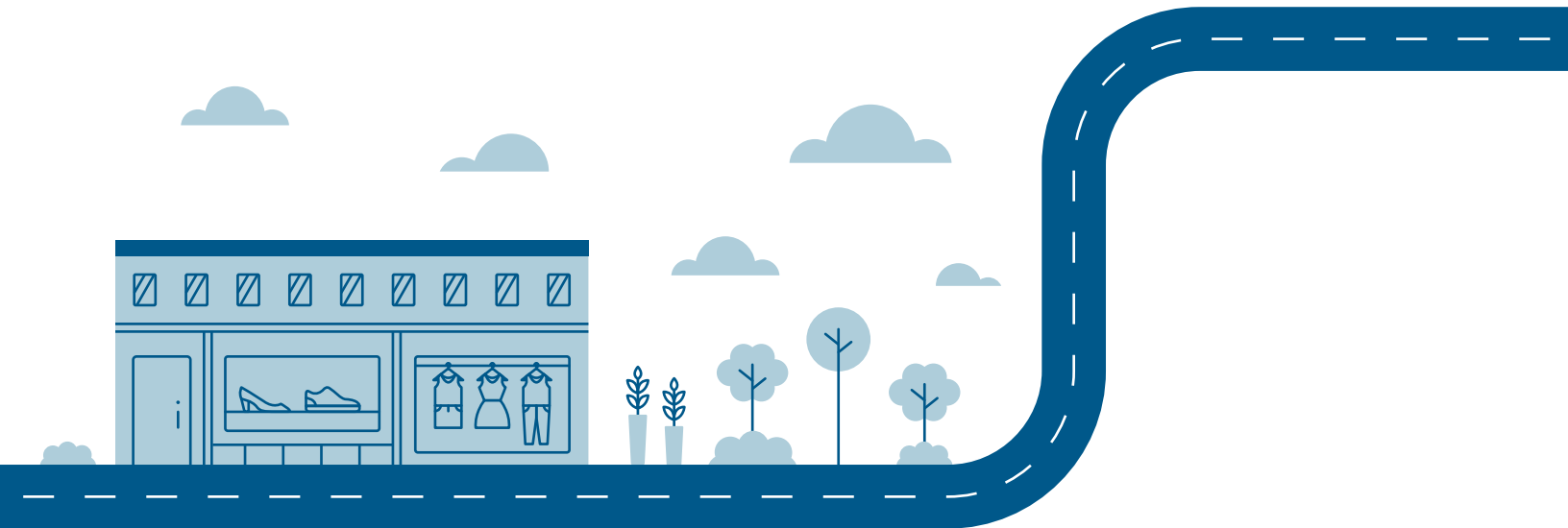




FASHION FORWARD:

A Roadmap to Fossil Free Fashion

STAND
.earth



ABOUT STAND.EARTH

Stand.earth is an international nonprofit environmental organization with offices in Canada and the United States that is known for its groundbreaking research and successful corporate and citizens engagement campaigns to create new policies and industry standards in protecting forests, advocating the rights of indigenous peoples and protecting the climate.

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Executive Summary

Facing a climate emergency, fashion brands must focus their recovery on breaking their supply chain away from fossil fuels.

The fashion industry is one of the largest contributors to global warming, with greenhouse gas emissions (GHGs) estimated to be between 5-10% of global GHGs, exceeding both the aviation and shipping sectors, with projections of a further 30% growth in emissions by 2030.¹



But as a result of growing attention to the sector's climate footprint and increasing customer pressure, tackling climate change finally emerged as a top-level issue for the fashion industry by the end of 2019, as evidenced by a range of commitments by global brands to tackle the sector's rapidly rising climate footprint over the prior 18 months.

Despite high-profile commitments and CEO statements on the importance of climate change, at the beginning of 2020, most fashion brands had not yet taken significant steps to reduce the industry's rapidly growing carbon footprint or begin to eliminate their reliance on fossil fuels in their supply chains, particularly its reliance on coal. With scientists warning that global emissions must be cut in half by 2030, along with a rapid phase out of coal, it was increasingly critical that 2020 be the year that major apparel brands turn broad sector commitments to action.

The COVID-19 pandemic that has swept the globe since early 2020 has had a disproportionate economic impact on a number of sectors, including the fashion sector, triggering a dramatic and painful economic pause, with a significant drop in emissions expected for 2020 as a result. Despite this temporary reduction in emissions, the question of whether global brands will turn their climate commitments into action has become even larger as a result of the pandemic. Many brands are now finding that as a result of the pandemic, customers are now interested in consuming less, and are placing a greater value on those brands that are environmentally and socially responsible. For global fashion brands seeking to reconnect to their customers as they recover from the pandemic, the ability to credibly demonstrate they are taking action to address climate change must now become a critical part of their COVID-19 recovery strategy.



“There is no such thing as clean coal, and coal should have no place in any rational recovery plan. It is deeply concerning that new coal power plants are still being planned and financed, even though renewables offer three times more jobs, and are now cheaper than coal in most countries.”³

- UN SECRETARY-GENERAL ANTÓNIO GUTERRES, JULY 2020

THE CLIMATE EMERGENCY AND FOSSIL BASED FASHION

Many fashion brands still lag far behind in responding to the climate emergency, having only set targets for their offices and retail stores, but not for their supply chain, where 95% of emissions typically lie. The creation of the G7 Fashion Pact and the UNFCCC Fashion Charter has helped generate broader momentum to adopt more aggressive clean energy and climate reductions targets for the supply chain. However, the 30% reduction by 2030 bar set forth in the UN Fashion Charter falls far short of the cuts climate scientists say are needed in the next 10 years to stay within 1.5°C: 55% reduction as a planet in absolute terms.

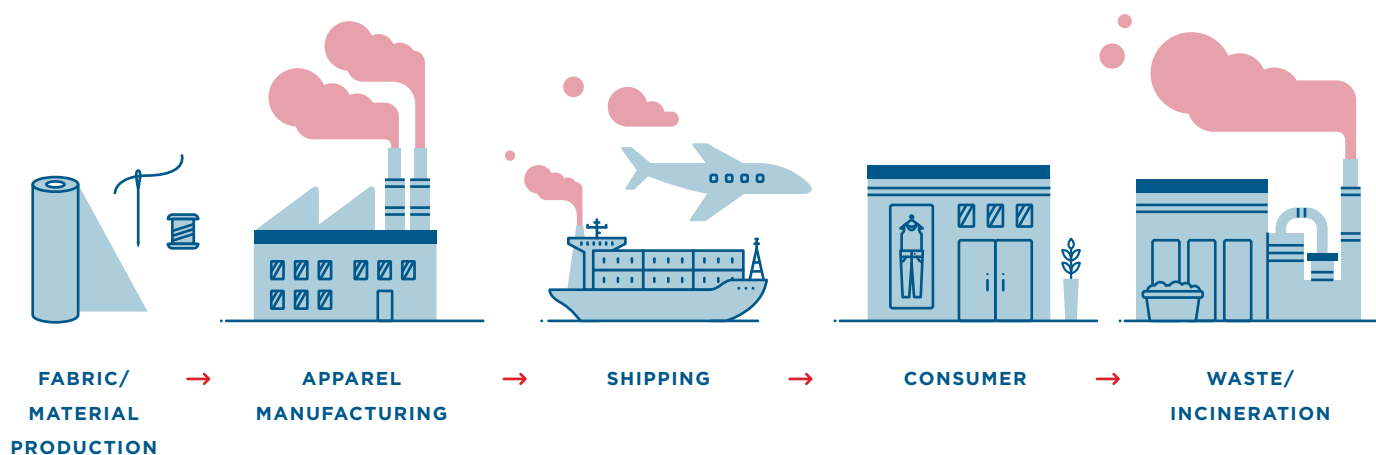
The recent UNEP Emissions Gap report, along with more recent analysis on the timeline for phasing out coal, make it abundantly clear that we need a rapid phasedown of coal in the next 10 years if we hope to stay within 1.5°C. While coal is experiencing significant declines in the

U.S. and parts of the EU, in much of Asia, significant new generation capacity is being proposed in a number of countries at the center of the fashion supply chain, threatening to take the sector further away from a climate-safe emissions pathway.

While corporate demand for renewable electricity is now one of the largest drivers of new renewable electricity generation in many markets, most of the fashion industry has thus far lagged behind in taking meaningful steps to transition away from their dependence on coal and other fossil fuels. Several fashion sector companies setting Science Based Targets is a positive sign of growing rigor and ambition.² However, the growing reality is that given the rapidly shrinking carbon budget available globally for 2030, to stay within 1.5°C means that the target fashion brands should be focused on is phasing out fossil fuels as rapidly as possible throughout the value chain by 2030, starting with coal.



KEY FOSSIL FUEL DRIVERS OF GLOBAL FASHION SECTOR EMISSIONS



- **COAL FIRED SUPPLY CHAIN**

The largest pieces of the fashion supply chain remain dependent on coal for both electricity generation and heat used in apparel manufacturing.

- **FRACKED FASHION**

Synthetic materials made from fossil fuels such as polyester now make up over two-thirds of the materials used in apparel, driving higher emissions and increasing demand for fossil fuels.

- **FAST FASHION**

Fast fashion has further accelerated consumption of the sector's take-make-waste business model, with 97% of material coming from virgin sources, with the majority made from fossil fuels.

- **HIGHLY POLLUTING SHIPPING**

The sprawling global supply chain of the fashion sector is already an important driver in the growth of emissions from ocean freight and air cargo shipments, sectors that are heavily dependent on fossil fuels and each responsible for 2-3% of global greenhouse gas emissions, and rapidly increasing. Ocean shipping is projected to increase to 17% of global GHG emissions if no action is taken.⁴ Apparel and textiles were among the largest market segments in both ocean and air shipping in 2019, with 8% of ocean cargo freight volume, and 6% of air cargo.⁵



FASHION FORWARD: A ROADMAP TO FOSSIL FREE FASHION

While the economic impact of COVID-19 has resulted in a short-term emissions drop, fashion brands must immediately begin to rethink key aspects of their supply chain and business model to avoid a rapid return to previous levels of climate and air pollution, and take steps to break their dependence on fossil fuels. COVID-19 has triggered significant socio-economic and financial impacts throughout the fashion industry, particularly in many of the countries where the sector's supply chain is heavily concentrated.

But as both brands and suppliers seek to restart their design and production lines, the crisis offers a critical opportunity to reorient their restart around a transition away from fossil fuels, rethinking key aspects of their business model, rather than trying to make the pre-pandemic business model marginally more sustainable.

By committing to rebuilding their business model around a rapid decrease in fossil fuel use over the next 10 years, global brands can transform the fashion industry from being one of the largest climate polluters on the planet to becoming a critical catalyst for a much broader decarbonization of the global economy.

Stand.earth's first Filthy Fashion Scorecard highlighted the range and disparity of commitments to reduce their climate pollution set by global fashion brands, indicating which brands have set ambitious reduction commitments in line with a 1.5°C pathway. As major brands move from commitment to implementation, Stand.earth has identified five critical focus areas and corresponding metrics to assess the progress of global fashion brands' climate leadership and decarbonization of supply chains, which are outlined on the next page.



1 Ambitious Commitments + Accountability Through Meaningful Transparency

Starting with Levi's commitment in 2018, the move by global fashion brands to set supply chain climate pollution targets has been a critical step forward, but must become more ambitious and rigorous in what is included, with the emphasis on reductions in the next ten years, and focused ultimately on zero emissions.

Ambitious commitments must go hand-in-hand along with regular and detailed reporting on energy performance of suppliers and material inputs throughout the supply chain to drive a race to the top in decarbonizing the fashion sector, and prevent the greenwashing that has been far too commonplace in corporate sustainability efforts.

2 Renewable Energy at Center of Supply Chain Decisions

Companies that set a 100% renewable energy goal for the supply chain send a powerful signal to the market that greater weight will be given to those suppliers and locations that can rely more heavily on renewable sources of electricity. But unless brands are willing to retake ownership of key segments of production to give greater control over energy inputs and performance, a new partnership between brands and supplier is what is most needed to drive the renewable energy transition, requiring a departure from the price-based paradigm the global brands have built their global supply chains around, and embrace the sharing of capital costs with their suppliers. The recent UNEP Emissions Gap report made it abundantly clear that we need a phasedown of coal in the next 10 years if we hope to stay within 1.5°C, and a rapid transition to renewable energy and storage, not to gas-fired generation.

3 Renewable Energy Advocacy

Companies with strong climate and renewable energy commitments must also use their standing to put pressure on governments to help their suppliers build back green with policies that incentivize suppliers and their customers to make the technology investments needed to decarbonize and compete in the global market. This should include publicly supporting national and regional clean energy policies that will green electricity grids and transportation infrastructure and unlock the potential for zero-emissions fashion. Corporate demand for renewable energy, when combined with government policy advocacy, has shown to be a powerful driver not only for renewable energy investments, but increasingly for requiring utilities to divest from fossil fuel based generation.

METRICS FOR ASSESSING CLIMATE LEADERSHIP

- Scope 3 emissions target at minimum 55% by 2030
- Commitment to coal phase out by 2030
- 100% of suppliers at all tiers are made public
- Emissions of significant suppliers across all tiers reported annually
- 100% renewable energy for own operations and supply chain
- Use of supplier contracts tied to renewable energy performance
- Energy efficiency performance
- Progress toward coal phase out for electricity and thermal energy needs
- Support green energy focused economic recovery packages
- Policies to require the availability of accessible renewable electricity options in key supply chain markets
- Support phase out of HFOs and stronger IMO Greenhouse Reduction Targets



4 Low Carbon and Long Lasting Materials

Polyester and other fossil fuel-based plastic materials have also become a key driver in the growth of cheaper, short-lived clothing associated with the fast fashion business model that has emerged over the past decade, fueling higher rates of consumption and higher emissions. By moving to lower-carbon materials and by steadily phasing out the use of virgin fossil fuel based plastic fabrics, shifting instead to a circular production model that involves long-lasting fabrics made from recyclable materials, the fashion sector can dramatically reduce emissions and its reliance on fossil fuels.

5 Greener Shipping

As one of the largest customers of both ocean and air freight, fashion and apparel brands have an opportunity to serve as critical catalysts in reducing emissions from air freight and to drive the investment needed in both ships and port infrastructure to decarbonize cargo vessels by the end of the decade. Several global brands have begun to engage on pilot approaches to reduce their shipping footprint, but much stronger demand for decarbonization, along with near-term demands requiring the elimination of toxic heavy fuel oil by cargo ship fleet operators serving major fashion brands, could help trigger much needed investment in zero-emission ocean freight.

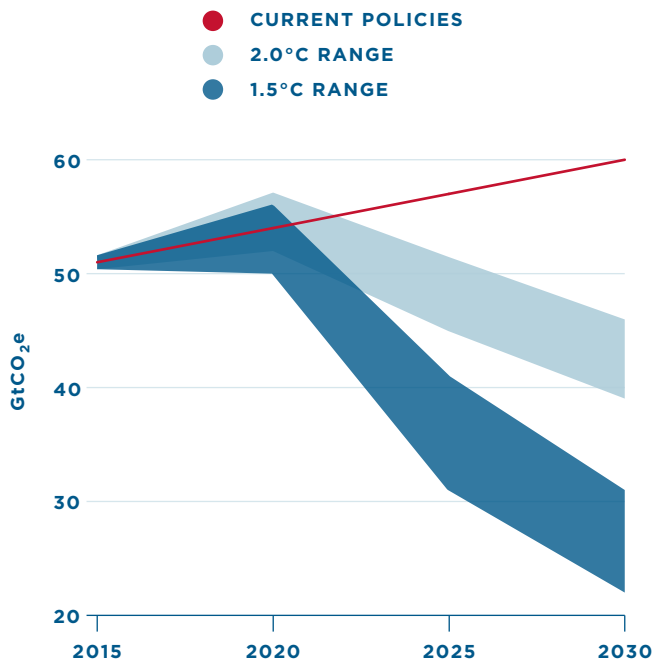
METRICS FOR ASSESSING CLIMATE LEADERSHIP

- Reduction in fossil fuels used for fabric feedstock
- % of recycled apparel material in production of new products
- Reduction in number of styles per year
- % of shipping volume carried by HFO and LNG-free carriers
- Reduction in air cargo volume
- Collaboration and advocacy to demand zero-emission vessels and the expansion of port infrastructure to demand zero-emission vessels

Flattening Fashion's Carbon Curve

Fashion brands must move rapidly from climate commitments to actions geared to phase out fossil fuels in order to halve greenhouse gas emissions in this decade.

Global GHG Emissions Under Different Scenarios and the Emissions Gap by 2030



While a lack of detailed reporting by fashion brands and their suppliers make it difficult to assess precisely the size of fashion's greenhouse gas emissions (GHGs), the most authoritative assessments point to a range between 5% and 8% of global GHGs⁶, larger than both global shipping and aviation. The sector's production impacts have increased rapidly in recent years, with a 35% increase in climate pollution in just one decade from 2005 to 2016.⁷ The industry was poised for continued dramatic growth over the coming decade prior to the COVID-19 global pandemic, with associated climate pollution projected to increase by an extraordinary 49% by 2030 over 2016 levels under a business-as-usual scenario,⁸ much of it due to the sector's continued heavy use of coal in the supply chain, and a greater reliance on synthetic materials derived from fossil fuels.

Such a business-as-usual scenario by the fashion sector would be catastrophic for staying within key ecological thresholds scientists have identified to prevent severe global impacts from climate change. At a global level, the most recent analysis done in late 2019 by the UN late on the gap between current emissions and the level of reductions needed painted a sobering picture: global emissions must be reduced by 55% from 2018 levels within the next 10 years,⁹ which would require a rapid phase out of coal within the next decade if we are to keep global warming below 1.5°C.¹⁰

FASHION'S CLIMATE COMMITMENTS

Only in the past two years have most fashion brands begun to take responsibility for their climate pollution. While a number of global brands had touted emissions reductions or renewable energy projects tied to their stores and own operations, for most companies, this only accounts for 5% of their total GHG emissions, the vast majority of which are buried in their global supply chain. Starting with Levi's commitment in 2018, major fashion brands began to take more significant commitments toward addressing the carbon emissions in their supply chains, triggering a wave of new company-level commitments among global fashion brands, with nearly 100 apparel brands having signed the UN Fashion Charter on Climate Change, committing the sector to a 30% reduction by 2030. While this spate of new commitments signaled a significant shift across the sector in making climate change a public priority, prior to the COVID-19 pandemic, very few fashion brands had made reduction commitments of the size and scale identified by climate scientists needed to help us stay within 1.5°C pathway.¹¹

With the sector taking a dramatic and painful pause due to COVID-19, it finds itself at a critical juncture, as leading fashion brands may be tempted to abandon their climate and sustainability commitments due to the economic downturn and the shift in global attention to the human and economic impacts associated with the pandemic. Similarly, suppliers, who are now struggling to pay their workers and demanding a more equitable partnership in the post-pandemic world, will look to see if their global customers who just made high-profile climate commitments in 2019 are still expecting them to prioritize investments to reduce emissions and transition away from coal and fossil fuels.

The number of new commitments on climate change since the pandemic is an encouraging sign fashion brands recognize the urgency of the climate emergency, and is also a recognition of the growing shift in expectations of their customer base, placing a greater importance on sustainability performance in choosing fashion brands going forward. Those brands who double down on a renewable powered decarbonization of their supply chain and a switch to low carbon materials will have a huge brand advantage in the post-pandemic market. Companies leading this break from fossil fuels must also lead by clear example through transparent and detailed reporting of their progress, to create greater separation in the marketplace from those companies who have chosen instead to double down on carbon offsets and "nature based climate solutions" as a basis for making undeserved claims of being "carbon neutral" (see box page 13).

While the economic impact of COVID-19 has resulted in a short-term emissions drop, companies must immediately begin to rethink key aspects of their supply chain and business model to avoid a rapid return to previous levels of climate and air pollution, breaking their business model's dependence on fossil fuels. By committing to rebuilding their business model around a rapid decrease in fossil fuel use over the next 10 years, global brands can transform the fashion industry from being one of the largest climate polluters on the planet to becoming a critical catalyst for a much broader decarbonization of the global economy.



A FOSSIL FUEL CENTERED SUPPLY CHAIN

The fashion industry's supply chain is heavily dependent on fossil fuels both for energy needs and increasingly as the source of human-made materials that now dominate the clothes we wear. To make the shift to a 1.5°C emissions pathway needed to respond to the climate emergency, the sector will need to halve its emissions from current levels across all production tiers in the next 10 years, making dramatic cuts in fossil fuel demand. Yet very few companies have taken action to tackle the key areas driving fossil fuel use across their supply chain.¹²

Key fossil fuel drivers of global fashion sector emissions



COAL STILL IN YOUR CLOSET

While coal is experiencing significant declines in the U.S. and parts of the EU due to market dynamics and climate policies requiring a coal phase out, a major reason behind the sector's growing climate footprint is tied to the fact that some of the largest pieces of the fashion supply chain are located in countries where a significant portion of the electricity on the grid is powered by coal, with monopoly utilities still expanding their reliance on coal. These coal heavy grids, plus the continued reliance on coal for thermal energy demand in many parts of textile production means apparel manufacturing continues to drive significant demand for more coal, and the carbon and dangerous air pollution that come with it.



POLYESTER, POLLUTION, AND FRACKED FASHION

Polyester, acrylic, nylon, and other plastic-based fibers have dramatically increased in clothing and apparel over the past decade with the rise of fast fashion, accounting for approximately two-thirds of the fabric in today's fashion. These synthetic materials are derived from raw fossil fuels (oil and gas), and are much more energy intensive to produce than cotton and most other fabrics, driving the sector's climate pollution much higher. Despite the growing ban on fracking by a growing number of countries in the EU and elsewhere, Stand.earth Research Group has tracked oil and gas derivatives from fracking in the U.S. to major polyester suppliers in countries with fracking bans in place.



FAST FASHION: FUELING CONSUMPTION AND WASTE

Polyester and other fossil fuel-based plastic materials have also become a key driver in the growth of cheaper, short-lived clothing associated with the fast fashion business model that has emerged over the past decade, fueling higher rates of consumption and higher emissions. The fast fashion business model has further accelerated the take-make-waste production model of the sector: 97% of material coming from virgin sources, clothing that is worn only a handful of times, generating a tremendous amount of clothing related waste around the world as the vast majority of clothing arrives in a landfill or incinerator within just a few years of being made.



HIGHLY POLLUTING SHIPPING

The sprawling global supply chain of the fashion sector is already an important driver in the growth of emissions from ocean freight and air cargo shipments, sectors that are heavily dependent on fossil fuels and each responsible for 2-3% of global greenhouse gas emissions, and rapidly increasing. Apparel and textiles were among the largest market segments in both ocean and air shipping in 2019, with 8% of ocean cargo freight volume, and 6% of air cargo.¹³ Container ships also contribute significantly to air pollution due to their reliance on toxic heavy fuel oil.



Ambitious Commitments + Accountability Through Meaningful Transparency

Clear public tracking of climate emissions, and the reduction of those emissions, requires a level of transparency the fashion sector is lacking.

In a post-pandemic recovery, consumers will gravitate to brands they see are making progress on their sustainability goals.¹⁴ That progress can only be measured with clear reporting on emissions and supply chain transparency. While the recent spate of commitments announced by companies portend a significant shift, the lack of meaningful emissions reporting or transparency in the locations of global supply chains by a broad range of fashion brands is a major impediment to assessing whether emissions reductions are on path to keep pace with a 1.5°C pathway. Similarly, the lack of transparency is often the context to judge if renewable projects or similar actions announced by brands or their suppliers are actually eliminating fossil fuels in their supply chain.

As companies move from setting climate commitments to scaling significant changes in their supply chain, brands leading with actions that truly shift their supply chains away from fossil fuels must stand out among those that instead choose to hide or greenwash their continued

reliance on fossil fuels by utilizing shortcuts such as carbon offsets or unbundled renewable energy credits. This separation can only be achieved through regular and consistent reporting of data on precisely where material is sourced from and the facility level energy performance of primary suppliers.¹⁵ Those companies who are actually managing their supply chain toward full decarbonization will have gathered this data, and are using it as a basis for shifting business toward higher performing suppliers and locations that are rapidly decarbonizing their electricity grid.

Not only do relatively few companies report emissions data from supply chains, many of them do not even collect it in the first place. According to recent findings from the advocacy group Fashion Revolution, only 58% of companies surveyed publish scope 1 and scope 2 greenhouse gas emissions, and a slim 16% of those surveyed publish emissions in their supply chain (scope 3), where the vast majority of emissions lie.¹⁶

Falling Behind: Commitments, Transparency, and Renewables¹⁸

	COMMITMENT	SUPPLY CHAIN EMISSIONS			RENEWABLE ENERGY DEPLOYED
	Supply Chain 2030 Absolute Reduction Target / Base Year	YEAR-YEAR CHANGE Most Recent Annual Change	PATHWAY TO TARGET Annual Cut to Reach 2030 Target	PATHWAY TO 1.5 Annual Cut for 55% Reduction by 2030 need for Pathway	Own Operations (MW) / Supply Chain (MW)
H&M	30% / 2017	+21%	-4.43%	-7.9%	- / -
NIKE	30% / 2015	+4%	-5.05%	-8.79%	18 MW / 66 MW
PUMA	27% / 2017	+22.59%	-5.16%	-9.24%	1.32 MW / 0.0002 MW
PVH	30% / 2017	Not Reported	-2.71%	-5.96%	- / -
VF	30% / 2017	Not Reported	-2.71%	-5.96%	3.29 MW / 0.54 MW ¹⁷
APPLE	70% / 2015	+2.50%	-7.75%	-3.27%	2427 MW / 2700 MW

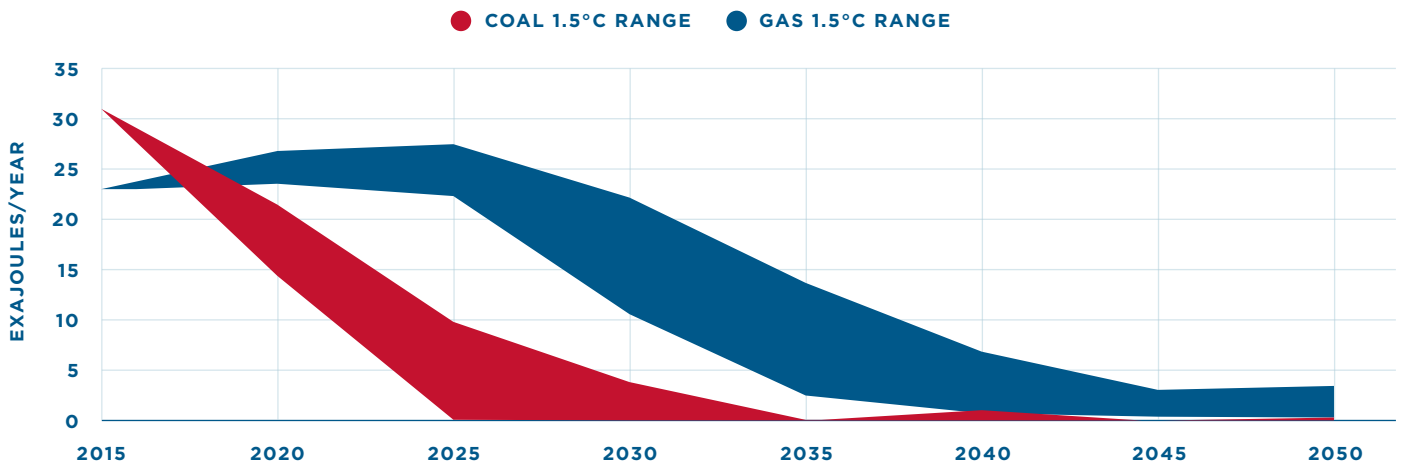


Renewable Energy at Center of Supply Chain Decisions

The fashion sector must phase out coal by 2030 in its supply chain, requiring a new partnership between fashion brands and suppliers to unlock investment in renewables.

1.5°C Paris Compliant Pathways for Global Power Generation Phase out of Coal by 2040, Rapid Decline of Gas²¹

1.5°C compliant emissions pathways for global power generation from coal and gas, filtered for emissions scenarios involving no or limited overshoot, along with sustainability constraints on the use of bioenergy and carbon capture and storage (BECCS)



A distinct thread runs between the fashion sector’s outsized climate pollution and coal-fired power plants and onsite coal use, in many of the countries where fashion brands’ supply chains are situated. A large proportion of the fashion industry’s manufacturing occurs in China, Vietnam, Bangladesh, and Turkey. All four nations either currently use large quantities of coal to power their grids, as in China, or have plans to greatly expand their coal burning power derivation in the near future, as in Bangladesh (see page 16). If the fashion industry fails to quickly source renewable energy for supply chain

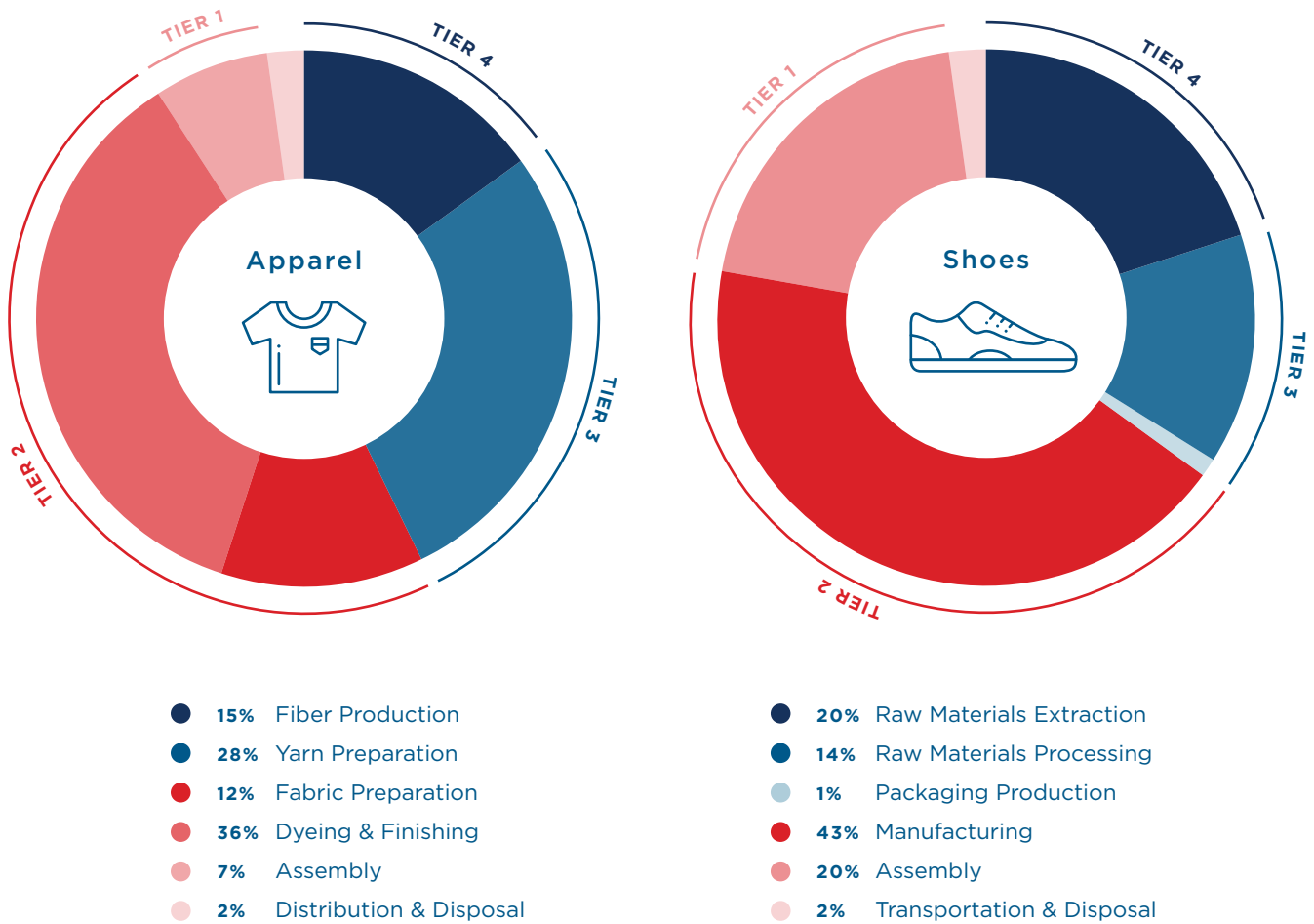
energy, the sector’s emissions will increasingly come from coal pollution.

Brands that are currently setting Science Based Targets must address the coal hidden in the manufacturing processes in order to meet those targets, without ignoring the use of other fossil fuels. Coal is used in two distinct ways in the fashion sector: to generate the electricity that factories use through local electric grids, and by burning it onsite as thermal fuel. Dyeing/finishing and spinning together account for over half the industry emissions. The

former processes use the lion's share of the industry's thermal energy, and electricity is the primary energy in the latter process. Data from the U.S. textile industry reveals a split of 61% thermal energy and 39% electricity, but manufacturing in nations with lower-paid labor likely use more electricity.¹⁹ Measuring progress toward Science Based Targets and complimentary commitments to phase out coal require detailed measurement of inputs throughout the value chain. Each step in the manufacturing process uses a differing amount of energy depending on the material, energy efficiency of the facility, and source of energy used at each manufacturing or distribution phase.

Energy efficiency measures are a first step toward cutting emissions, but cannot be relied upon as the sole tool for reductions. Companies making progress in sustainability are investing in programs to help their suppliers achieve rapid efficiency measures, evidenced by Levi's, PUMA, and VF Corp's work with the IFC and Clean by Design in multiple countries and PaCT in Bangladesh to create energy efficiency pilot programs. VF Corp reports 10-20% in energy savings at the 18 suppliers participating.²⁰ These programs will need to be rapidly scaled up to achieve similar reductions across all suppliers.

GHG Emissions by Tier and Process^{22 23}



PHASING OUT COAL

While efficiency must remain central to reducing the sector's climate footprint, the amount of coal power generation is set to dramatically increase in several of the biggest fashion producing countries. The recent UNEP Emissions Gap report, along with more recent analysis on the timeline for phasing out coal, make it abundantly clear that we need a rapid phasedown of coal in the next 10 years if we hope to stay within 1.5°C. While coal is experiencing significant declines in the U.S. and parts of the EU, in much of Asia, significant new generation capacity is being proposed in a number of countries at the

center of the fashion supply chain, threatening to take the sector further away from a climate-safe emissions pathway.

While COVID-19 has temporarily slashed emissions, to reverse this trend post-crisis, global fashion brands must work together and with their largest suppliers to rapidly ramp up renewables and phase out coal. Without rapid, bold action now on the part of companies that rely on great quantities of the power generated in these countries, the industry's climate pollution will balloon, minimizing emissions reductions at the worst possible time.

Coal's Rapid Expansion in Fashion's Supply Chain

LEADING FASHION SUPPLY CHAIN COUNTRIES	📍 CHINA	📍 TURKEY	📍 VIETNAM	📍 BANGLADESH
Fashion's % of 2018 GDP ²⁴	2.1%	3.4%	14.8%	12%
Fashion's Portion of 2018 Export Value (apparel and footwear) ²⁵	8%	10%	19%	89%
Coal as % of Electricity Generation ²⁶	65%	22%	34%	5%
Number of Coal Plants Proposed, Permitted, and Under Construction ²⁷	+331 +252 GW 	+31 +34 GW MW 	+24 +30 GW 	+17 +21 GW
Change in Increase in Coal Capacity	+25%	+189%	+102%	+1640%

RENEWABLE ELECTRICITY

Renewables are currently the cheapest source of new power generation in most of the world, with the average global purchase for new utility-scale solar PV and onshore wind turbines able to beat or compete with the marginal operating cost of existing coal plants.

Corporate demand for renewable electricity is now one the largest drivers of new renewable electricity generation in many markets, yet most of the fashion industry has thus far lagged behind in taking meaningful steps to transition away from their dependence on coal and other fossil fuels. This means not only stopping newly proposed coal plants, but decommissioning existing plants as well, and replacing them with cleaner and increasingly cheaper sources of renewable energy than existing coal and gas-fired power

plants. Corporate demand has shown to be a powerful driver not only for renewable energy investments, but also increasingly for helping move utilities to divest from fossil fuel-based generation and transmission assets, particularly when combined with government policy advocacy (see Renewable Energy Advocacy section below).

Roughly half of the fashion sector's supply chain carbon emissions are attributed to electricity consumption in Tiers II, III, and IV. Depending on the size of the load and options for renewable energy procurement in the country or region, a mix of strategies may be needed to meet electricity and thermal demand with renewable sources. (see table page 18).

To ensure corporate renewable energy purchases will result in the reduction of CO₂ and other pollutants from fossil fuels, four core principles should be used to shape and guide strategies for achieving 100% renewable energy goals:



LOCAL:

Renewable energy supply is located on the same grid as the company's demand.



REDUCING DIRTY ENERGY DEMAND:

New renewables supply displaces demand for existing dirty electricity generation.



ADDITIONAL:

Renewable energy is new and additional, going beyond what would have occurred with existing policy targets or mandatory requirements for utilities





RENEWABLES ADVOCACY:

Strong policy advocacy to change the regulatory and policy framework to rapidly increase the supply of renewable energy on the grids where the company has operations and major suppliers.

By avoiding common shortcuts such as unbundled renewable energy credits (see wrong turns below), companies can have a real impact on reducing emissions and driving fossil fuels out of their supply chain. The rapid growth in the number of committed fashion companies combined with high quality renewables procurement will

ensure companies play a significant role in delivering 100% renewable energy that will displace coal and other sources of dirty energy in key supply chain countries, dramatically reducing their supply chain carbon footprint.

Displacing Fossil Fuels: Impact of Renewable Electricity Purchasing Options

RENEWABLE OPTION	 PROS	 CONS	CORPORATE & COUNTRY EXAMPLES
ONSITE RENEWABLE	<ul style="list-style-type: none"> • Direct displacement of grid demand • Clear connection to operations 	<ul style="list-style-type: none"> • Capacity & size limited by facility 	<ul style="list-style-type: none"> • Nike (China) • Puma (Vietnam) • H&M (China & India)
POWER PURCHASE AGREEMENT (DIRECT)	<ul style="list-style-type: none"> • Control & hedge over energy costs • Displacement of local fossil demand 	<ul style="list-style-type: none"> • Economics may require much larger demand • Terms often longer than supply contract 	
DEMAND AGGREGATION PPA	<ul style="list-style-type: none"> • Creates options for customers w/smaller loads to PPAs pricing • Displacement of local fossil demand 	<ul style="list-style-type: none"> • Contract complexity • Contract terms longer than supply contract 	<ul style="list-style-type: none"> • Apple, H&M, Salesforce (US) • Google, Phillips (NL)
DIRECT INVESTMENT	<ul style="list-style-type: none"> • Clear causation storytelling potential • Ability to scale to match local demand 	<ul style="list-style-type: none"> • Additionality not as clear • Less impact on utility • Higher upfront cost • Doesn't always convey Renewable claim 	<ul style="list-style-type: none"> • Apple (China)
VIRTUAL/SYNTHETIC PPA	<ul style="list-style-type: none"> • Potential hedge over rising energy costs 	<ul style="list-style-type: none"> • Only indirect impact on local utility mix • Exposure to energy market fluctuations 	<ul style="list-style-type: none"> • H&M • Vietnam
REC-ONLY UTILITY PURCHASE	<ul style="list-style-type: none"> • Connection to local utility supply 	<ul style="list-style-type: none"> • Price premium to underlying bill • Lower additionality (often from existing supply) 	<ul style="list-style-type: none"> • China
UNBUNDLED RECS/IRECS	<ul style="list-style-type: none"> • Low cost • Easily matched to demand 	<ul style="list-style-type: none"> • Low/zero impact on new renewable investment • Always additional to underlying energy cost 	

HIGH IMPACT

LOW IMPACT

Companies can make the most climate pollution reductions by focusing on taking steps to phase out fossil fuels in their supply chain that will drive real reductions in their greenhouse gas emissions. There are far less impactful means of making green claims however, the two most common are the purchasing of unbundled renewable energy credits (RECs) and carbon offsets.



Unbundled Renewable Energy Credits

Renewable Energy Credits—or their European equivalents, Guarantees of Origin (GoOs), and more recently international I-RECs—are property rights created when renewable energy is generated and represent the environmental attributes of the renewable energy. RECs are a fungible commodity, meaning they can be transferred or sold separately from electricity. RECs were originally designed for the compliance market to give utilities flexibility in meeting mandated renewable energy targets and play a critical role in ensuring that only one party can claim the benefits associated with the production of renewable energy.

However, RECs and GoOs have flooded the market in both the US and the EU, as renewables increasingly outcompete coal and other dirty energy sources on an economic basis. In the US, the oversupply of RECs continues to exceed regulatory obligations in many markets, and is driving REC prices to record lows. The minimal revenue generated from the sale of RECs alone typically does little to drive additional renewables capacity or actually displace demand for dirty sources of electricity. Nevertheless, RECs continue to represent more than half of voluntary green power market sales in the US, and nearly two-thirds of renewable energy claims in the EU (via GoOs).



Carbon Offsets

Outside of fossil fuel companies and large utilities, the corporate use of carbon offsets had until very recently fallen significantly out of favor due to the growing evidence that they do not achieve lasting greenhouse gas emission reductions,²⁸ do nothing to displace demand for fossil fuels or reduce the pollution they generate, and even at their incredibly low cost, have a corresponding poor return on investment as a means of burnishing corporate environmental claims.

While the recent shift toward adoption of “carbon neutral” or “net neutral” claims is intended to project a greater long term ambition in tackling climate change, it has in turn

triggered a resurgence in the use of offsets or “natural climate solutions” involving the protection of carbon stored in forests or planting of tree plantations to absorb carbon. While their lack of efficacy in driving a reduction in fossil fuel demand remains wholly unchanged,²⁹ the reemergence of offsets represents a significant risk to growing climate leadership, potentially distracting fashion and other consumer facing brands who are desperate to show progress on their commitments post COVID-19. While tempting due to their low cost and immediate storytelling potential, the increased use of voluntary offsets or “Tree-washing” via forest plantations to substantiate environmental claims is only likely to delay important supply chain decisions or meaningful investments in renewable energy that are critical to decarbonization and emission reductions that must occur this decade.



Gas: A False Bridge

The urgency of the climate crisis requires the phase out of all fossil fuels from the energy sector globally by 2050, but must happen much more rapidly in the electricity sector in advance of the electrification of the transport, heating, and other energy-intensive sectors. Fracked gas is promoted by the gas industry and some energy utilities as a “cleaner” alternative to coal and as a “bridge fuel” to complement a rising share of renewable energy. But there are a few key reasons why gas cannot be seen as an ongoing part of a climate solution:

- Coal to renewables, not coal to gas: Replacing old coal plants with new gas plants will not reduce global emissions fast enough, even with minimal methane leakage. Current industry predictions for gas expansion are incompatible with the 55% reductions in global emissions required by 2030.
- Wind and solar are already cheaper than gas. Globally and in many individual markets, new wind and solar is already cheaper to build and operate than coal and gas.
- Renewables plus storage beats gas for grid reliability. Wind and solar plus battery storage is already 50% cheaper than gas “peaker” plants in a growing number of markets. A combination of storage, demand management, and transmission upgrades are a far superior and cheaper solution to reliable renewable energy grids.
- Any new investment in new gas plants and infrastructure such as pipelines both diverts funding away from renewable energy and ignores the fact that this new gas infrastructure will be stranded assets before the end of its decades-long operating lifespan, under both 1.5°C and 2°C emissions reduction scenarios.

GREENING OF THERMAL ENERGY DEMAND

Investment in process changes and energy efficiency technology by Levi's has shown the potential to significantly reduce emissions from the dyeing and finishing processes that are still coal fired in many factories, and represent nearly half the supply chain pollution for clothing of many brands. While there are growing signs that concentrated solar may be a solution for certain geographies, phasing out fossil fuels will require investment in technology that can utilize greener fuels to meet thermal demand, such as electrification or hydrogen compatible boilers that can be powered with greener inputs once available, while avoiding the hidden climate pollution of switching from coal to biomass.

The high proportion of industry greenhouse gas emissions that heat generation accounts for can be reduced by moving industrial boilers off of coal, through elimination of central boiler systems, conversion to concentrated solar,³⁰ powering with hydrogen,³¹ or by switching fuels. Fuel switching, however, is the least preferred option as it will not reduce emissions enough in the long term, and may actually cause higher emissions that go unaccounted for—as can be the case with biomass.

Reducing and altering water-based processes results in multiple ecological and social benefits, including lower emissions due to decreased energy requirements, water conservation, and decreased toxic effluents in local waterways. Both Levi's and Nike have adopted waterless technologies in finishing³² and in dyeing.³³ An example of dramatic onsite heat emissions reductions can be found in Nike, which succeeded in significantly reducing supply chain energy use by eliminating centralized steam boiler systems and replacing them with more efficient electric motors in their footwear production.³⁴ Nike claims energy reductions of 15% to 20% at these sites, however some boilers were converted to “sustainably-sourced, renewable” biomass, and it is unclear how these conversions contribute to the reductions figures.³⁵



Concentrated Solar

Solar technology is increasingly becoming a viable alternative for heating water and producing steam, particularly with solar parabolic collectors, which can reach temperatures similar to those used in many industrial processes. Simulation of a concentrating photovoltaic/thermal-energy cogeneration (CPV/T) system for use in textile dyeing resulted in temperatures as high as 220°C, and newer CPV/T technology may even provide efficient heating at higher temperatures.³⁶ Most of the process heating used in the textile industry utilizes temperatures ranging from 60°C to 220°C,³⁷ with different needs determined in part by the material used and finished product desired. The feasibility of solar use for textile industry boilers has also been examined for processes requiring water heated to 240°C, further highlighting the opportunity to transition from coal to solar, but researchers highlight the importance of incentivization.³⁸



Biomass: a false renewable solution for electricity or thermal energy

Wet processes like textile dyeing are responsible for a large percentage of the fashion industry's emissions that derive from onsite burning of fossil fuels. As a result, the industry is increasingly looking to biomass as a possible solution for cleaning up boilers. Boilers are used to generate steam and hot water used in dyeing and finishing and can run on coal, gas, and are sometimes easily switched to biomass.

But is biomass really any better than coal? While natural decomposition of biomass may take years or decades, and in some cases contributes carbon to the soil, burning of biomass releases CO₂ as immediate climate pollution.³⁹ Large scale burning of biomass (mostly wood) for energy production is often proposed as a climate solution because it is “carbon neutral”. However, burning wood creates more than 1.5 times the GHG emissions as burning coal per unit of energy — and those emissions immediately contribute to global warming. If logged forests are replanted, the new trees will take decades to centuries to reabsorb the carbon debt created.



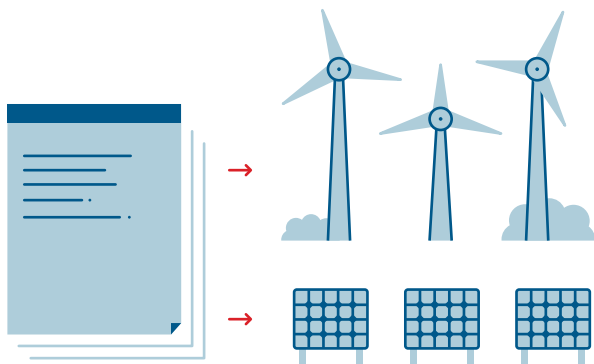
Renewable Energy Advocacy

Fashion brands need to publicly advocate for more renewable energy in their supply chains, and oppose new investments in coal.

In addition to driving the deployment of renewable energy directly or in partnership with suppliers, fashion companies serious about triggering the massive shift to renewable energy needed over the coming decade to tackle climate change must also recognize the need to publicly advocate for government policies that will support a green recovery from COVID-19. Prior to the pandemic, global fashion brands were becoming more vocal in calling for stronger climate leadership, as evidenced by the UN Fashion Charter and the G7 Fashion Pact, but have lagged behind global retail brands like IKEA and technology brands like Apple and Google in advocating for renewable energy policies at the national or regional level where their own operations or major suppliers are based.

SECURING ACCESS TO RENEWABLES

With the supply chains of many fashion brands located in markets controlled by state-owned, monopoly electric utilities that remain heavily dependent on coal and other fossil fuels, removing barriers for companies to purchase renewable electricity is often the first change in policy needed. Corporate demand for renewable energy has already played a key role in policy changes in Taiwan and Vietnam that have allowed Google⁴⁰ and TSMC⁴¹ to sign contracts leading to significant new renewable projects.



DECARBONIZING THE GRID

In addition to supporting reforms to allow corporate procurement of renewables, fashion brands must begin to engage in key markets where their supply chain is based — calling for policies to decarbonize the grid, supporting aggressive national or regional renewable energy goals, and speaking out against further investments in coal or significant new gas infrastructure. Facebook’s corporate renewable energy requirements played an important role in the adoption of 100% renewable energy policies in New Mexico and elsewhere. Perhaps of even broader significance, the recent public opposition by Apple, Microsoft, Amazon and a number of other technology companies⁴² to the construction of a significant new methane gas pipeline in Virginia contributed to the cancellation of the pipeline and the pivot of the monopoly utility away from gas and toward renewable electricity.⁴³

Given the projected expansion of new coal generation capacity across the fashion supply chain, global fashion brands and their suppliers cannot afford to take a passive approach toward critical energy policy and investment decisions that could make their greenhouse gas and renewable energy goals impossible to achieve.

The letter recently sent by Adidas, Gap, H&M, Nike, and Puma to the Cambodian government expressing strong concerns over the planned tripling of coal fired power generation and the potential impact on future investment is an excellent example of the proactive advocacy needed from the fashion industry to move their supply chains off of coal.⁴⁴



Low Carbon and Long Lasting Materials

Fashion brands must rapidly reduce their reliance on fossil fuel based fabrics, shifting to low carbon and long lasting materials.

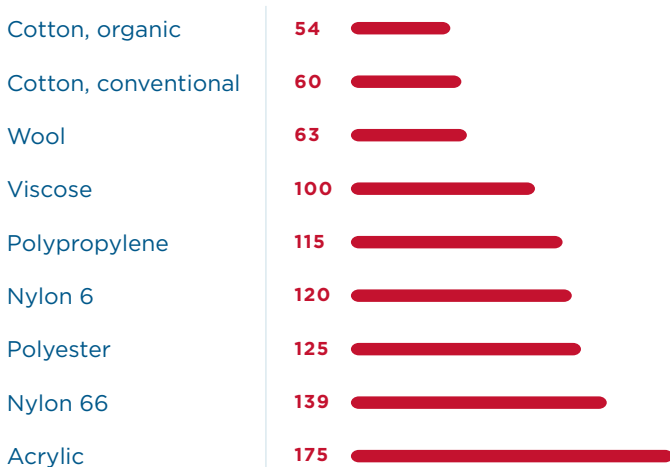
In addition to replacing fossil fuel sources of energy in the manufacturing of apparel, breaking away from energy intensive synthetic materials produced from fossil fuels must also become a core tenet of any meaningful climate strategy for global fashion brands. The shift to energy intensive synthetic materials like polyester and nylon has been a central driver in the fashion's sector's rapid increase in GHG emissions, enabling the fast fashion business model that feeds rapid consumption and enormous waste throughout the production cycle that is clearly unsustainable and incompatible with addressing climate change. Consumer surveys and industry insiders since the pandemic have repeatedly signaled that the fast fashion model does not have a place in a post-pandemic world,⁴⁵ strengthening the business case for fashion leaders to move materials away from polyester and other synthetic materials driving fossil fuel extraction, pollution, and high levels of waste.

LOW CARBON VS HIGH CARBON FABRIC

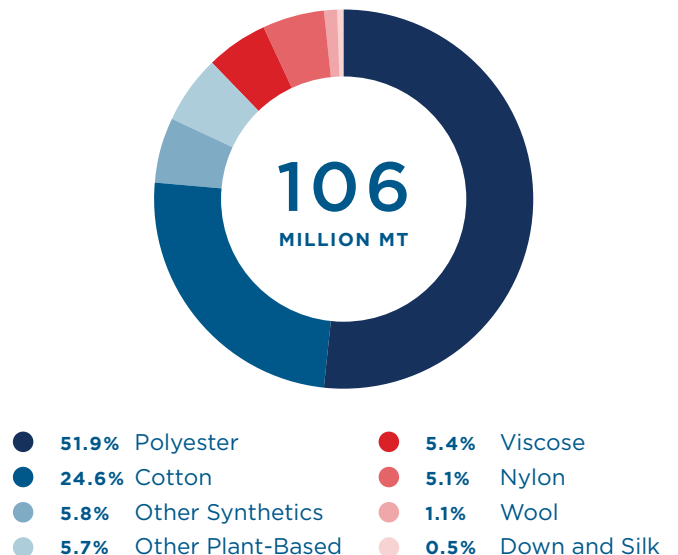
Fiber production in apparel and raw materials extraction in shoes account for 15% and 20% of industry greenhouse gas emissions,⁴⁶ respectively, with significant variation based on method of production, geographic location and corresponding electricity generation mix. Cotton licensed under the Better Cotton Initiative (BCI) is labeled sustainable, with parameters placed on pesticide and water use, along with soil health, worker treatment, and other facets of cotton growing.⁴⁷ One study of cotton farming in Maharashtra, India, shows BCI cotton has a Global Warming Potential lower than conventional cotton, but higher than that of organic cotton (435 to 731 and 295, respectively, per ton seed cotton).⁴⁸

Energy Use of Materials

ENERGY USE IN FIBER CREATION, MJ PER KG FIBER⁴⁹



Global Fiber Production in 2018



However, company transparency in materials sourcing is lacking, with many companies reporting they do not know where all their materials are coming from, creating significant environmental risks as well as the possibility of human rights violations in their supply chain.⁵⁰ Forced labor and slavery — the most egregious human rights abuse — was recently documented in Xinjiang, China.⁵¹

Synthetic materials derived from crude oil and methane gas account for around two-thirds of all textile fibers, including polyester, polypropylene, acrylic, elastane, and others.⁵² While polyester and nylon readily recycle, virgin material from crude oil requires much more energy to produce than natural fibers. Moreover, fossil fuel inputs derive from extraction processes associated with environmental threats and pushback from fenceline communities, such as fracking.



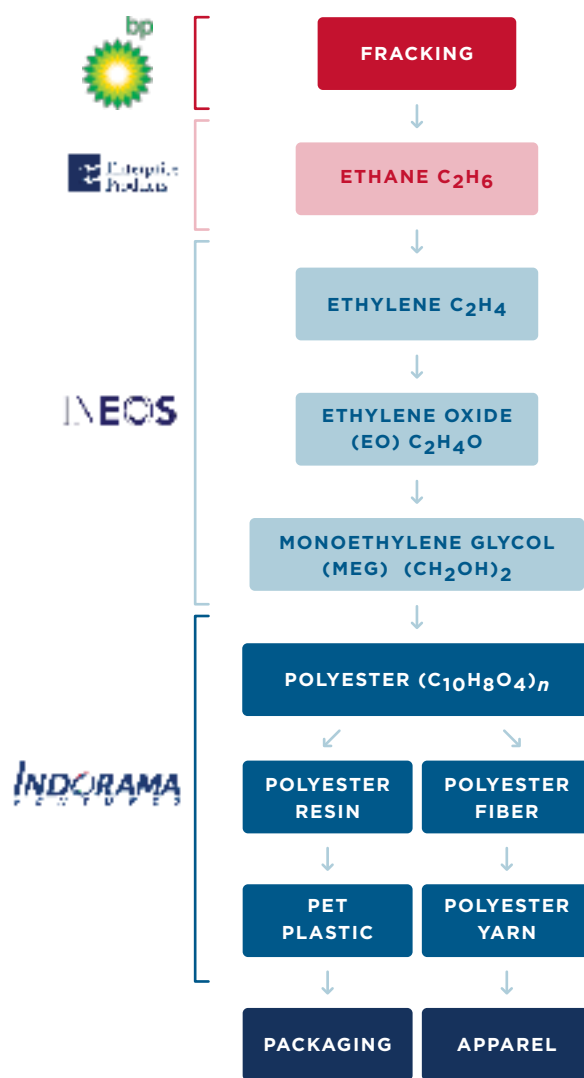
Fracked Fashion

While a range of countries and regional governments have banned fracking in their territory, this has not prevented fracked oil and gas from entering these same countries through the fashion polyester supply chain. Stand.earth Research Group researchers have uncovered major supply chain links from U.S. fracked gas to polyester producers supplying the global apparel industry. The research tracked ethane—used to produce ethylene—from fracked gas coming from Texas and Pennsylvania to Ineos, a major European importer of ethane (Texas and Pennsylvania shipped over 1.3 million tonnes of ethane to Europe in 2019, mostly to Ineos). Ineos manufactures ethylene oxide and its derivative monoethylene glycol, from which polyester is derived, and is the largest producer of ethylene oxide in western Europe with a capacity of 935,000 tons annually. The research estimates around one third of Ineos’ capacity ends up as polyester fiber used by the fashion industry, including polyester made by the Ineos’ customer Indorama Ventures, one of the largest producers of polyester fiber in the world.

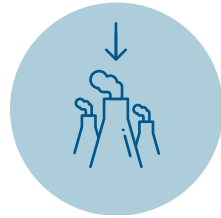


Coal-based Clothing

Chinese textile giant Jiangsu Hengli Chemical Fibre Co (Hengli), one of the world’s largest producers of polyester fiber, recently announced a \$20 billion (USD) investment to begin producing polyester fiber from coal.⁵³ Already one of the most energy- and carbon-intensive fabrics when produced from oil, coal based polyester is estimated to emit as much as three times as much carbon dioxide as polyester derived from oil.⁵⁴



To drawdown the rapidly rising GHG emissions, waste, and other pollution tied to the fashion sector’s heavy dependence on fossil fuel based fabrics, key strategies should include:



KEY STRATEGY 1:

Transition away from fossil fuel fabrics to low carbon textiles

Transitioning the fashion sector away from polyester and other synthetic fabrics produced from fossil fuels is a significant undertaking, and will require a multi-phase approach including significant new investment and collaboration across both fashion brands and their suppliers, but important initial steps fashion brands should pursue include:



PHASING OUT FRACKING

As an immediate step, global fashion brands should commit to phase out the use of polyester, nylon and other fossil fuel based synthetic fabrics derived from hydraulic fracking in their clothing, motivating polyester suppliers to secure fossil fuel feedstock from sources that are not polluting local communities or driving the expansion of drilling. Fracking is not only driving higher CO₂ emissions, but also methane emissions, a global warming super-pollutant. Recent studies have linked one-third of the dramatic spike in global methane emissions over the past decade to the dramatic increase in fracking of shale oil and gas reserves in the United States and Canada.⁵⁵

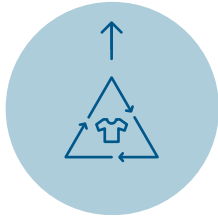


TRANSITION TO LOW CARBON PLANT-BASED FIBERS

A shift to plant-based textiles such as hemp or organic cotton can significantly reduce emissions and dependence on fossil fuels, but need to be carefully selected to avoid unsustainable levels of water consumption or human rights impacts. Transitions to virgin viscose, a plant based fabric derived from wood or bamboo pulp, should be limited, given the significant carbon and biodiversity impacts associated with its production.⁵⁶ Many fashion brands have already begun experimenting with other sources of plant based fiber, including agricultural waste, but will require significant retooling of existing pulp production capacity to scale.⁵⁷

EXAMPLES OF COMMITMENTS AND PROGRAMS

- **EVERLANE:** commitment to 100% organic cotton by 2023.
- **ALLBIRDS:** prioritization of natural and recycled materials, and use of \$100 ton internal carbon tax.
- **PATAGONIA:** has set a 2025 target that all apparel will be made from 100% recycled, reclaimed, or renewable materials.

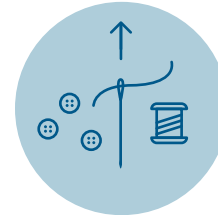


KEY STRATEGY 2:

Closing the loop with recycled materials

Circularity is an increasingly popular concept in the fashion industry as a tool to radically drawdown the multiple negative impacts of clothing including GHG emissions. Increasing recycled material content and the longevity of apparel and shoes are central to circularity and requires investments in research and development of new materials. Recycled materials can decrease emissions associated with material production and many companies are setting big recycled material targets in their sustainability plans.

At present most recycled material commitments, particularly for polyester, are being met with material from other waste streams, such as plastic water bottles, rather than closed loop recycling from polyester fabrics. Materials targets focused on sustainability, renewability, and regenerative agriculture highlight the need for a better understanding exactly what those terms mean, how they can be quantified, and establishing appropriate limits to what impact brands can claim.



KEY STRATEGY 3:

Designing for durability: Longer lasting materials and repairable apparel

A shift away from plastic based fabrics to longer lasting and more durable materials will greatly reduce the demands the fashion industry is placing on the planet, but must also include putting a priority on apparel design that both enables reparability during use and recyclability at the end of product life, to reduce the huge amount of clothing waste currently generated. More durable materials, more easily recycled fabric blends, and repair services have been launched by Levi's and a few fashion brands, which show the potential to significantly extend the investment of the earth's resources into our fashion, both of which would ultimately reduce the rapidly growing waste stream and support more circular production models.

EXAMPLES OF COMMITMENTS AND PROGRAMS

- **ADIDAS:** Phase out of virgin polyester by 2024.
- **VF CORP:** commitment to source 50% of nylon and polyester from recycled materials by 2025.
- **PATAGONIA:** offers extensive repair service, and Worn Wear sales channel of repaired and refurbished clothing and gear.
- **LEVI'S:** Wellthread jeans line designed for durable and 100% cellulosic materials, excluding polyester or other synthetic materials, to enable recycling at end of life.



Greener shipping

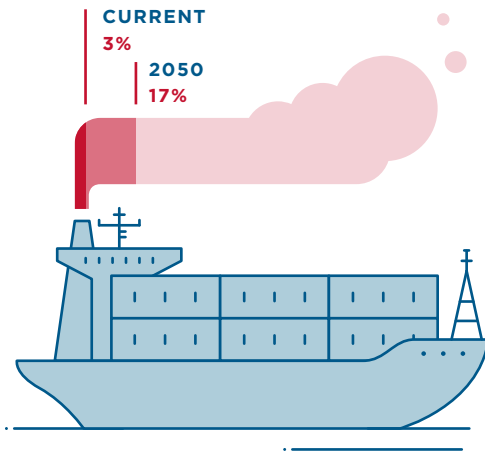
Fashion brands could continue to be a major driver of rising shipping pollution, or become a catalyst for cleaner fuels and investment in zero emissions vessels.

The sprawling nature of the supply chain of global fashion brands and the rapid product cycles associated with the fast-fashion business model has made the moving of apparel a significant driver of rising greenhouse gas emissions from shipping and air freight. Without counting the transport of fossil fuels used to produce polyester and other synthetic fabrics, textiles and apparel were recently estimated by McKinsey to represent 8% of the global volume of ocean cargo shipping traffic, and 6% of air freight,⁵⁸ two segments of the global economy that remain heavily dependent on fossil fuels and resistant to previous efforts to decarbonize.

OCEAN SHIPPING CLIMATE & AIR POLLUTION

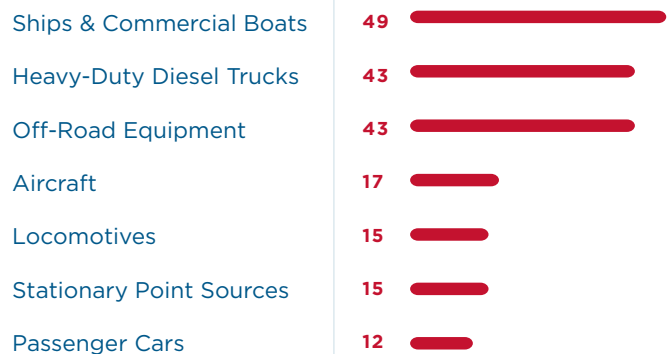
Emissions from ocean shipping are currently estimated to be approximately 3% of global greenhouse gas emissions, and on track to be as much as 17% by 2050 if left unregulated.⁵⁹ Shipping emissions also have a significant impact on air quality at a regional level connected to port and coastal communities, contributing to hundreds of thousands premature deaths and millions of cases of childhood asthma each year.⁶⁰ The newly adopted reporting standards for EU-bound vessels recently revealed that the GHG emissions of a single container ship operator is among the largest sources of CO₂ in the EU.⁶¹ Shipping is also one of the largest sources of local air pollution in port communities that handle significant amounts of shipping traffic. Ship-based emissions from the Ports of LA and Long Beach, where clothing and shoes combined were the largest portion of cargo traffic in 2019,⁶² will soon be the largest source of smog-forming emissions in Southern California, disproportionately impacting lower income and communities of color surrounding the port.⁶³

Percentage of Global GHG Emissions from Shipping⁶⁵



Largest Sources of Smog in Southern California (2023)⁶⁶

ESTIMATED TONS PER DAY OF NO_x IN 2023



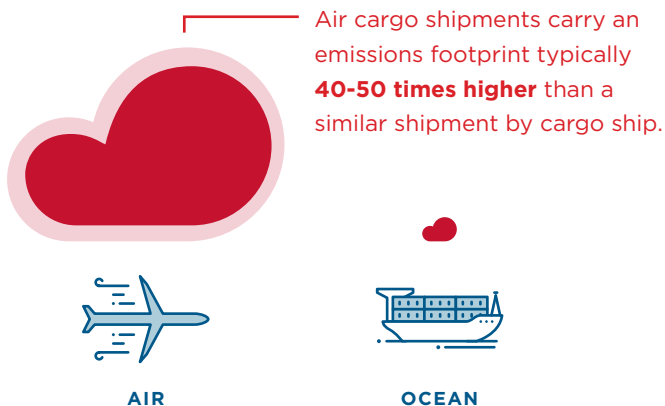
DIRTY FUELS AND SLOW MOVING IMO

Regulation of global shipping emissions has fallen to the International Maritime Organization (IMO), but negotiations have been moving very slowly to eliminate highly toxic heavy fuel oil (HFO) as the main fuel source of the shipping sector, which also generates vast amounts of black carbon emissions in addition to carbon dioxide. In the absence of meaningful action by the IMO to drive a reduction of greenhouse gas emissions, the European Union required EU-bound vessels to report their emissions, and is on track to require ships to purchase carbon pollution permits under the EU Emissions Trading System later in 2020.⁶⁴

HOW FASHION BRANDS CAN REDUCE EMISSIONS AND DECARBONIZE GLOBAL SHIPPING

A number of major fashion brands have begun to recognize the need to take responsibility for their shipping footprint, embracing principles that set guardrails for how their goods should be transported, such as the Arctic Corporate Shipping Pledge, which commits brands to avoiding the use of trans-Arctic shipping routes for delivery of their products. But as one of the largest sectors by volume of both ocean and air freight shipping, much stronger leadership is needed to drive emissions reductions and kick-start the decarbonization of major shipping fleets by 2030.

Shipping GHG Emissions: Air vs Ocean⁶⁹



Slow Down

One of the most immediate and effective strategies for fashion brands to reduce shipping related emissions is simply a matter of speed. Air cargo shipments, which are often used in a fast-fashion business model to speed delivery, carry an emissions footprint typically 40-50 times higher than a similar shipment by cargo ship.⁶⁷

Simply switching to ocean cargo or rail freight can dramatically cut emissions. Ocean cargo shipping emissions could be cut an additional 30% or more if fashion brands shifted to carriers that have adopted “slow steaming” practices in the operation of their shipping fleets, as a 20% reduction in speed can deliver dramatic reductions in GHG emissions (34%), black carbon (20%) and other air pollution by one-third.⁶⁸

85%

of Shipping Executives identify **lack of customer demand** as a major barrier to decarbonization.⁷⁰



Cleaner Fuels

While the transition to a zero-emission and fossil-free shipping fleet will take time, significant pollution savings can be achieved now by insisting on the transport of goods on carriers that have shifted away from toxic HFO bunker fuel and fuel oil blends to marine gas oil (MGO). When compared to HFO, MGO has much lower black carbon emissions — a super pollutant that accounts for roughly 20% of the GHG footprint of shipping — along with lower nitrogen oxides (NO_x) and sulphur oxides (SO_x) emissions, which are all needed in order for the shipping industry meet the IMO’s new 2020 low sulfur standard that aims to improve human health by reducing air pollution.



Greener Ships

With apparel and textile representing one of the largest segments of containerized cargo shipping, global fashion brands have a huge opportunity to create the market demand needed for the deployment of Zero Emission Vessels (ZEVs), and avoid the wasted investment in both LNG ships and refueling infrastructure (see wrong turns below). Zero-emission technology pathways using ammonia and renewably produced hydrogen have already begun to emerge, but to trigger the investment needed for a rapid shift away from fossil fuels like HFO to low and zero-carbon cargo vessels in the coming 5-10 years, strong demand from major shipping customers is recognized as critical.⁷¹ By committing to relying exclusively on ZEV cargo shipping no later than 2030, fashion brands can play a major role in catalyzing the necessary investment in vessels and port infrastructure that will enable a deep decarbonization of shipping.

False Solutions: HFO Scrubbers and LNG

Despite new standards by the IMO to reduce sulfur emissions from shipping and the growing urgency of reducing shipping GHG emissions to address the climate emergency, a number of false “solutions” are being considered by global shipping companies that will lock their customers and the sector into a rapidly rising GHG footprint and another decade of dependence on fossil fuels.



#1: Scrubbers

Rather than shifting to cleaner marine fuels to comply with the IMO’s 2020 low sulfur standard, a number of global shipping companies have chosen instead to use the “scrubber loophole” to comply with the new regulation. This loophole allows shipping companies to continue to use highly toxic HFO bunker fuel to power ships, as long as the ships install scrubbers to remove sulfur from the exhaust, in essence simply converting air pollution into water pollution as the scrubber wastewater is discharged. This dumping of scrubber waste adds dangerous heavy metals to the water, while also significantly contributing to the acidification of the ocean that is already underway

due to climate change. Fashion brands should insist their carriers rapidly transition away from HFO and fuel oil blends, selecting only those shipping companies and freight forwarders with ships that have converted to MGO or cleaner fuels, and avoiding those companies relying on scrubbers as a false solution.

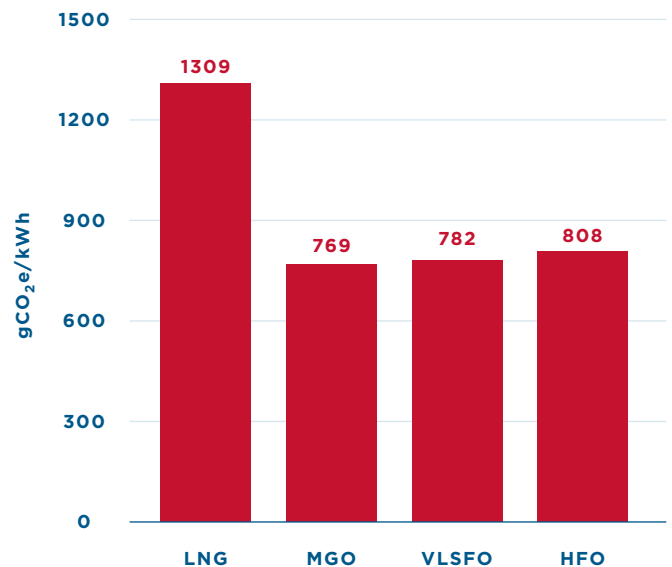


#2: Liquefied Natural Gas (LNG)

Investments in LNG-powered ships have been pursued at a limited but growing scale among certain types of ship operators seeking to claim they have moved off of highly polluting HFO bunker fuels. However, while LNG has the potential to significantly reduce sulfur related emissions compared to HFO, recent studies have shown that due to the “methane slip” in the most widely used LNG-powered engines, LNG ships produce even more GHG emissions than those powered by HFO.⁷² In addition to higher GHG emissions, LNG would require massive investments in new ships and port infrastructure for bunkering, which not only fails to deliver on the need for zero-emission, fossil-free shipping needed, it would drive higher emissions and stranded assets once real pathways to decarbonized shipping are pursued.

LNG Shipping GHG Emissions Higher⁷³

LIFE-CYCLE GHG EMISSIONS FUEL TYPE FOR LOW PRESSURE DUAL FUEL ENGINES, 20-YEAR GWP



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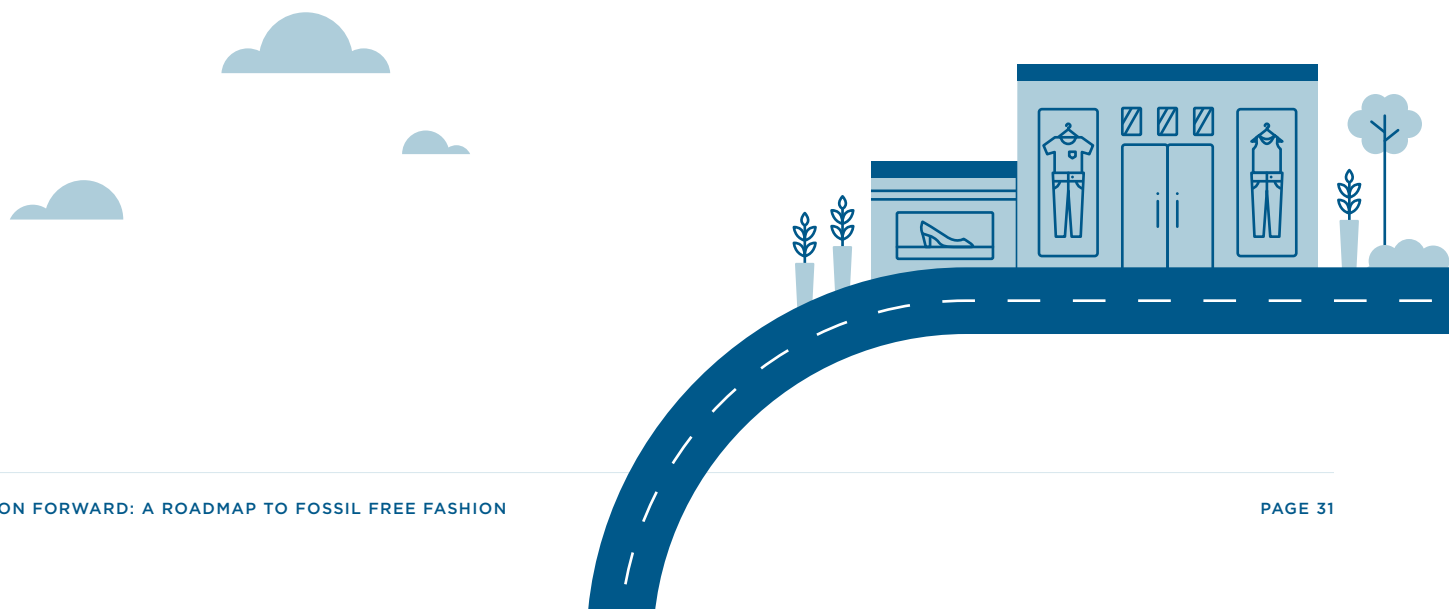
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