companies accountable for climate change and who pays:

Under the amended February 2023 version of The Fashion Act, fashion sellers must measure their baseline emissions and report on them annually as well as set and meet near-term and long-term greenhouse gas (GHG) emissions targets in line with the Paris Agreement. GHG emissions reduction targets must cover Scope 1, 2 and 3 emissions, and at a minimum, align with the Science-Based Targets Initiative's most recent target validation criteria. Within four years of The Fashion Act coming into force, fashion sellers would be required to use primary data to determine the GHG emissions inventory of the "most significant suppliers" (the biggest contributors to the fashion seller's overall footprint) in Tiers related to raw material process and fabric production, dyeing, finishing, etc. Companies directly in scope are required by the Fashion Act to provide "reasonable assistance" to suppliers to meet environmental standards, as well as "responsible purchasing practices" like contract renewals, longer term contracts, and price premiums.

Discrepancies and potential consequences:

Like the EU CSDDD and the EU CSRD, The Fashion Act's approach to addressing climate change is rooted in target setting. Of the legislative initiatives analyzed for this report, The Fashion Act is most explicit about the obligation for in-scope companies to set — and meet — SBTs, which could result in an obligation and pressure on their suppliers to also set SBTs. Denim suppliers, even if they are not directly within scope themselves but supply to brands and retailers that are in-scope, would also have to prepare to share primary emissions data to support this baseline assessment, which would be challenging and potentially quite expensive.

Though the explicit reference to purchasing practices and "reasonable assistance" within The Fashion Act is a positive step, it is unclear how this will be interpreted and whether it will require financial commitments by brands and retailers to invest in their supply chain's decarbonization. Further, the reference to purchasing practices focuses on contract renewals, longer-term contracts, and price premiums, which is important but doesn't address the larger financial barriers and needs identified in the research for this paper.

OVERALL FINDINGS

The three outlined legislative initiatives emphasize target setting as a climate solution in the private sector. In the apparel and textiles sector, where the bulk of emissions are in the supply chain, these legislative initiatives threaten to increase pressure on the industry to simply pass the targets (and thus the responsibility for rapidly reducing GHG emissions) down the supply chain to suppliers, all without any consideration of feasibility, equity, or financing. As such, mandating targets in the apparel sector is unlikely to help us reach our collective climate goals. In addition to enshrining an effective approach to climate action, regulators are also missing a crucial opportunity to use lawmaking power to address roadblocks to decarbonization in the supply chain and address the “who pays” question to ensure that the responsibility for financing decarbonization is collective and equitable relative to the margins at each step of the chain.

Overall, the implementation of the legislation and regulations as they are currently proposed would likely cause unintended and uncalculated hidden burdens on supply chain stakeholders

For example, one stakeholder reflected:

“[Legislators in Europe and the US] think they can legislate everything from “over there” ... I think legislation can have a very positive impact, but [it’s being done] without really understanding [the] very unintended consequences downstream.”

THREE ILLUSTRATIVE EXAMPLES OF CURRENT AND PROPOSED LEGISLATION RELATED TO DECARBONIZATION

Table 03

	EU CSDDD	EU CSRD	NY Fashion Act
WHO SHOULD DO HOW MUCH?	Current draft language would likely result in requirements to set science-based targets all along the fashion value chain.	Would likely result in pressure or expectations to set science-based targets all along the fashion value chain.	Would explicitly require in-scope companies to set science-based targets, which could result in pressure to set SBTs all along the fashion value chain. Companies, in time, would have to provide primary data of emissions, an obligation that will be passed to suppliers.
WHO PAYS?	Some language says companies must “avoid passing on the costs of the due diligence process to business partners in a weaker position,” and to ensure any codes of conduct that outline due diligence procedures also apply to corporate “pricing practices and purchasing decisions.” This seems to indicate that retailers are obligated to at least share in the financial burden of decarbonization—but does not address the feasibility issue.	Transition plans must include an explanation of the company’s investments and funding supporting the implementation of the transition plan. But there is no requirement for companies to help fund suppliers’ transitions.	Companies directly in scope are required by the Fashion Act to provide “reasonable assistance” to suppliers to meet environmental standards, as well as contract renewals, longer term contracts, price premiums. This does not appear to address the bigger funding needs and barriers faced by suppliers when it comes to decarbonization.
WHO AND WHAT DRIVE CHANGE?	Implicitly, Global North lawmakers and brands and retailers drive change by mandating target-setting that will be passed on through the value chain, mostly to suppliers in the Global South.	Implicitly, Global North lawmakers and brands and retailers drive change by mandating target-setting that will be passed on through the value chain, mostly to suppliers in the Global South.	Implicitly, Global North lawmakers and brands and retailers drive change by mandating target-setting that will be passed on through the value chain, mostly to suppliers in the Global South.



DECARBONIZING DENIM: A POCKET GUIDE FOR LEGISLATORS

THIS SEGMENT IS DEDICATED
TO INDIVIDUALS UNFAMILIAR
WITH THE TEXTILE INDUSTRY.
SHOULD YOU WISH TO PROCEED
TO THE SUBSEQUENT CHAPTER,
PLEASE CLICK [HERE](#).

Decarbonizing Denim: A Pocket Guide for Legislators

Apparel sector and climate change:

The global apparel and footwear industries are responsible for an estimated 2–8% of global greenhouse gas emissions, depending on the methodology.⁷¹ Scope 3 emissions account for well over 90% of the sector's emissions footprint, by most estimates, with the vast majority of emissions happening in the supply chain and in the making and manufacture of apparel and textile products.⁷² Specific emissions for the denim sector are not available, but its footprint is assumed to be significant, as the production of denim relies on agricultural inputs (from chemicals, fertilizer and fuel used for cotton production) as well as significant energy inputs (electrical and thermal) used for cotton and synthetic material yarn processing, yarn and fabric dyeing, and garment production.

Commercial context:

As the majority of the apparel sector's emissions stem from production-related activities in the supply chain, the burden of decarbonizing lies primarily with apparel and textile producers, many of which are based in the Global South, with China, Bangladesh, Vietnam, Turkey, and India among the top apparel-exporting nations in the world.⁷³ It's important to note that most brands and retailers do not own their production facilities, and the top-down approach requires that suppliers take on the burden of decarbonization often without technical or financial assistance from brands and retailers.

Legislative context:

Policymakers in a number of jurisdictions in the Global North are proposing numerous sustainability laws and measures to achieve net zero emissions and sustainable economic growth that target the private sector. Of particular consequence is the EU Corporate Sustainability Due Diligence Directive (CSDDD), the EU Corporate Sustainability Reporting Directive (CSRD), and the New York Fashion Sustainability and Social Accountability Act (The Fashion Act). These legislative developments aim to shift certain sustainability practices within the business community from being a voluntary practice to a mandatory requirement. These would require — or put pressure on — brands to report on their supply chain emissions and demonstrate emissions reductions in line with science-based targets or other emissions reduction targets set in keeping with the GHG protocol.

Decarbonizing Denim: A Pocket Guide for Legislators

Historical and political context:

It is important to note that the relationship between global brands and retailers and their suppliers has historically been based on a highly unequal distribution of financial risk and reward. Supply chains are fragmented and long and complex, which allows companies to offload risk and to achieve lower prices, but it also leads to transactional relationships within the sector and makes top-down solutions often ineffectual. This creates a contradiction: The apparel and denim sector's approach to sustainability has primarily been defined by brands, retailers, and activists based in the Global North and has not, for the most part, been created by or together with manufacturers. Suppliers are currently denied agency in determining the sector's approach to decarbonization specifically and sustainability more broadly, and meanwhile are expected to largely take agency on delivering on those goals.

Key questions and barriers to denim's decarbonization:

The denim sector is subject to the same emerging laws and industry-wide targets and goals to reduce emissions. Suppliers are increasingly being asked to set and achieve Science Based Targets, which call on companies to reduce their emissions by roughly half by 2030 and to reach net zero by 2050.

Rather than take this approach of target-setting in the supply chain as a foregone conclusion, we call on legislators to open up the conversation about appropriate and effective action. To do that, we have summarized suppliers' views on the following three questions:

- * WHEN IT COMES TO DECARBONIZING FASHION, WHO SHOULD DO HOW MUCH?
- * WHO PAYS?
- * AND WHO AND WHAT DRIVES CHANGE?

This report's findings demonstrate that the sector's prevailing answers and approach to these questions is flawed, stalling meaningful decarbonization action, and needs a rethink. Detailed evidence debunking these assumptions and approaches is offered in Chapters 1-3, below is a brief recap.

INSPIRATION FOR MORE EFFECTIVE CLIMATE LEGISLATION

→ THE GLOBAL NORTH SHOULD DO MORE

Legislators should demand that **companies headquartered in the Global North commit to a faster decarbonization rate than companies headquartered in the Global South** – potentially in relation to their size and revenue.

→ UNLOCK FUNDING

Legislators should leverage their power to **unlock the financing needed for a ‘just transition’ in accordance with UN’s definition**. For example, this could be achieved by requiring companies within scope to invest a percentage of their annual turnover into their supply chain’s decarbonization. Another model that could serve as a useful precedent is the Just Energy Transition Partnership (JETP), which at a national level facilitates financing by richer countries of the energy transitions in countries with fewer resources,⁷⁴ as is equitable according to historic and current country-level emissions. Legislators should also require companies to commit to act as facilitators/engage in financial vetting that de-risks investment in decarbonization in the Global South.

→ CONTRIBUTION TO A COLLECTIVE GOAL

Legislators should explore ways of **holding companies accountable for their contribution to a collective goal** rather than companies’ performance against company targets.

→ INCREASING DECARBONIZATION POTENTIAL

Legislators should create incentives for global brands and retailers to increase a particular location’s decarbonization potential.

→ PURCHASING PRACTICES AND SHIFTING THE BUSINESS MODEL

Legislators should create incentives for more equitably distributed financial risk across value chains. Legislators should also create incentives for improved global brands and retailer purchasing practices and long-term sourcing commitments.

Chapter 5

**CONCLUSION:
TOWARDS A
COLLECTIVE
APPROACH**

The primary findings of this report are that responsibility for climate action in fashion is not shared, it is largely approached as a supplier problem — and this approach is not only inequitable, it's impracticable and doomed to fail.

CHAP 1: WHO SHOULD DO HOW MUCH?

One of the main ways that responsibility has been pushed down the supply chain is through the industry's pursuit of science-based targets. While seemingly egalitarian — by asking all companies to set the same or similar targets to reduce emissions to the same extent and which cover the supply chain — SBTs have institutionalized the logic that the work of decarbonizing fashion is the supply chain's responsibility. And yet, as we have shown, because SBTs don't address feasibility and context, many suppliers — through no fault of their own — are limited in their ability to deliver those targets.

CHAP 2: WHO PAYS?

What's more, the industry is not engaging in a wider reckoning about funding. In practice, suppliers are not only expected to do most of the work to decarbonize — but to pay for it (even when no financial returns are possible). This not only goes against industry platitudes and established international frameworks, including the Paris Agreement, about a need for equitable and just transition, but it also ensures GHG emissions mitigation will stall.

CHAP 3: WHO AND WHAT WILL DRIVE CHANGE?

Thirdly, this broken strategy to climate action is flowing out of fashion's decades-long top-down approach to sustainability that is not equipped to tackle the problems of our climate change era.

CHAP 4: REGULATION: THE DANGERS OF SETTING SBTs INTO LAW

Finally, regulators are missing a chance to enable climate action in part by reinforcing targets as a solution and an end in themselves.

TOWARDS A COLLECTIVE APPROACH

It would be tempting to conclude that if SBTs are inequitable and likely to fail, the solution must be a more equitable approach to target setting. And, in fact, we do advocate for the industry to explore a differentiated approach to target setting — one that takes context, feasibility, equity, financing, and other enabling conditions into account — as part of the solution, but it is not sufficient. A differentiated approach to target setting would mean that some entities will do more than others based on what's actually feasible, but it would not change the reality that the decarbonization that must take place sits largely in the supply chain. And it doesn't solve the inequities built into global value chains and the broader operating context constraining a supplier's ability to act. What's ultimately needed is a collective approach to action and in which equity is centered.

We define collective action as shared ownership and shared responsibility. This requires shifting responsibility for rapid climate action from suppliers to one that's shared across the apparel value chain. Climate action must be our problem. This includes sharing of financial resources, but also other types of resources. No target, not even a differentiated target, is viable without collective action.

Adopting a truly collective approach, meaning that targets, funding, risk, and activities are a collective rather than supplier responsibility, is key to dramatically accelerating climate action, enabling decarbonization and even allowing for companies to set higher targets and attain even deeper rates of decarbonization than under the current paradigm.

The first step towards collective action is decoupling the "who does how much" question from the "who pays" question. In other words, just because a company needs to deeply decarbonize to meet our collective climate goals, that does not mean they're automatically responsible for paying the tab. These two pieces of the puzzle — where does the work need to be done and who pays — need to be solved separately. Contributions should be linked to ability to pay and could factor in equity, margins, and historical emissions, for example. Decoupling is the first and most important step towards a collective approach.

HERE'S A PRACTICAL EXAMPLE OF AN APPROACH THAT'S COLLECTIVE, VERSUS THE CURRENT PARADIGM:

	<i>Collective</i>	<i>Not Collective</i>
<i>Assumption</i>	Decarbonization is a value chain challenge/responsibility	Decarbonization is an individual supplier's responsibility
<i>Programme</i>	All value chain actors contribute 1% of revenue to a Fair Climate Fund	A brand lending to supplier
<i>Risk</i>	None	Supplier takes project and credit risk
<i>Contribution</i>	Everyone	Suppliers (If brands loan money, they profit on interest)
<i>Rapid deployment</i>	Possible	Not possible

The industry must of course urgently come together to outline the details of such a framework, but we recommend that any collective approach include the following components:

Shift mindset from I to we. A collective approach means reexamining the role we each play in transforming the inequitable business-as-usual context that's blocking progress. It means shifting away from "how do I make other entities behave differently" and towards the question "What can I or we do to co-create a system that can effectively meet these targets? Our focus must shift swiftly from targets to finding ways to address inequities and transform the broader financial, cultural, and social ecosystem that makes delivering climate action — and yes targets — possible.

Center equity. The industry must negotiate how equity (including factoring in margins and profits), historical emissions, the broader international commitment to a just transition, and the common but differentiated approach laid out by United Nations Framework Convention on Climate Change (UNFCCC) in 1992⁷⁵ (which calls on "developed" nations to take the lead on combating climate change) should factor into targets and roadmaps. A collectivist approach would vigilantly guard against any initiatives or roadmaps that make decarbonization a supplier's largely solitary burden.

Fund collectively. The foundational ingredient of collective action is decoupling the "who does how much" from "who pays" questions. The industry must work urgently to identify and address funding needs for "fast payback" projects that offer returns. Simultaneously, the industry must devise new funding models and come together to collectively fund decarbonization projects that offer no returns or very long payback periods that are too risky for suppliers to take on themselves.

Factor in potentiality and context. New targets and roadmaps should be built around a company's potential to decarbonize, factoring in technical feasibility and context (such as regional or national-level conditions). This would result in differentiated targets, meant in the sense that some companies will actually have higher targets than they currently have and others would have lower targets. The industry should also keep in mind that achieving targets is only feasible within a collective framework. Among the contextual factors that these targets and roadmaps might include are:

- The renewable electricity sources available in a given location and a supplier's viable pathways for decarbonizing its thermal load
- Feasibility and roadblocks to companies creating their own renewable energy sources through solar panels, wind farms, or setting up biomass supply chains, access to purchase power agreements (PPA), etc.
- The availability of technical knowledge and expertise within a given location
- Energy efficiency optimization potential
- A company's decarbonization trajectory to date

Rapidly expand potential through collaboration.

The industry should simultaneously collaborate to identify and overcome any barriers to decarbonization potential, thereby working together to rapidly expand the potential. For example, the industry might collaborate to address skilled labor shortages, set up access to purchasing-power agreements or fund experimental lower-carbon equipment. This also likely means targets and roadmaps need to be flexible and updated, shifting based on changing potentiality.

WHILE SUCH A COLLECTIVE PLAN MAY SEEM DAUNTING, WE THINK IT'S THE KEY TO UNLOCKING AND UNLEASHING CLIMATE ACTION. WE ALSO PREDICT THAT THE DEMANDS OF CLIMATE ACTION (AND NEW LAWS MANDATING EVIDENCE OF MITIGATION) WILL NOT ONLY OPEN THE DOOR FOR SUCH A PIVOT BUT MAKE IT NECESSARY TO MOVE AWAY FROM THE INDIVIDUAL COMPANY-LEVEL APPROACH. AS THE INDUSTRY GRAPPLES WITH NEW REGULATORY EXPECTATIONS, INTENSIFYING CLIMATE RISKS, AND INDUSTRY AND CONSUMER PRESSURE AND A MORAL IMPERATIVE TO ACT, IT SIMPLY MUST SEEK A MORE EQUITABLE AND PRACTICABLE PATH FORWARD, A PATH THAT WORKS. BY REVEALING WHERE THE MAIN ROADBLOCKS TO ACTION ARE IN THE SUPPLY CHAIN, PROVIDING THE MUCH-NEEDED CONTEXT TO DEVISE MORE BESPOKE SOLUTIONS, AND OUTLINING A COLLECTIVE PATH, WE HOPE THIS REPORT LAID IMPORTANT GROUNDWORK FOR THE APPAREL INDUSTRY'S NEW PATH TO LESSEN THE IMPACTS OF CLIMATE CHANGE.

END NOTES

1

Figures vary based on methodology: 2% comes from "Roadmap to Net Zero Delivering Science-Based Targets in the Apparel Sector Preliminary Draft for Stakeholder Feedback." (Published 2020 by World Resources Institute and Apparel Impact Institute)

https://mcusercontent.com/02d7a943deeb0be5c375f4552/files/ce1eb77e-f71f-4ecb-8634-3c71afdd64dd/Roadmap_to_Net_Zero_Preliminary_Draft_Final_Sept_2020.pdf

4% comes from "Fashion on Climate: How the Fashion Industry can Urgently Act to Reduce Its Greenhouse Gas Emissions." (Published 2020 by McKinsey & Company and Global Fashion Agenda)

www.mckinsey.com/~/media/mckinsey/industries/retail/our%20insights/fashion%20on%20climate/fashion-on-climate-full-report.pdf

8% comes from "Measuring Fashion: Environmental Impact of the Global Apparel and Footwear Industries Study." (Published 2018 by Quantis)

https://quantis.com/wp-content/uploads/2018/03/measuringfashion_globalimpactstudy_full-report_quantis_cwf_2018a.pdf

2

The Paris Agreement is a legally binding international treaty on climate change adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, in December 2015. <https://unfccc.int/process-and-meetings/the-paris-agreement>

3

There were 20 apparel brands committed to SBTis as of June 2019, according to Apparel and Footwear Sector Science-Based Targets Guidance. (Published 2022 and developed by World Resources Institute on behalf of the Science Based Targets Initiative)

https://sciencebasedtargets.org/resources/legacy/2019/06/SBT_App_Guide_final_0718.pdf

4

Figures vary based on methodology: 2% comes from "Roadmap to Net Zero Delivering Science-Based Targets in the Apparel Sector Preliminary Draft for Stakeholder Feedback." (Published 2020 by World Resources Institute and Apparel Impact Institute)

<https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zero-delivering-science-based-targets-apparel-sector.pdf>

4% comes from "Fashion on Climate: How the Fashion Industry can Urgently Act to Reduce Its Greenhouse Gas Emissions." (Published 2020 by McKinsey & Company and Global Fashion Agenda)

www.mckinsey.com/~/media/mckinsey/industries/retail/our%20insights/fashion%20on%20climate/fashion-on-climate-full-report.pdf

8% comes from "Measuring Fashion: Environmental Impact of the Global Apparel and Footwear Industries Study." (Published 2018 by Quantis)

https://quantis.com/wp-content/uploads/2018/03/measuringfashion_globalimpactstudy_full-report_quantis_cwf_2018a.pdf

5

The Paris Agreement is a legally binding international treaty on climate change adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, in December 2015. <https://unfccc.int/process-and-meetings/the-paris-agreement>

6

There were 20 apparel brands committed to SBTis as of June 2019, according to "Apparel and Footwear Sector Science-Based Targets Guidance." (Published 2022 and developed by World Resources Institute on behalf of the Science Based Targets Initiative)

https://sciencebasedtargets.org/resources/legacy/2019/06/SBT_App_Guide_final_0718.pdf

7

Emissions figures vary based on methodology. "Roadmap to Net Zero: Delivering Science-Based Target in the Apparel Sectors" excludes consumer-use phase. (Published November 2021 by the World Resources Institute and the Apparel Impact Institute)

<https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zero-delivering-science-based-targets-apparel-sector.pdf>

8

According to data published in 2021 by Textile Exchange

<https://textileexchange.org/synthetics/>

9

Current SBTi criteria states that "the choice of base year must be no earlier than 2015," according to the Science Based Targets initiative. <https://sciencebasedtargets.org/faqs#what-method-for-choosing-a-base-year-for-company-emissions-does-sbti-recommend>

10

According to the Paris Agreement, the legally binding international treaty on climate change adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, in December 2015.

https://unfccc.int/sites/default/files/english_paris_agreement.pdf

11

Email correspondence with SBTi dated 30 October 2023 refers to a CDP report entitled "Transparency to Transformation: A Chain Reaction" from 2020 <https://www.cdp.net/en/research/global-reports/transparency-to-transformation>.

12

See page 26 of "Apparel and Footwear Sector Science-Based Targets Guidance." (Published 2022 and developed by World Resources Institute on behalf of the Science Based Targets Initiative)

https://sciencebasedtargets.org/resources/legacy/2019/06/SBT_App_Guide_final_0718.pdf

13

According to the Paris Agreement, the legally binding international treaty on climate change adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, in December 2015.

https://unfccc.int/sites/default/files/english_paris_agreement.pdf

14

According to "Corporate Climate Pledges Often Ignore a Key Component: Supply Chains." (Published November 2021 by the New York Times)

<https://www.nytimes.com/2021/11/02/business/corporate-climate-pledge-supply-chain.html?searchResultPosition=3>

15

According to the SBTi dashboard, accessed 26 October 2023.

<https://sciencebasedtargets.org/companies-taking-action>

16

Email correspondence with SBTi dated 30 October 2023.

17

According to Greenhouse Gas Protocol "Corporate Value Chain (Scope 3) Accounting and Reporting Standard" (Published by World Resource Institute and World Business Council for Sustainable Development)
https://ghgprotocol.org/sites/default/files/ghgp/standards_supporting/Diagram%20of%20scopes%20and%20emissions%20across%20the%20value%20chain.pdf

18

According to the SBTi dashboard.
<https://sciencebasedtargets.org/companies-taking-action#dashboard>

19

See page 26 of "Apparel and Footwear Sector Science-Based Targets Guidance." (Published 2022 and developed by World Resources Institute on behalf of the Science Based Targets Initiative)
https://sciencebasedtargets.org/resources/legacy/2019/06/SBT_App_Guide_final_0718.pdf

20

Details at the United Nations Framework Convention on Climate Change
<https://unfccc.int/climate-action/sectoral-engagement-for-climate-action/fashion-charter/participants#Signatories->

21

Details at the Sustainable Apparel Coalition
<https://apparelcoalition.org/press-releases/the-sustainable-apparel-coalition-launches-decarbonization-program-to-drive-sbt-adoption-and-reduction-in-emissions-across-the-fashion-industry/>

22

"Higg Facility Environmental Module (FEM) 4.0 Technical Paper" (Published December 2022 by the Sustainable Apparel Coalition)
<https://apparelcoalition.org/wp-content/uploads/2022/12/202212-SAC-Higg-Index-Higg-FEM-4-Technical-Paper.pdf>

23

Suppliers noted that the Sector Guidance for the Apparel and Footwear Industry (page 34), released by SBTi and the World Resources Institute, does not obligate companies to include use-phase in their Scope 3 inventories and targets.
https://sciencebasedtargets.org/resources/legacy/2019/06/SBT_App_Guide_final_0718.pdf

24

For a further explanation of Scopes, see the Greenhouse Gas Protocol and SBTi's methodology.
<https://ghgprotocol.org/>
<https://sciencebasedtargets.org/>

25

"Roadmap to Net Zero: Delivering Science-Based Target in the Apparel Sectors" excludes consumer-use phase. (Published November 2021 by the World Resources Institute and the Apparel Impact Institute)
<https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zero-delivering-science-based-targets-apparel-sector.pdf>

26

According to "Annual scope one and two carbon emissions released by leading European apparel retailers in 2022." (Published 2023 by Statista)

<https://www.statista.com/statistics/1102998/carbon-footprint-of-european-fashion-brands/>

27

According to Climate Watch data on Bangladesh and Pakistan

<https://www.climatewatchdata.org/countries/BDG>

<https://www.climatewatchdata.org/countries/PAK>

28

According to Climate Watch data on India and China

<https://www.climatewatchdata.org/countries/IND>

<https://www.climatewatchdata.org/countries/CHN>

29

According to the Paris Agreement, the legally binding international treaty on climate change adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, in December 2015.

https://unfccc.int/sites/default/files/english_paris_agreement.pdf

30

According to "The State of Fashion 2023: Holding onto growth as global clouds gather." (Published November 2022 by McKinsey & Co.)

<https://www.mckinsey.com/industries/retail/our-insights/state-of-fashion>

31

For more on the types of primary energy sources, see ScienceDirect. <https://www.sciencedirect.com/topics/engineering/primary-energy-source>

32

According to the U.S. Energy Information Administration.

<https://www.eia.gov/international/analysis/country/CHN>

33

Note: Data refers to all energy used, not energy used for electricity.

34

"Electrification of Heating in the Textile Industry A Techno-Economic Analysis for China, Japan, and Taiwan." (Published December 2022 by Global Efficiency Intelligence and Textile Sustainability Hub)

<https://static1.squarespace.com/static/5877e86f9de4bb8bce72105c/t/638d6b730356aa0ac4620610/1670212494724/Electrification+of+Heating+in+the+Textile+Industry.pdf>

35

A Power Purchase Agreement (PPA) is an arrangement in which a third-party developer installs, owns, and operates an energy system on a customer's property. More information can be found at U.S. Department of Energy. <https://betterbuildingssolutioncenter.energy.gov/financing-navigator/option/power-purchase-agreement>

36

On average, coal-to-gas switching reduces emissions by 50% when producing electricity and by 33% when providing heat, according to "The Role of Gas in Today's Energy Transitions: World Energy Outlook." (Published June 2019 by the International Energy Agency) <https://www.iea.org/reports/the-role-of-gas-in-todays-energy-transitions>

37

Note: the emissions reductions may not be recognized. One interviewee noted: "Biomass (rice husk, corn) should be considered as a green fuel [but] SBTi is still evaluating how emissions from these sources will be accounted for. [This is] expected mid-2023."

Note: some activists point out that transitioning to biofuel might lead to other adverse consequences such as deforestation and note that whether this transition leads to significant or even any emissions reductions depends on the type of biomass used. See "Biomass is no solution to cleaning up fashion supply chains." (Published September 2023 by Action Speaks Louder)

<https://speakslouder.org/biomass-is-no-solution-to-cleaning-up-fashion-supply-chains/>

38

Data from the "Global Solar Atlas" (published by the World Bank Group's Energydata.info)

<https://globalsolaratlas.info/map>

39

I-REC standards for scope countries can be found at International REC Standard:

Bangladesh: <https://www.irecstandard.org/bangladesh/>

India: <https://www.irecstandard.org/india/>

Pakistan: <https://www.irecstandard.org/pakistan/>

China: <https://www.irecstandard.org/china/>

Additional information on renewable energy in China can be found at South Pole Snapshot

<https://www.southpole.com/blog/renewable-energy-in-china-heres-what-you-need-to-know>

40

Per the charts above, coal only represents 8% of Bangladesh's primary energy sources. Natural gas already represents 67.77%.

41

One interviewee familiar with the Indian context noted that not all states have pipelines.

42

Per the charts above, natural gas already accounts for 41% of Pakistan's primary energy sources. Coal represents 17.42% — less than the other countries in-scope for this report. One interviewee noted that not all states have access to pipelines.

43

More information about biomass can be found at U.S. Department of Energy.

<https://www.eia.gov/energyexplained/biomass/biomass-and-the-environment.php>

44

Tier 2 tends to refer to material (fabric) production including dyeing (as opposed to assembly of a finished garment which tends to be called Tier 1). It is important to note denim fabric tends to be made by a mill (including dyeing) (Tier2), assembled into a finished garment (Tier 1), and then undergoes further wet processing. This is what tends to be referred to as a "laundry" and tends to also be done by the cut and sew factory (Tier1).

45

Drying could also be powered through steam, through hot air coming from thermic fluid (oil drums) or directly through electric coils.

46

One supplier added, "There is also a lot of space for cold water washing chemicals, ozone, and laser combinations that can remove thermal loads for washing (and make them electrical loads). Then, the only heat requirement is drying."

47

More information about renewable energy solutions can be found at United Nations Climate Action.

<https://www.un.org/en/climatechange/raising-ambition/renewable-energy>

48

"Unlocking the Trillion-Dollar Fashion Decarbonisation Opportunity Report: Existing and Innovative Solutions." (Published by November 2021 by Apparel Impact Institute and Fashion For Good)

<https://apparelimpact.org/reports/unlocking-the-trillion-dollar-fashion-decarbonisation-opportunity-report/>

49

Data from "Value of the denim jeans market worldwide from 2022 to 2030." (Published August 2023 by Statista)

<https://www.statista.com/statistics/734419/global-denim-jeans-market-retail-sales-value/>

50

There is an extensive literature on the problem of unfair purchasing practices in the apparel sector; here are three recent publications:

"The Game is Up: Why Denim Needs a 'Commercial Compliance Rider' Now." (Published October 2023 by Sourcing Journal)

<https://sourcingjournal.com/denim/denim-business/ethical-denim-council-commercial-compliance-rider-purchasing-practices-andrew-olah-460828/>

"Squeezing Workers' Rights in Global Supply Chains: Purchasing Practices in the Bangladesh Garment Export Sector in Comparative Perspective." (Published June 2019 by Taylor & Frances Online)

<https://www.tandfonline.com/doi/abs/10.1080/09692290.2019.1625426>

"Paying for a Bus Ticket and Expecting to Fly: How Apparel Brand Purchasing Practices Drive Labor Abuses." (Published April 2019 by Human Rights Watch)

<https://www.hrw.org/report/2019/04/24/paying-bus-ticket-and-expecting-fly/how-apparel-brand-purchasing-practices-drive>

51

"Fashion on Climate" (Published August 2020 by McKinsey & Co.)

<https://www.mckinsey.com/industries/retail/our-insights/fashion-on-climate>

52

"Unlocking the Trillion-Dollar Fashion Decarbonisation Opportunity Report: Existing and Innovative Solutions." (Published by November 2021 by Apparel Impact Institute and Fashion For Good)

<https://apparelimpact.org/reports/unlocking-the-trillion-dollar-fashion-decarbonisation-opportunity-report/>

53

The Apparel Impact Institute has several Collective Action Programs, which incorporate 10 best practices to identify, fund, scale and measure stepwise solutions.

<https://apparelimpact.org/program-areas/>

[https://apparelimpact.org/case_study/best-practices/;](https://apparelimpact.org/case_study/best-practices/)

54

Email correspondence with Aii, dated Oct. 20, 2023

55

Information about GFF's projects can be found at Good Fashion Fund.
<https://goodfashionfund.com/index.php/investment-focus/>

56

"Results of Good Fashion Fund's First Investment Are Out." (Published December 2022 by Apparel Resources)

<https://apparelresources.com/business-news/sustainability/results-good-fashion-funds-first-investment/>

57

H&M Group Annual and Sustainability Report 2022

<https://hmgroup.com/wp-content/uploads/2023/03/HM-Group-Annual-and-Sustainability-Report-2022.pdf>; H&M Group Further Invests in the Decarbonisation of Its Value Chain (Company release August 2023)

<https://hmgroup.com/news/hm-group-further-invests-in-the-decarbonisation-of-its-value-chain/>

58

"Sweden's H&M to Slash Absolute Scope 1, 2 & 3 Emissions by 56% by 2030." (Published November 2022 by Fibre2Fashion)

<https://www.fibre2fashion.com/news/apparel-news/sweden-s-h-m-to-slash-absolute-scope-1-2-3-emissions-by-56-by-2030-284180-newsdetails.htm>

59

Email correspondence with H&M Group, dated 31 October 2023.

60

Information about Aii Fashion Climate Fund:

<https://www.fashionclimatefund.org/>

Details about Aii's Climate Solutions Portfolio software platform:

<https://www.fashionclimatefund.org/climate-solutions-portfolio>

61

Email correspondence with Aii, dated Oct. 20, 2023

62

"20% Tax Planned on Interests on Foreign Loans." (Published May 2023 by The Evening Standard)

<https://www.tbsnews.net/economy/budget/20-tax-planned-interests-foreign-loans-641086>

63

Email correspondence with H&M Group, dated 31 October 2023.

64

Information about CSR requirements in India's The Companies Act of 2013, can be found in section 135.

<https://www.mca.gov.in/Ministry/pdf/CompaniesAct2013.pdf>

65

Codes of conduct are ubiquitous in the apparel sector. Here are two examples:

PVH: A Shared Commitment

<https://www.pvh.com/-/media/Files/pvh/responsibility/PVH-A-Shared-Commitment.pdf>;

Levi Strauss & Co. Supplier Code of Conduct

https://www.levistrauss.com/wp-content/uploads/2022/09/LSCo_Code-of-Conduct.pdf

66

"Higher Ground? Fashion's Climate Breakdown." (Published September 2023 by Cornell University's Global Labor Institute and Schroders)
<https://www.ilr.cornell.edu/global-labor-institute/higher-ground-fashions-climate-breakdown>

67

Details about the EU Corporate Sustainability Due Diligence Directive can be found at the European Union website.
https://commission.europa.eu/business-economy-euro/doing-business-eu/corporate-sustainability-due-diligence_en#which-companies-will-the-new-eu-rules-apply-to

68

REPORT on the proposal for a directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937 (Published August 2023)
https://www.europarl.europa.eu/doceo/document/A-9-2023-0184_EN.html

69

For more information the European Commission's position can be found at the European Union website.
https://commission.europa.eu/business-economy-euro/doing-business-eu/corporate-sustainability-due-diligence_en
For more information on the Council of the European Union's position can be found in the "Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937" (Released November 2022) <https://data.consilium.europa.eu/doc/document/ST-15024-2022-REV-1/en/pdf>

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More information can be found on page 29 of the DIRECTIVE (EU) 2022/2464 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (Published December 2022 by the Official Journal of the European Union)
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464>

71

There are several reports measuring fashion's carbon footprint. Figures vary based on methodology: 2% comes from "Roadmap to Net Zero Delivering Science-Based Targets in the Apparel Sector Preliminary Draft for Stakeholder Feedback." (Published 2020 by World Resources Institute and Apparel Impact Institute)
https://mcusercontent.com/O2d7a943deebObe5c375f4552/files/celeb77e-f71f-4ecb-8634-3c71afdd64dd/Roadmap_to_Net_Zero_Preliminary_Draft_Final_Sept_2020.pdf
4% comes from "Fashion on Climate: How the Fashion Industry can Urgently Act to Reduce Its Greenhouse Gas Emissions." (Published 2020 by McKinsey & Company and Global Fashion Agenda)
www.mckinsey.com/~/_media/mckinsey/industries/retail/our%20insights/fashion%20on%20climate/fashion-on-climate-full-report.pdf
8% comes from "Measuring Fashion: Environmental Impact of the Global Apparel and Footwear Industries Study." (Published 2018 by Quantis)
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