



Dressed to Kill:

Fashion brands' hidden links to
Russian oil in a time of war

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Printed on recycled paper

Published in November 2022



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List of abbreviations

AIS	Automatic Identification System
BFFP	Break Free From Plastic
BPD	Barrels per day
GHG	Greenhouse gas
GPFG	Government Pension Fund Global
IPCC	Intergovernmental Panel on Climate Change
MEG	Monoethylene glycol
MMF	Man-made fibre
MMTPA	Million metric tonnes per annum
MT	Metric Tonne(s)
OAR	Open Apparel Registry
OIG	Office of Inspector General
ORF	Observer Research Foundation
PET	Polyethylene terephthalate
PTA	Purified terephthalic acid
TCG	Thanh Cong Textile

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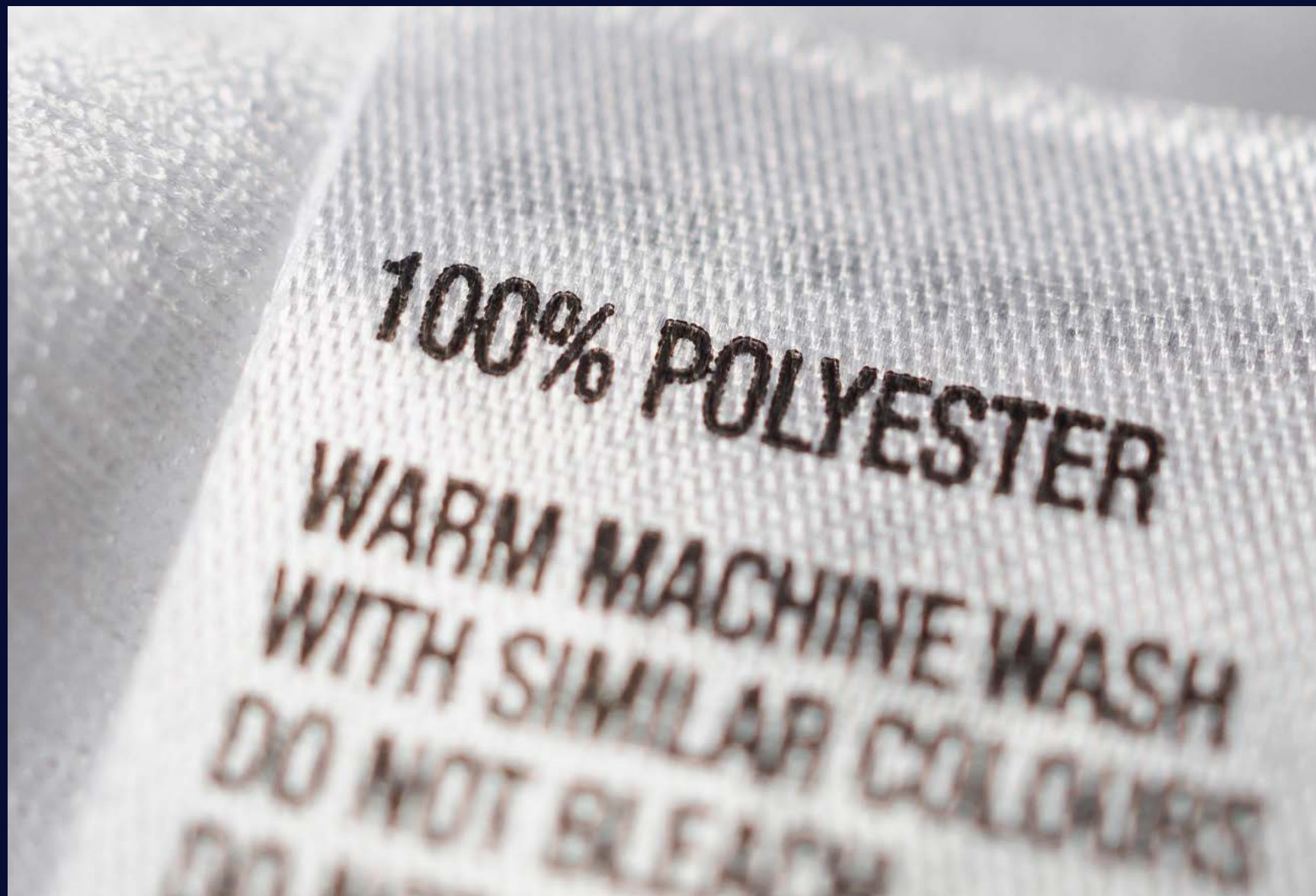
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Executive summary

This report exposes the hidden supply chain links between major global fashion brands and retailers and Russian oil. The investigation by the Changing Markets Foundation focused on two of the world's largest polyester manufactures, Reliance Industries in India and China's Hengli Group. We found evidence that Russia has become the largest oil supplier to Reliance Industries and its polyester manufacturing, and evidence that Hengli Group is also purchasing Russian oil to make its polyester-based products. Polyester yarns and fabrics by both companies are then sold to garment manufacturers around the world, who in turn produce clothes for many of the world's largest brands. Even though over 25 of these brands have suspended or withdrawn their operations in Russia after its full-scale invasion of Ukraine in February 2022, through their reliance on synthetics they continue to contribute to the Russian economy, therefore indirectly funding the war.

Using shipping tracking, supplier lists published by brands or by the Open Apparel Registry, information published by brands, direct disclosure to us through our questionnaire and enquiries with companies on supplier lists, we were able to piece together the supply chains of numerous global brands



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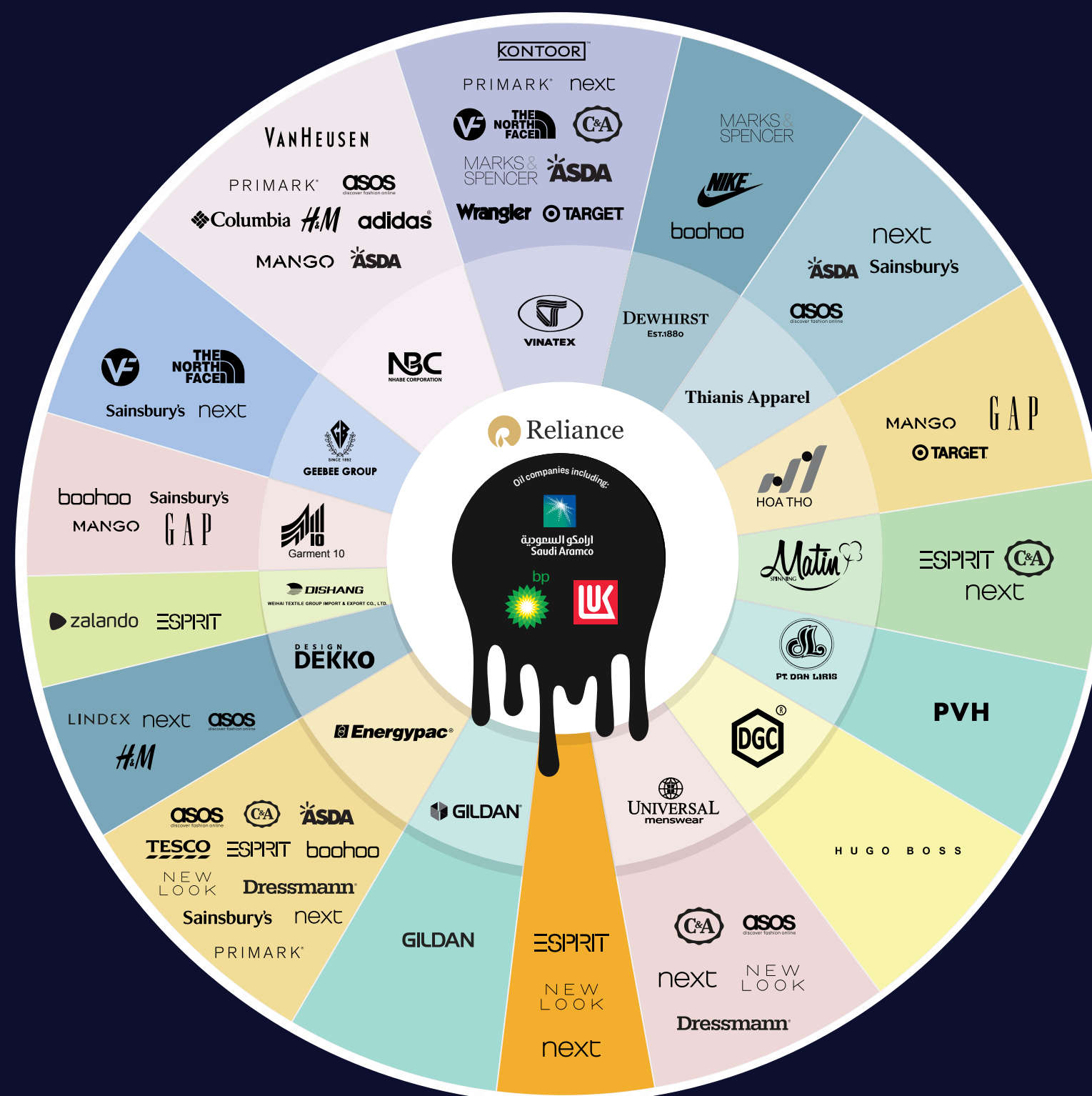
to Reliance Industries and the Hengli Group. While only a handful of brands provide sufficient public disclosure of their supply chain to allow direct links to Hengli or Reliance to be established, many brands included in this investigation are less transparent. Nevertheless, our research has linked 39 of the 50 (78%) brands and parent companies included in this research directly or indirectly to the Hengli Group or Reliance Industries supply chains, illustrating how widely polyester-based clothing made from controversial fossil fuels can spread through the global fashion industry. This stands in contrast to the sustainability commitments and high-profile green claims made by many of the same brands.

The investigation also found that synthetic supply chains remain opaque. Most companies that we looked at only provided Tier 1 or Tier 2 suppliers, such as gar-

ment manufacturers and fabric mills, and are therefore not disclosing from whom they source the polyester used in their clothing, let alone the upstream suppliers of extracted fossil fuels.

The plastic workhorse of the fashion industry

Our investigation focused on the supply chain of polyester, as it is the most used fibre in the fashion industry, accounting for over half of all textiles produced and has become the driving force behind today's fast-fashion model. While people are well aware of pervasive plastic pollution and environmental concerns related to plastic packaging, such as plastic bottles, few realise that the same product is also present in our clothing, and yet is practically unrecyclable, causes a significant



Direct links were found for brands which have published Hengli or Reliance on their supplier lists. Indirect supply links are included for brands sourcing from manufacturers which are supplied in turn by Hengli or Reliance.

waste problem, as well as contaminating our bodies and natural environments with plastic microfibres. As this report shows, polyester production is further identified as a concern due to its oil and gas feedstock being sourced from Russian oil and fossil fuels from other highly extractive and polluting fossil fuel companies.

Key findings

Fashion is still supporting the Russian economy amid war

In February 2022, in response to Russia's full-scale invasion of Ukraine, companies across the world faced pressure to suspend trading and operations in Russia to signal their condemnation of the invasion and put pressure on the Russian economy, in tandem with many government sanctions. The drop in exports of oil to countries with sanctions in place have been largely offset by surging imports from India and China, including the two polyester producers, Reliance Industries and Hengli. Reliance Industries cashed in on the sanctions on Russian oil, with customs data analysis by the Changing Markets Foundation showing that between August 2021 and February 2022, the monthly average landed import value of Russian oil by Reliance was €67.4 million (\$65 million). This increased nearly tenfold to €663.5 million (\$640 million) per month from April 2022 onwards. Much of this ends up at Reliance's Jamnagar complex in Gujarat, the world's largest oil refining complex with the petrochemical units where polyester production for garments sold by global fashion companies begins. Likewise, by May 2022 China's imports of Russian oil had soared by 55% compared with a year earlier, and Hengli is known to have been purchasing discounted crude oil from Russia in recent months. With the fashion industry now identified as a significant end-user of these oil-based products, their involvement in this supply chain is helping to keep the Russian oil industry afloat.¹

- There were 39 brands and retailers linked to polyester manufacturers using Russian oil, Hengli and/or Reliance Industries. Direct links from these two manufacturers were found to Benetton Group, Esprit, G-Star RAW, New Look and Next.
- Over 25 of the 39 of these brands have publicly suspended operations in the country or removed products from Russia, yet by sourcing from polyester suppliers importing record volumes of Russian oil, these same fashion brands are still contributing to the Russian economy and by extension to the state's continued illegal assault on Ukraine. This includes brands Esprit, New Look and Next.
- Only Benetton Group was found to have both direct links with producers importing Russian oil (Reliance and Hengli) and to also still be selling clothing in Russia, despite the pressure they have received to withdraw.²

Major fashion brands at risk of sourcing polyester made from coal, fracked gas and oil from the world's biggest emitter

Beyond Russian oil, Reliance Industries and Hengli Group also source fossil fuels for polyester from a number of controversial or unconventional sources:

- Our investigation found that Hengli has been importing oil from Saudi Aramco, the world's biggest greenhouse gas emitter.³
- Hengli has invested in a \$20 billion project to produce polyester from coal, which Hengli aims to have running by the end of 2025 in coal-rich Shaanxi province.⁴ That means despite fashion brands' climate commitments and plans to phase out coal, over 30 brands included in our research

are at risk of selling polyester produced from coal in the near future; including Benetton Group, Esprit, G-Star RAW, New Look and Next.

- Several of these brands, including Esprit and G-Star RAW said they would not source from a supplier that produces polyester from coal, indicating that they should cut Hengli Group as a supplier. If such brands do not rapidly improve supply chain visibility and step away from companies with plans to turn coal into clothes, they will break their own climate commitments.
- There is increasing evidence that that fracked gas from the US is being imported to Reliance Industries to make polyester.

Fashion brands have no transparency over their synthetic clothing supply chains

In August 2022 we reached out for the second time to 55 brands with a questionnaire about their synthetics sourcing practices. The findings from the responses obtained in September reveal alarmingly low levels of disclosure and visibility of brands' synthetic supply chains and no progress has been made from last year. Several brands reported that they have not yet started mapping their synthetic fibre suppliers, despite reporting that a significant share of their clothing is made from polyester and other synthetics. Yet, as our research has shown, we have been able to make these links for them in most cases, raising serious questions about brands' commitment to understanding their reliance on fossil fuel-derived fibre.

- Of the brands that responded to Changing Markets' questions about their synthetic suppliers, 26 out of 31 (84%) provided scant details on their synthetic suppliers. Several companies provided no details on synthetic suppliers at all, including retailers Asda, Sainsbury's and Tesco, high-street retailers Inditex and Uniqlo, online retailer Zalando, sport brand Puma and

luxury companies Burberry and Kering (housing brands, including Balenciaga, Bottega Veneta, Gucci and Saint Laurent).

- A mere 4 out of 31 brands that responded (or 7% of all brands included in the research), sent the Changing Markets Foundation their synthetic supplier lists. These brands are Levi Strauss & Co, Next and Reformation, with Boohoo only sharing their recycled synthetic supplier lists.

What next?

Brands must urgently review their supplier relations and ensure they cut relations with synthetics suppliers sourcing oil or gas from Russia. Any brands still operational in Russia (such as Benetton) must also cease downstream operations in the country.

This report shows more generally the dangers of the fashion industry's addiction to fossil fuel-based fibre - a reliance that is both completely incompatible with climate targets and risks funding states engaged in illegal invasion and war. As such the Changing Markets Foundation calls for complete transparency with regard to the use of synthetic fibre use and a commitment to phase them out with a 20% reduction set to a 2021 baseline in the use of fossil fuels in materials by 2025 and a 50% reduction by 2030.

Specific recommendations for fashion brands, retailers and groups, as well as consumers and policymakers, can be found at the end of this report.



1. Fossil fuels: The feedstock behind fast fashion

The fashion industry has been criticised for its negative environmental impact and exploitation of workers for decades; however, increasingly its climate impacts have come under the spotlight, including the lack of credible plans by fashion brands to transition away from high-carbon business models, reliant on continuous extraction of fossil fuels. The Changing Markets Foundation's 2021 report, *Synthetic Anonymous*, revealed that most fashion brands refuse to abandon their fast-fashion business models, reliant on cheap synthetic materials produced from oil and gas, and instead resort to greenwashing their collections through quick fixes, such as using polyester from recycled plastic bottles. Much of fashion's negative impact comes from the high environmental and social cost of extracting or growing raw materials and manufacturing the fibres used to make apparel and footwear. High water use, toxic pollutants, habitat degradation and the acceleration of the climate crisis are the price paid for our addiction to abundant, cheap fashion.

While a great deal of focus has sought to untangle the supply chains of fibres and materials such as cotton, leather and viscose – including our own on-the-ground investigations into dirty viscose production and its links to global fashion brands⁵ – the supply chain of polyester, the largest fibre by production volume, has remained under-explored. This is the focus of this investigation and report.

The story of the modern fashion industry can be told through the lens of increasing and deepening reliance on fossil fuels, correlating with driving down costs and ramping up production. Starting in the early 2000s, the dawn of fast fashion pioneered by retailers such as H&M and Zara, polyester overtook cotton as the world's most produced fibre.⁶ Between 1980 and 2020, synthetic fibre production grew more than fivefold (a staggering 522%) from 10,466,000 to 65,175,000 mt. Over the same period, the use of natural fibres remained relatively stable; cotton has grown only by 63%, while the use of wool has even declined by a third (–33%)⁷ (see Figure 1.1).

But why is this a problem? The skyrocketing production of synthetics has been a fundamental pillar behind the rise of fast fashion. This business model as we know it could not exist without the abundance of cheap plastic fibre. Between 2000 and 2014, clothing production doubled, with the average consumer buying 60% more clothing compared with 15 years ago but keeping each item half as long.⁸ This is not only contributing to a colossal amount of textile waste and pollution but also the shedding of microplastics, which end up in our oceans, soil and air, and even our bodies. It also exacerbates fashion industry's general reliance on fossil fuels, at a stage when they should be phased out across the supply chain.

Our report, *Fossil Fashion: The Hidden Reliance of Fashion on Fossil Fuels*,⁹ published in February 2021, exposed how the fashion industry's use of synthetic fibres accounts for 1.35% of global oil consumption, which exceeds the annual oil consumption of Spain. If the fashion industry continues this trajectory, by 2030 almost

three-quarters (73%) of our textiles will be produced from fossil fuels. Fashion brands' favoured fibre – polyester – will account for 85% of this.¹⁰

Yet, there is a concerning lack of commitments by fashion brands to phase out the use of synthetic fibres from their collections.¹¹ Our research also found a significant lack of transparency by brands about suppliers of synthetics. For example, in 2021, many brands listed some kind of supplier on their website but did not specify who were the synthetic raw-materials suppliers. Only four brands provided a list of some of their Tier 3 spinning mills. Beyond that, for example, no brand could provide visibility of even Tier 3 suppliers, let alone the source of fossil fuels going into their clothing. In 2022, the number of brands disclosing their synthetic supply chain is not much different, illustrating that no progress has been made on true transparency (see Box 2.1). It is highly disconcerting that fashion companies are so opaque about the source of polyester and other synthetics that not only make up a vast amount of their collections (being present, on average, in more than half (56%) of the textiles we use),¹² but are materials that have such a heavy climate and waste impact. With the majority of fashion brands making grand statements about their green credentials, their inherent links to the fossil fuel industry are both hypocritical and concerning, and their lack of plans to transition is equally troubling. As such, this investigation aims to shed light on the polyester supply chain^A and the links between fossil fuel companies and global clothing companies, highlighting the extent to which the modern fashion industry is the fossil-fashion industry.

Details on the methodology for this investigation are available in the annex.

A Our focus is limited to polyester as it is both the largest fibre type by production and the most produced synthetic fibre by volume.

FAST FASHION AND THE RISE OF POLYESTER

THE MAJORITY OF FIBRE PRODUCTION IS SYNTHETIC AND COMES FROM FOSSIL FUELS

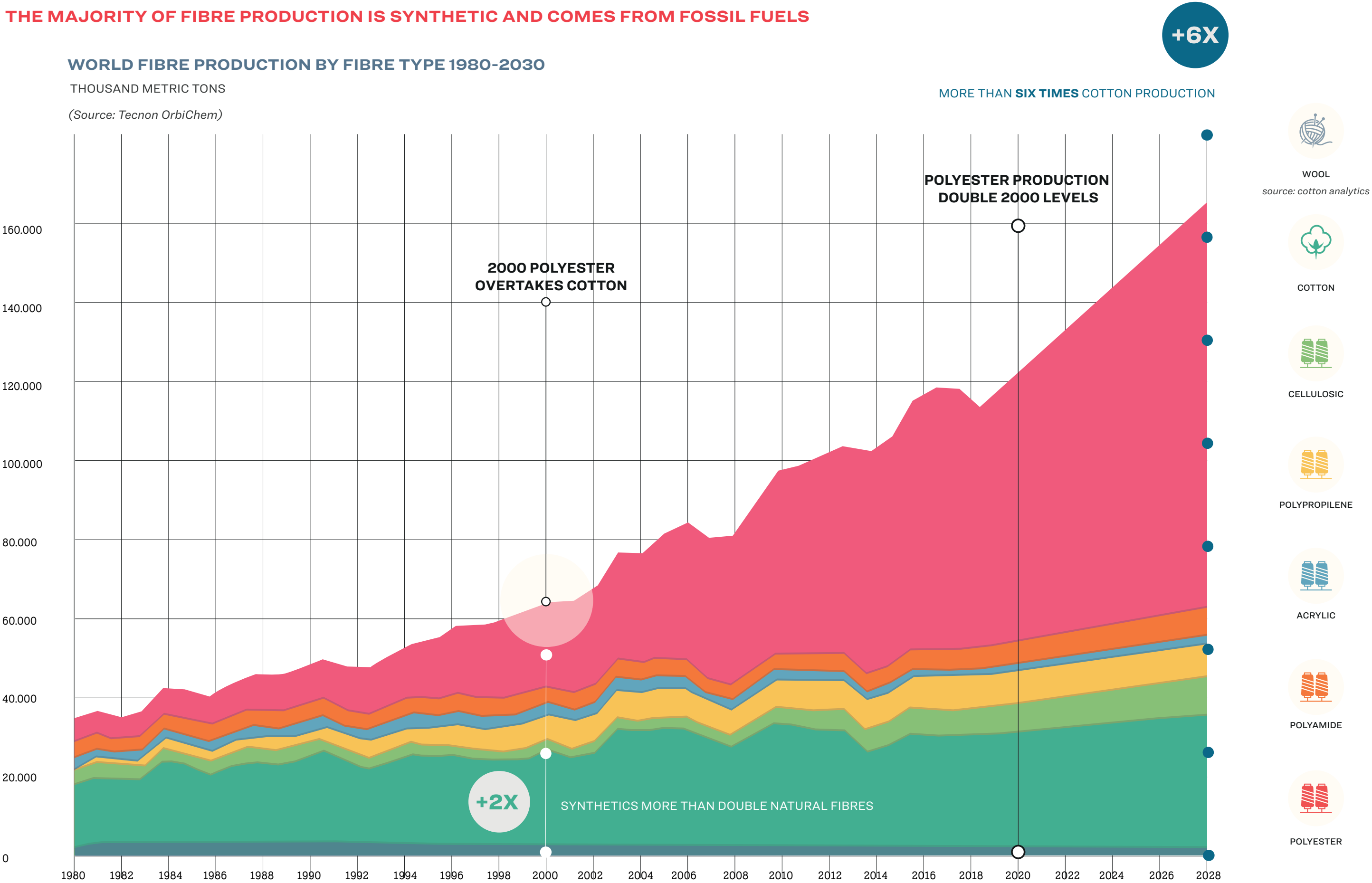


Figure 1.1: Fast fashion and the rise of polyester: world fibre production by fibre type 1980-2030

Box 1.1: How is polyester produced?

Producing synthetic fibres for clothing from polyethylene terephthalate (PET) involves multiple industries and manufacturing stages. It begins with the extraction of raw materials from fossil fuel reserves (primarily crude oil and natural gas, but with plans also to use coal). Extraction can occur through various methods, from traditional oil drilling and pumping methods to hydraulic fracturing (fracking) of natural gas or oil.

Each fossil fuel has a different refining process. In the case of crude oil, once it has been extracted from oil reserves underground, it is transported to refineries (by pipeline, tanker, truck or ship). At an oil refinery, crude oil is separated into multiple useable petroleum products, including liquids or petrochemicals that the petrochemical industry uses to make a variety of chemicals and plastics. During the refining process, crude oil is heated before being distilled, where heavy crude separates into lighter components called fractions. One of these fractioned products, naphtha, is the basic petrochemical feedstock for plastic.

Steam cracking is a major petrochemical process using catalysts, heat, high pressure and solvents to break down naphtha molecules into useful products. During this process, the two most common petrochemical products are produced – olefins (including ethylene (ethane) and propylene (propene)) and aromatics (including benzene, toluene and xylene isomers). The simplest alkenes or olefins (butene, ethylene and propylene) are gases at room temperature.¹³ Many petrochemical products can be derived from crude oil at refineries, but ethylene and p-xylene are the monomers used for plastic and polyester production.¹⁴ Once ethylene (a colourless flammable gas with a faint 'sweet and musky' odour in its purest condition) is obtained, it undergoes polymerisation.¹⁵

The polymerisation process in itself is a chemical reaction usually carried out with a catalyst, heat or light (often under high pressure in a polymerisation reactor) where light olefin gases such as butylene, ethylene and propylene (i.e. monomers) are converted into higher molecular weight hydrocarbons (polymers).¹⁶ This happens when monomers are chemically bonded into chains. The polymerisation process then generates thick, viscous substances known as resins, which are employed to make plastic products. PET is produced by the polymerisation of ethylene glycol and terephthalic acid (depending on the process, other acids such as dimethyl terephthalate are also used) and are combined using heat and high pressure. Ethylene glycol is a colourless liquid obtained from ethylene and terephthalic acid is a crystalline solid obtained from xylene.¹⁷ The result is a liquid of honey-like consistency that is extruded, dried and chopped up to make PET plastic pellets.¹⁸

To make polyester fibres, PET plastic pellets undergo extrusion and spinning. PET plastic pellets are melted and extruded through tiny holes called spinnerets to form long strips, which are then cooled and hardened to form fibre, which is the beginning of polyester filament production. The shape of the holes can be altered to create fibres of different qualities. These fibres are then twisted together to create polyester filament yarn and wound onto bobbins, where they will start the confection process to be knitted and woven into polyester fabric.¹⁹ Often polyester is blended with other synthetic and/or natural fibres.

Synthetic fabrics then go through several steps before the fabric is ready to become a garment. First, is the wet processing, which involves dyeing and the finishing, often used to improve the quality and give certain functionalities to the fabric.²⁰ And last is the assembling process, which is a crucial step for fabric production. The apparel industry then creates synthetic garments, later to be distributed and sold by retailers to consumers.

How polyester is made

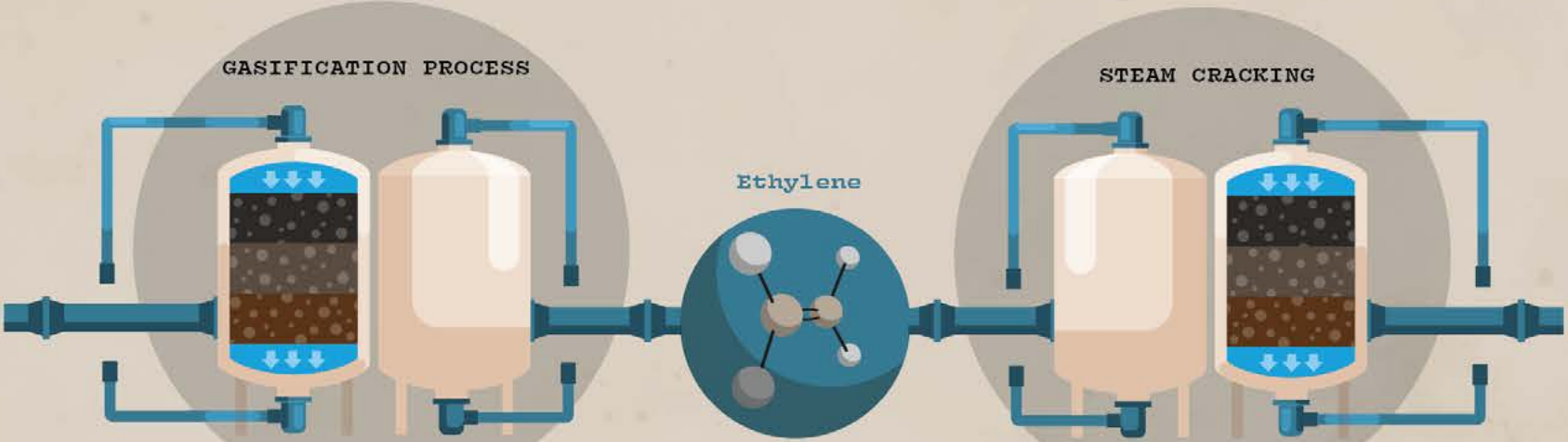
FOSSIL FUEL EXTRACTION



REFINING PROCESS



PETROCHEMICAL INDUSTRY



TEXTILE INDUSTRY

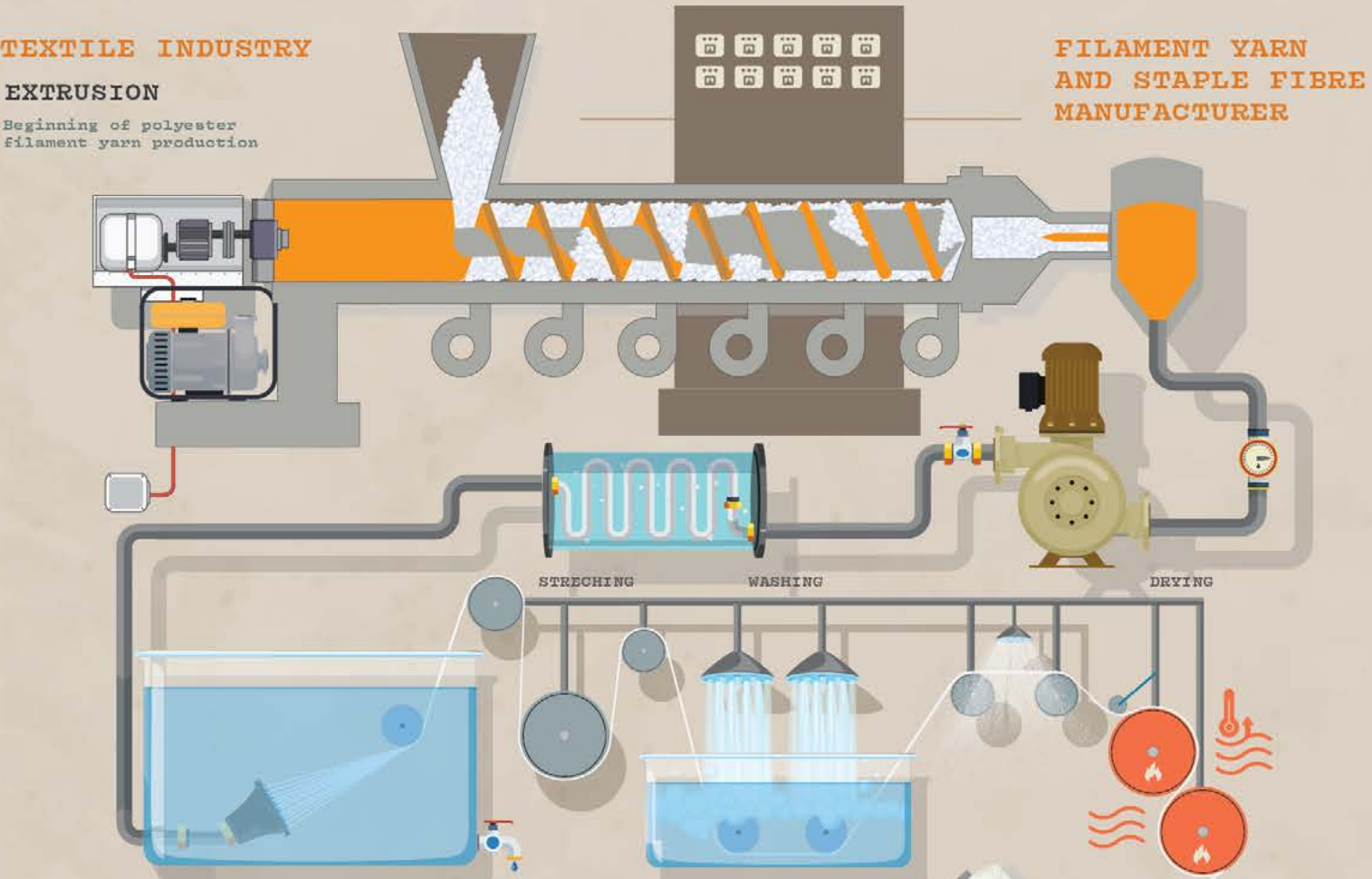
Polyethylene terephthalate (PET) - Polyester



TEXTILE INDUSTRY

EXTRUSION

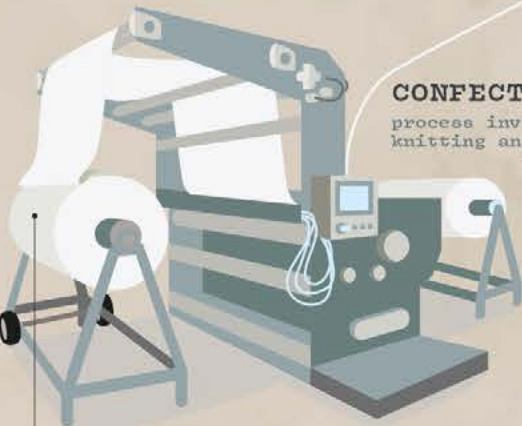
Beginning of polyester filament yarn production



FILAMENT YARN AND STAPLE FIBRE MANUFACTURER

SPINNING

The polyester filament yarn is ready to be woven into polyester fibre



CONFECTION

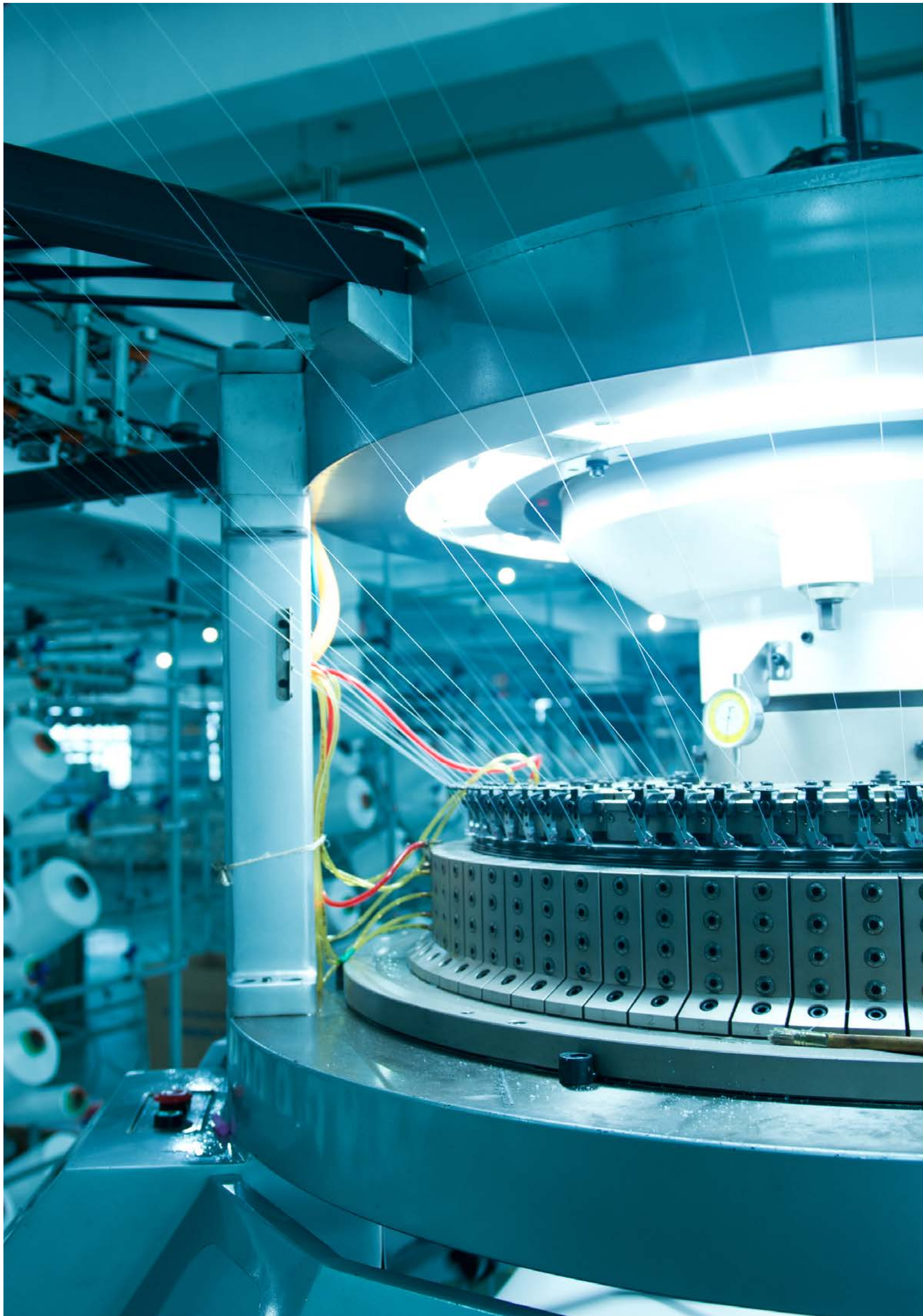
process involving knitting and weaving of fabric



GARMENT MANUFACTURER

Dyeing, printing, pre-treatment





2. Where is polyester produced?

Polyester is the fibre with the biggest production volume. Synthetic fibres represented 69% of all fibre production in 2019 - a share expected to grow rapidly by 2030 to 73% - with 85% of this expected to be accounted for by polyester. Polyester filament production accounts for 72% of total polyester fibre production with 28% accounted for by staple.²¹

To assess the regional focus of our investigation, we looked at production data for polyester provided by Tecnon Orbichem. World consumption of polyester fibre in 2022 stands at 67.5 million mt, of which China represents 78% of production, followed by South and South East Asia at 13%. The ratio of production between regions is predicted to remain stable, with total production volume expected to reach 76.6 million mt by 2025. Of this regional split, China and India are the biggest producing countries.

2.1 Indian synthetics production

India has a substantial manufacturing base for polyester and its raw material purified terephthalic acid (PTA) and monoethylene glycol (MEG). The country is the second-largest manufacturer and third largest exporter of textiles and apparel in the world after China and Germany, with the US remaining the fourth largest exporter. As per figures for 2017-8 published by the Ministry of Textiles, India produced 1.3 mt of man-made fibres (MMFs), 1.19 mt of man-made filaments and 15,236 million m² of fabrics from MMFs and blends.²²

The domestic MMF industry primarily consists of two fibre types, polyester and viscose, which together account for about 94% of total production volume. Of this, polyester accounts for about 77.5% and viscose accounts for the remaining share.²³ In other words, 73% by volume of the domestic MMF industry is accounted for by polyester, 6% by other synthetics (e.g. nylon and acrylic) and 31% by cellulosic fibres (viscose).

2.2 Major Indian producers

Manufacturing and spinning of polyester fibre, acrylic and nylon polymers is highly concentrated with only a handful of large players. The major players are Reliance Industries, Indian Oil Corporation and MCPI, while JBF Industries has a facility but had not started supplying at the time of writing. PTA, a building block of plastics such as polyester, is a product of p-xylene, itself a petrochemical product. MEG, another core ingredient, is manufactured from ethylene which is derived from naphtha (from crude oil) or natural gas, or by cracking ethane. Reliance Industries, Indian Oil Corporation and India Glycols are the main manufacturers of this

chemical. Local supply of MEG is insufficient to meet demand by polyester manufacturers. India imported 80,000 mt of MEG in 2018-9 and 85,000 mt in 2019-20 from suppliers including BASF, DowDuPont, Eastman Chemical Company, Exxon Mobil, Formosa Plastics Corporation, SABIC and Sinopec.²⁴

Given Reliance Industries' key role in both raw material extraction and manufacture of synthetic fibres, this presents another vertically integrated company through which we attempted to map out the global supply chain of polyester.

2.3 Chinese synthetic fibre production

China's synthetic fibre industry started to develop in the late 1950s, kicking off in earnest in the 1980s and 1990s before experiencing a period of high-speed development between 1999 and 2015.²⁵ Whereas previously China relied heavily on imports of the raw materials for synthetic fibres, such as caprolactam, PTA and MEG, more complete industrial supply chains were able to form as market reforms continued in the country. With China entering the World Trade Organization in 2001, driven by export growth, the production of synthetic fibre expanded from 7,804 million tons in 2001 to 25,522 million tons in 2009, an annual increase of 16%.²⁶ At the same time, the industry became more concentrated with several key players emerging with production capacity of more than one million mt. The Chinese synthetic fibre market size was valued at €15 billion (\$17.0 billion) in 2019 and is projected to reach €23.6 billion (\$26.5 billion) by 2027, growing at a compound annual growth rate of 6.0% from 2020 to 2027.²⁷

After 2016, policies such as The Belt and Road Initiative saw increasing expansion of the synthetic fibres industry into other countries, such as Vietnam. Chinese companies also began to diversify into other fibre types, such as recycled synthet-

ics, to meet both domestic and growing foreign demand,²⁸ with 87% of production being polyester.²⁹ While most of the fibre produced is for domestic consumption (92%), with only 8% exported as fibre,³⁰ exports of finished textile products from China reached 37.6% of the world's total in 2018, a 3.5% increase from the previous year, while apparel exports accounted for 31.3% of the world's total.³¹ In 2019, the export of apparel to the top three destinations, the European Union, Japan and the US, accounted for more than 50%^B of the entire nation's export.³² Thus, whereas a limited amount of synthetic fibre is directly exported abroad, Chinese-made fibre still finds its way into a large amount of the world's fashion value chain.

2.4 Major Chinese producers

By 2019, six companies represented a 56.21% market share of synthetic fibre production in China: Eastern Shenghong, Hengli Group, Hengyi Petrochemical, Rongsheng Petrochemical, Tongkun and Xinfengming.³³ After initial scoping research, Hengli Group (henceforth referred to as Hengli) emerged as an interesting company for further investigation. This is primarily due to the difficulty of obtaining import data on raw materials into China unless they appear on the export lists of materials from other countries. Hengli, having vertically integrated full production from oil refining, petrochemical, synthetic production to textile manufacturing allows us to gain a fuller picture of the synthetics supply chain. It also has supply chain links with many downstream apparel companies and upstream to a selection of oil companies, aside from its own extraction, as will be explored in a later chapter. Furthermore, Hengli has pledged significant investments to turn coal into polyester yarn, regardless of environmental implications (see section 4.2).

^B These are the data of 2019. The export to the US is 45.85%, EU is 22.39% and Japan is 10.15%. The data are from www.SCI99.com

Box 2.1: Opacity of the synthetic supply chain

In August 2022 we reached out to 55 brands with a questionnaire about their synthetics sourcing practices. The findings from the responses obtained in September reveal alarmingly low levels of disclosure and knowledge surrounding synthetic supply chains. Brands and retailers were asked to submit their synthetic supplier lists to us and indicate whether any of this information was publicly available.

Results from our survey illustrate that the fashion industry's understanding of its synthetic supply chain is poor and that brands are hesitant to release this information into the public sphere. A mere 4 out of 31 brands that engaged and completed the survey (or 7% of all brands included in the research), sent the Changing Markets Foundation their synthetic supplier lists. These brands were Boohoo, Levi Strauss & Co, Next and Reformation. That said, Boohoo only sent their recycled synthetic supplier lists and did not provide data on their virgin synthetic suppliers. Of the four companies, only one of these brands has made its synthetic suppliers publicly available, which is Next, who publish their Tier 3 suppliers on their website.³⁴

Elsewhere, while some brands skipped the question, their publicly available supplier lists reveal that Esprit, New Look and Next source from both Reliance Industries and Hengli, and that Benetton Group, and G-Star RAW source from Hengli.

The reality and scale of the gaping hole in synthetic supply chain disclosure is illustrated by the fact that 26 out of 31 brands (84%) who completed the survey, did not provide adequate details on their synthetic suppliers. Every one of these companies has some kind of climate target.

Analysis of the responses reveal interesting patterns on progress to date and common excuses issued by fashion players who lag behind on supply chain transparency. The

first trend adopted by companies is to publicly share their Tier 1 and Tier 2 suppliers that cover manufacturing, processing and fabric mills. These lists are downloadable from their websites or selectively uploaded to the Open Apparel Registry (OAR). These companies included Benetton Group, Bonprix, C&A, G-Star RAW, H&M Group, Lindex, Puma, PVH-owned brands (Calvin Klein and Tommy Hilfiger), Reformation, Uniqlo and Zalando. These organisations are quick to boast about their supply chain transparency without sometimes publicly disclosing anything beyond Tier 1. Take for example H&M Group, who stated 'Our supplier list shares the details of our Tier one suppliers and their manufacturing and processing factories accounting for 99% of the products we sell across our brands.' Supposed sustainability frontrunner Zalando only shares its private label Tier 1 supplier and factories on its website³⁵ and via the OAR.

Selective sharing is also common for Benetton Group, who provides Tier 1 and Tier 2 information as well as details on raw material suppliers; however, upon further inspection of their publicly disclosed raw material suppliers,³⁶ the list only includes 11 companies, associated with two types of fabric, certified viscose and Organic Content Standard cotton. Given the fibre usage of the parent company, where a reported 19% is synthetic, it makes it hard to believe this is full disclosure.

Similarly, Puma stated that it collaborates with the OAR and discloses '304 T1 factories (product manufacturers) representing around 98% of our apparel, footwear and accessory products business value and 47 core T2 factories (material, component manufacturers) representing around 80% of our business volume.' This still leaves us wondering about the identity of 20% of Tier 2 suppliers and details on further upstream production in Tier 3 and Tier 4.

A second key takeaway from the analysis is that for most respondents, at best, they are either at the early stages of mapping their synthetic supply chain or they have

not even begun the process. For example, C&A publicly share Tier 1 and Tier 2 lists via the OAR but responded stating that '[f]or synthetic fibres, we have not started yet systematically investigating into our deeper supply chain. As part of our strategy, we are planning to start with this process in 2023.' This is a cause for concern given that the retailer reported to us that synthetics amount to over 26% of their total annual fibre usage.

Dressmann, who publishes a group of suppliers via the OAR stated: '[w]e have not mapped the raw material suppliers of synthetic fibres.' This is a similar story for Tesco, who informed us they are still in the process of mapping their suppliers and expect to publish their findings within the next 12 months.

Lacklustre excuses were used by retailers who did not provide any supplier lists. This included Morrisons's Nutmeg who claimed they are 'in the process of introducing a QMP (Quality Management Plan) system which will be able to capture this information, which is not currently available.' George-ASDA merely stated they do not hold this information. Similarly, Inditex who claims to share supplier and manufacture lists with IndustriALL Global Union did not provide us with any updated information and the only facility list available via the OAR dated back to 2018.

In its response, Inditex recognised opacity issues of the synthetic supply chain, noting 'We are aware of the challenges that the industry faces in terms of upstream traceability for synthetics in Tiers 3 (spinning), 4 and 5.' And in reaction to this promise commitment to 'use only 100% polyester from more sustainable sources (i.e. recycled, bio-based) by 2025,' as opposed to entirely phasing out fibres derived from fossil fuels.

Inadequate disclosure characterised numerous answers about synthetic suppliers across both mass market and luxury brands. Sainsbury's stated: 'We do not discuss

specific supplier relationships' and supposed sustainability leaders Burberry and luxury fashion houses under the Kering Group failed to share any meaningful data.

It is questionable whether fashion brands have any intention at all to disclose their supply chains and whether their excuses about the challenges of supply chain mapping and promises of future transparency are nothing more than hot air. Especially considering that the Changing Markets Foundation was able to find links between many brands included in the survey and manufacturing facilities, petrochemical companies and even sources of raw materials (i.e. fossil fuels) fairly quickly. The opacity of synthetics supply chain and delay tactics are even more worrisome considering that for many of these companies, synthetics are the dominant fibre used in their clothing. Yet companies drag their feet on disclosing supplier information and continue to hinder progress in raising the benchmark of true transparency across the industry.



3. Reliance Industries

3.1 Overview



Reliance Industries is India's largest company listed on the Global Fortune 500 (placed 155th).³⁷ The company claims that it is the largest producer of petrochemicals in the country and among the top ten in the world.³⁸

It is also said to be the world's largest integrated producer of polyester fibre and yarn, the second-largest producer of paraxylene and among the top ten producers of PTA, MEG and polypropylene - some of the major precursor chemicals for plastics and synthetic fibre.

The company was founded by Dhirubhai Hirachand Ambani in the 1960s, and is headquartered in Mumbai, India.³⁹ The Reliance family is a household name in India, known for its wealth and status. A mainstream Hindi film called 'Guru' is believed to be based on the life story of Dhirubhai, from a boy from a rural household to a well-known entrepreneur, while also covering some of the con-

| Reliance's Jamnagar complex is the world's largest oil refinery

| Credit: Tourist Information Center

Credit: Google Earth, Break Free From Plastic



troversies about the family company. Dhirubhai's infamous statements such as *"I don't violate the laws of the country, but I get them changed according to my need"* or *"Everyone has a price. I am willing to pay it"* – seem to be reflected in the family's business conduct and reports of the company's numerous en-



Credit: Dhiraj Singh/Bloomberg

vironmental and social violations (see section 3.3).⁴⁰ After his death in 2002, the fight over the family company began between the two brothers, Mukesh and Anil. The official separation of the business took place in 2005, with the oil and petrochemical business acquired by Mukesh (Reliance Industries and Indian Petrochemicals Corporation)⁴¹ and the telecommunications and natural gas segments by Anil (Reliance Energy, Reliance Infocomm and Reliance Capital).⁴²

Today, Mukesh Ambani controls Reliance Industries' businesses linked to the synthetic fibre production and the retail sector,⁴³ including Reliance Petroleum and Reliance Retail. At the time of publishing this report, Mukesh is worth an estimated \$81.4 billion, making him the tenth-richest person in the world, according to Bloomberg's Billionaires Index.⁴⁴

3.2 Operations

Reliance Industries' operations are highly vertically integrated, from oil refineries and gas production, polyester production, fabric manufacturing to retail. The vast majority of Reliance production is for gas rather than oil.⁴⁵ The Jamnagar complex on the western coast of India in the state of Gujarat, is the heart of Reliance's production, having a fully integrated petroleum refinery, integrated with downstream petrochemicals units, which manufacture naphtha-based aromatics as well as propylene-based polymers, supported by captive power plants, and a port with related infrastructure.⁴⁶ The complex, commissioned in 1999, stretches across 7,500 acres or 30km² – approximately the size of Brussels. It includes the world's largest refinery off-gas cracker complex

of 1.5 million mt per annum (MMTPA) ethylene capacity and the world's largest refining hub with a crude processing capacity of 1.24 million barrels per stream day.⁴⁷ The latter capacity was achieved through the second refinery built in 2008⁴⁸ - the sixth largest in the world - in the Special Economic Zone at Jamnagar, with a capacity for processing 580,000 barrels per day (BPD) of crude.⁴⁹ The detailed portfolio and ownership indicates that oil and gas company, BP, is a part owner of some of the company's operations.

Along with being the largest producer of petrochemicals in the country, Reliance claims to be the world's largest integrated producer of polyester fibre and yarn, with a capacity of 2.5 million mt per year.⁵⁰

The key textile manufacturing plant is located in Naroda, Gujarat, and according to the company, Reliance supplies '*finished fabrics to prestigious brands and exports to 58 countries*'.⁵¹ Vimal is a flagship brand of Reliance, and a major retail chain in India manufacturing, including home textiles, synthetic and worsted suiting and shirting, ready-to-wear garments and automotive fabrics.^{52,53} Under this brand, the manufacturing site produces fabrics and blends from light wool, polyester wool and woollen, polyester viscose and polyester cotton fabrics.⁵⁴ According to their website, Reliance Retail has established partnerships with many international brands, including Armani Exchange, Burberry, Hamleys, Superdry and Marks and Spencer.⁵⁵

In addition to existing operations, the company is planning significant expansion of capacity in the polyester value chain. In August 2022, Reliance Industries announced an investment of ₹750 billion (roughly €9.41 billion), to build one of the largest single-train PTA plants of 3 MMTPA capacity and 1 MMTPA PET capacity at Dahej, as well as polyester staple fibre and filament yarn expansion with capacity of over 1 MMTPA. These projects are planned to be completed by 2026, further invigorating Reliance's role in the fashion sector.^{56,57}

3.3 Environmental, human rights and corruption scandals and controversies

Reliance Industries claims that it aspires to bring no harm to people and the environment, through '*Zero accidents, 100% compliance*';⁵⁸ however, numerous environmental, labour and human rights violations and scandals, as well as cases of deaths at a Reliance refinery and power units speak to the contrary.^{59,60}

Environmental violations by the company, flagged up by the government itself, have often resulted in zero repercussions. Similarly, concerns raised over labour and human rights violations have been more often met by police force, intimidation, arrests of workers or disdain, rather than penalties for the company. The '*carte blanche*' granted to the company, along with examples of government adapting rules to benefit the company, and the revolving doors between the government and Reliance Industries employees, reveal the tight nexus between the oil giant and the Indian government.

It is also not a coincidence that news reports of violations by Reliance have not always been easy to find or are reported only by smaller media outlets. Often in India big media are owned by big companies.^{61,62} Reliance Industries itself pulls the strings of several media outlets and has been successful in keeping the lid on negative press. For example, Reliance Industries buried a book about Dhirubhai Ambani, called *The Polyester Prince: The Rise of Dhirubhai Ambani*, written by Australian journalist Hamish McDonald. As the book, among others, covers corruption, unethical conducts and close links to the government, the family was not happy with its contents and secured a temporary injunction against publication. An edited version of the book came out later as *Ambani & Sons*.⁶³

The following examples cover only a few of the many violations and scandals Reliance Industries has been involved in.

Environmental scandals

Reports about violations of environmental norms and legislations by the company date back to early 2000s, with a few selected ones presented here. This is also the period when Reliance's Jamnagar complex - where raw materials to produce polyester are processed - was built. In August 2021, Break Free From Plastic (BFFP), a global movement of over 10,000 non-governmental organisations, covered the pollution from the Jamnagar complex in its Toxic Tours project. The latter documents pollution from the complex entering the adjacent Jamnagar marine national park and sanctuary.⁶⁴ According to the Gujarat government, the Jamnagar district saw a reported 46 complaints of industrial pollution from 2018-9, a huge spike from just seven complaints in 2015.⁶⁵ Records of complaints are, however, not public and are scarce. BFFP suggested that this may be due to locals being afraid of Reliance Industries' potential retaliation against anyone willing to speak up against the company.



Further environmental concern over the impact of Reliance's operations on marine national parks and sanctuaries had been raised in 2014. Based on an environmental impact assessment report by the National Environmental Engineering Research Institute, the environmental panel raised serious concerns about Reliance's plan of expanding marine facilities at Sikka, Jamnagar, which would among others include jetty with berths for liquid material like petroleum, petrochemicals and chemical products.⁶⁶ They highlighted that capital and maintenance dredging could have had a serious impact on the marine national park and sanctuary in the vicinity of the project. Following orders of compliance, in 2016, an Expert Appraisal Committee nevertheless approved the project under certain conditions linked to environmental protection.⁶⁷

Several other cases of environmental violations speak of Reliance Industries failing to comply with orders from the National Green Tribunal regarding the installation of vapour recovery systems at petrol stations, and a high-profile case of Reliance's Sasan Power being held responsible for a breach in the company's fly ash dyke, resulting in the death of five people, damage to the environment, agriculture, human health, livestock, water quality and endangering the life of aquatic flora and fauna;⁶⁸ however, in many cases of environmental violations, Reliance got away without fines. Down to Earth reports that no penalty has been received from Reliance Industries issued under various court orders between 1990-20, due to fines either being challenged, dragging on for years or repealed.⁶⁹

Human rights and labour rights violations

Reliance Industries' history speaks of many instances of workers' rights violations. In 2012, workers of Reliance Industries' textile unit in Naroda, where the company manufactures polyester fabric, organised a strike. The media reported that the

| Pollution of a coal based thermal power plant and how it enters the Marine National Park

| Credit: Break Free From Plastic²³

strike was triggered by a ban on the usage of mobile phones but according to an activist, it was against an exploitative wage structure and severe working conditions.⁷⁰ The workers demanded a 60% increase in wages and a 20% bonus. A union representative said permanent workers got INR 6,000-6,500 (€92-100) per month and those on contracts earned INR 85-100 (€1.3-1.5) per day, while the profits of the company grew exponentially and the salary of senior staff increased many times. The company disregarded the demands and responded with police force and intimidation, with three key members of Reliance Employees' Union arrested under a law to prevent the 'commission of cognizable offences', under which a police officer may make arrests without a warrant.^{71,72,73} Reliance brought in temporary workers from outside, paying them INR 400-500 (€4-5) per day, to show that the plant was still operational.

This is not the only time that Reliance Industries has resorted to intimidation and arrest to squash workers' demands. There are reports of five Mumbai Reliance Industries contract workers who fought for the rights of contract workers, before being arrested under terrorism claims in 2018.⁷⁴ These workers were Dalits, members of a marginalised caste in India. The arrests were carried out under the Unlawful Activities Prevention Act,⁷⁵ a law that has been repeatedly misused to clamp down on activism in India.⁷⁶ Maximum punishment under this law includes life imprisonment and the death penalty.⁷⁷

The workers and their lawyers believed the actions against them had been taken due to their union work; however, the court did not find them guilty and four of the workers received bail in four months. Unfortunately, the fifth one was released only three years later.

The company has also been associated with violation of indigenous peoples' rights, forced relocations and adverse health impacts on local populations. In 2010,

the Council on Ethics for Norway's Government Pension Fund Global (GPF) recommended that the GPF divest its holdings from Reliance Industries due to the alarming evidence that the company's oil exploration in the Peruvian Amazon was posing a threat to the indigenous people of the region by exposing them to diseases and causing a human rights' violation.⁷⁸ The Council reconfirmed its stand in 2012 and recommended against the company's inclusion in Norway's GPF; however, due to the majority partner in Peru's operation - Repsol - selling its share, and despite Reliance Industries retaining its share in it, the Council withdrew its recommendation to blacklist the company. In 2017, Reliance Industries pulled out of this venture.⁷⁹

In 2014, a number of non-governmental organisations raised concerns about Reliance Industries' Sasan coal plant project in Madhya Pradesh,⁸⁰ which was causing the local populations to suffer 'relocation, violence and disappearances' and 'negative health effects'.⁸¹ They also raised objections against the US Export-Import Bank's financing of the project. A report by Carbon Market Watch contains multiple testimonies by people against the company,⁸² talking of the adverse effects of the project on their lives. In February 2015, the US Export-Import Bank's Office of Inspector General (OIG), wrote to the Reliance CEO strongly criticising poor safety measures and stating that fatalities were unacceptable.⁸³ The company disputed the



allegations and in September that year the OIG's report mentions that the company provided details about the steps it was taking to improve the safety conditions and that no further major injuries had been reported since.⁸⁴

Links with the government and the media

The following two scandals speak loudly of the nexus between Reliance Industries and the Indian government. In 1988, Dhirubhai's son-in-law bought a Bombay-based weekly publication called Commerce, hoping to turn it into a mainstream daily.⁸⁵ It was later renamed Observer of Business and Politics. Finally, the Observer Research Foundation (ORF) was established in 1990, the country's most prominent think tank, which shares its office space with Reliance Industries in Mumbai.

The organisation tries to portray itself as being independent; however, ORF received almost all its funding from Reliance during Dhirubhai's lifetime, and afterwards continued to draw the majority of its support from Reliance Industries. ORF's chair used to be in The Ministry of Petroleum and many political decisions that were made benefited Reliance. ORF's president used to work for Reliance, while a senior journalist and ORF fellow was later made the President's press secretary and a policy advisor in the Indian Government.⁸⁶ The organisation regularly reflects Reliance's views on national policies and its business interests.⁸⁷

In another scandal, the Indian government relaxed eligibility conditions related to fast-track rights issues for Reliance Industries, so the company could raise capital in the value of €6.6 billion.^{88, 89}

Corruption

Finally, most numerous are the reports of Reliance Industries' corruption scandals, which span from fraudulent sales, channelling investments into tax havens, selling state-owned gas, importing oil from Venezuela despite sanctions, and more.

In addition to running several media and distribution businesses,⁹⁰ Reliance Industries was involved in a fraud with regard to the sale of NewsX media group. In 2013, leaked tapes of conversations between lobbyists led to action by the Serious Fraud Investigation Office with respect to the sale of the media group. It turned out that Reliance industries created a maze of companies to hide its identity in movement of funds, creating losses for other media companies. The fraud that was followed by prosecution.⁹¹ The Central Bureau of Investigation closed the cases against Niira Radia,⁹² the main accused lobbyist, for lack of evidence, though later there were other cases.⁹³ Due to Reliance's outsized influence on Indian media, few outlets reported on the NewsX scandal.⁹⁴

In 2015, five people, including a high-ranking official of Reliance Industries and another high-profile employee of the Anil Dhirubhai Ambani Group, were involved in corporate espionage involving leaked classified documents from the Ministry of Petroleum and Natural Gas, including the unannounced annual budget for the country. The accused were arrested for selling classified information to oil firms, energy companies and consultants.⁹⁵

A year later, in 2016, Reliance was accused of extracting and selling gas that had migrated from a state-owned block to the fields owned by Reliance Industries.⁹⁶ A penalty of \$1.55 billion (€1.4 billion) was imposed on the company. Reliance contested the sanction and, in 2018, an international arbitration tribunal ruled in favour of the company, stating that Reliance had the right to take gas from the

contract area.⁹⁷ The Tribunal also awarded costs of \$8.3 million (€7.5 million) to be paid by the government to the consortium (Reliance, and its partners BP and Niko). The government took the dispute to the Delhi High Court in December 2018.⁹⁸ The 2020-1 annual report of Reliance Industries states that the matter was listed for hearing before the court on 20 July 2021, while further outcomes are unknown.⁹⁹

The media also reports on the late Dhirubhai Ambani’s international personal investments being channelled into a complex corporate structure involving holding companies located in multiple tax-haven jurisdictions and bank accounts in Switzerland.¹⁰⁰ Over ₹2,100 crore (approximately €260 million) was estimated to have been sent to accounts in a Geneva branch of the HSBC Bank.¹⁰¹ In 2015, the Indian Express investigated ‘Swiss leaks’ and found several accounts with known links to the Ambani family were associated with the fraud. One name to emerge was that of Jairaj Sampat’s, who was the Managing Director of Reliance Global in The Netherlands; however, the probe against Mukesh Ambani and his family was closed in 2022,¹⁰² stating there was not sufficient proof of indictment. As for the younger brother, Anil Ambani, he pleaded bankruptcy in 2020¹⁰³ and, in 2021, the Pandora Papers investigation revealed that he and his representatives owned 18 offshore companies.¹⁰⁴ The government said it will investigate the matter.¹⁰⁵

Despite the US imposing sanctions against a Venezuelan state-owned company in 2019, Reliance Industries imported crude oil from Venezuela on behalf of Reliance Industries and its US subsidiary, RIL USA, without facing sanctions.¹⁰⁶ This was accomplished by Mukesh Ambani by hiring an influential lobbyist, Brian Ballard, known to be a close aide and old friend of the US president, Donald Trump.¹⁰⁷ Despite warnings from a senior US official

that such activity would be supporting the Maduro dictatorship, Reliance got away without repercussions.

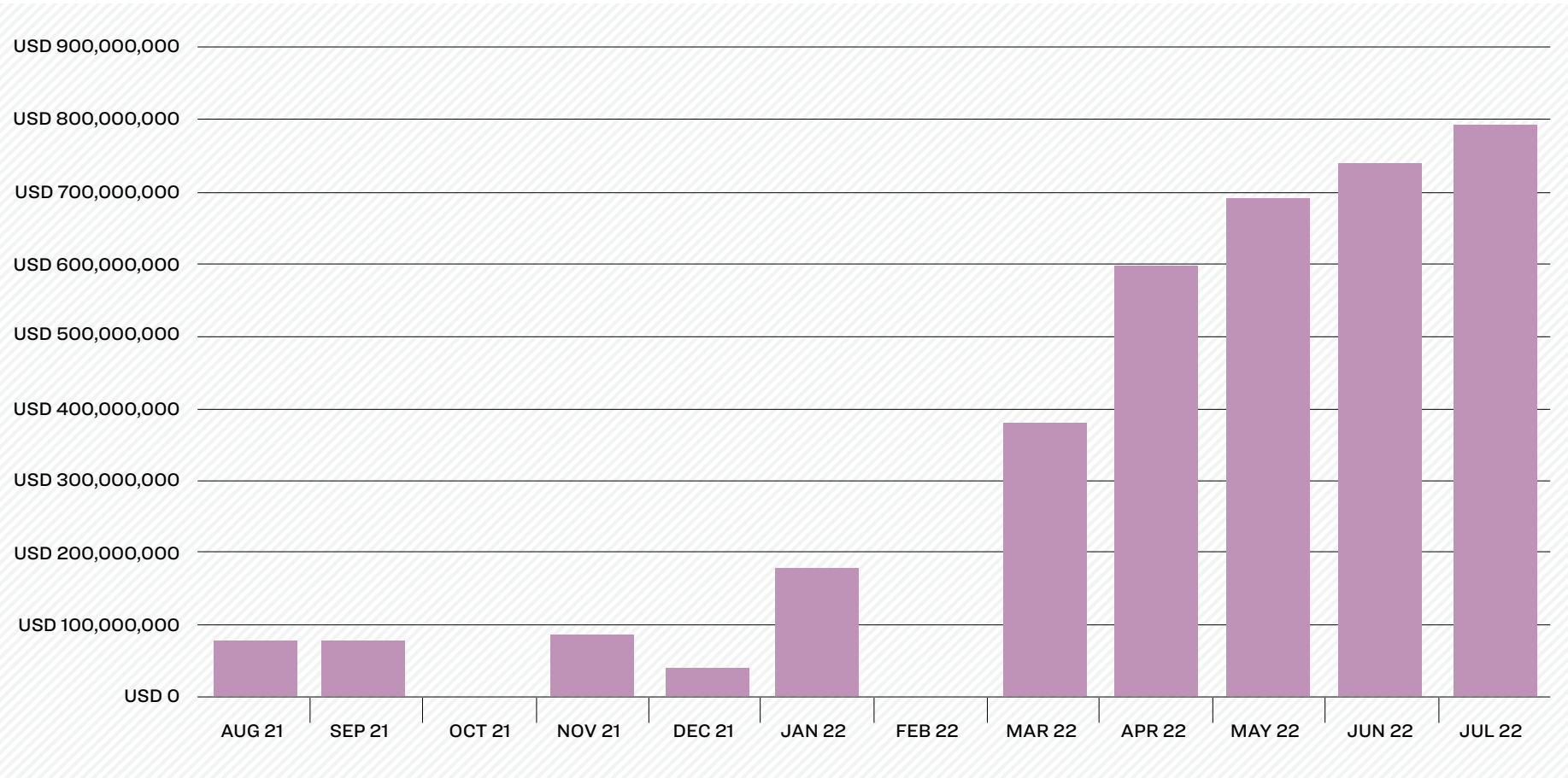
3.4 Reliance Industries' supply chain links

Reliance Industries' links to fossil fuels

Crude oil

Reliance imports vast amounts of crude oil, some of which is used in the production of Reliance’s synthetic fibres. While Reliance sources oil for its refineries from a number of countries, Russian oil imports in particular have risen since Russia’s full-scale invasion of Ukraine. This means that despite the oil embargo from Western governments and hundreds of clothing companies leaving the country, Russian oil is not only used in the clothing of many of the world’s largest clothing brands (see Box 3.1), but polyester giant Reliance Industries is capitalising on Western countries’ embargoes.

Figure 3.1: Identified imports of Russian crude oil by Reliance Industries (August 2021 to July 2022, landed value) | Credit: Customs data (2022) |



In the face of the ban on Russian oil, Reliance Industries has been among the main Indian refiners importing cheap Russian crude oil, with imports surging throughout the past year. Customs data analysis by the Changing Markets Foundation shows that between August 2021 and February 2022, the monthly average landed import value of Russian oil by Reliance was €67.4 million (\$65 million). This increased nearly tenfold to €663.5 million (\$640 million) per month from April 2022 onwards. In May 2022, Russia replaced Saudi Arabia as India's second-largest supplier of oil behind Iraq,¹⁰⁸ while two months later, in July 2022, the available customs data suggests that Russia was already the largest supplier of crude oil to Reliance by value, reaching nearly €829.4 million (\$800 million).¹⁰⁹ Most of the oil was supplied by Lukoil and Vasgit Alekperov, Russia's tenth-richest man who served as Lukoil's president until April 2022 and was sanctioned by several Western states.¹¹⁰

It has been reported that Reliance boosted its profits from the discounted Russian oil imports that are shunned by many Western buyers due to the Russian war in the Ukraine. For example, Reliance Industries has been banking on the current diesel shortage in Europe by importing Russian oil at a discount and exporting diesel at sky-high margins to destinations with sanctions against Russia, such as the EU. The company has been making great profits from it, and according to an analyst at Rystad Energy, Reliance is responsible for over 95% of India's refined oil product exports to Europe.¹¹¹ Reliance reported a 46.3% jump in profits in the quarter ended 30 June 2022 and revenue from the oil-to-chemicals business – which includes the refining complex at Jamnagar – jumped 56.7%.¹¹² Other major supplying countries of crude oil to Reliance include Iraq, Saudi Arabia, the United Arab Emirates and the US.¹¹³

Diesel imported from Reliance is, however, not the only way that Russian oil continues to penetrate countries banning it in the first place. Reliance operates the world's largest oil refining complex at Jamnagar¹¹⁴ which also has a major polyester

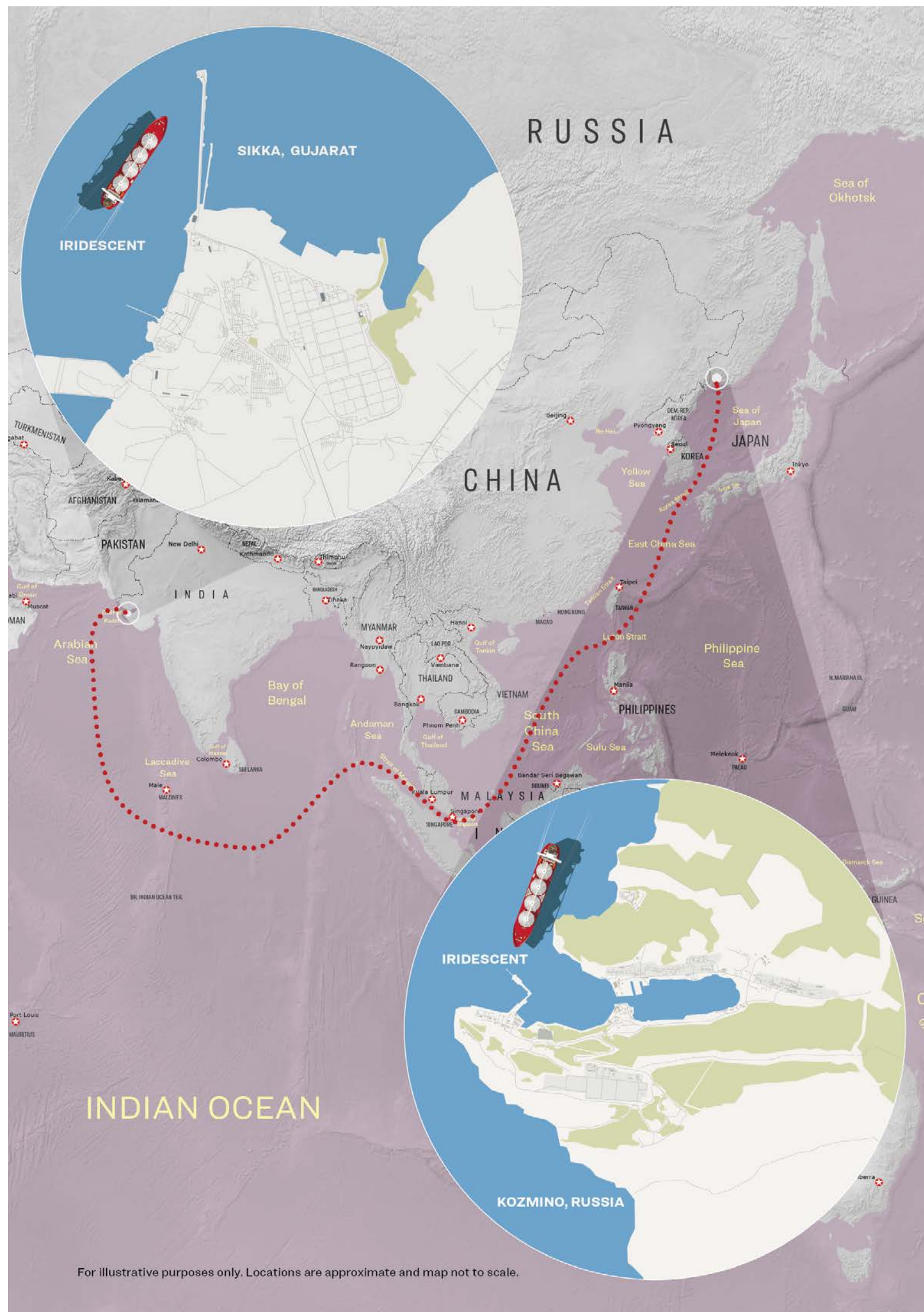
production unit¹¹⁵ and a cracker that uses off-gases from Reliance's two Jamnagar refineries to produce ethylene and propylene as a feedstock for polyester filament and other products.^{116,117} This makes it certain that Russian oil is used in the production of polyester that is then shipped around the world to make garments for some of the largest global clothing brands.

To illustrate the link between Russian oil exports and Reliance, we tracked in detail one vessel supplying oil from Russia to the Jamnagar refinery, the Liberian-flagged crude oil tanker *Iridescent* (IMO 9436018). Information from the Automatic Identification System (AIS) shows that on 15 August 2022, the vessel was loaded at the port of Kozmino to the southeast of Valdivostok, Russia before arriving at the Reliance terminal in India on 26 September 2022. Kozmino is located at the end of the Eastern Siberia-Pacific Ocean oil pipeline.

Box 3.1: How fast fashion is fuelling the Russian economy amid war

In response to Russia's war in Ukraine, many Western governments imposed sanctions targeting Russia's export of oil and gas. This includes the US banning all Russian oil and gas imports,¹¹⁸ the UK phasing out Russian oil imports by the end of 2022¹¹⁹ and the EU (with the exception of Hungary) agreeing on a complete ban of imports on all Russian seaborne crude oil and petroleum products by the end of 2022.¹²⁰

Yet, as our investigation reveals, 39 fashion brands and retailers are at risk of using Russian oil to produce polyester-based clothing. Both polyester producers, the India's Reliance Industries and China's Hengli, have been directly or indirectly linked to Russian oil to produce polyester, which is ending up in the clothes sold by major fashion brands and retailers. In other words, while Reliance and Hengli are cash-



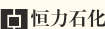
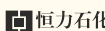
ing in on cheap Russian oil, overabundant and discounted due to sanctions, Russia is profiting from the fast-fashion industry by sneaking in oil to the European and US markets.

This is also highly hypocritical from fashion brands, given that most have suspended operations and closed their stores in Russia to, among other things, signal their condemnation for Russia's actions against Ukraine, but continue to produce their clothes from Russian oil. The fact that our research was able to highlight these links, and yet brands are opaque about their supply chains for synthetics and certainly do not disclose the source of petrochemical products in their collections, demonstrates a concerning lack of supply chain visibility from 39 of the 50 fashion companies investigated which linked to manufacturers that use Russian oil. Of these, over 25 companies have pulled out of Russia or removed products from Russia in the past year yet are indirectly contributing to Russia's economy and consequently funding the war in Ukraine. This includes high-street, fast-fashion, luxury, and sports brands, including ASOS, Adidas, H&M, Hugo Boss, Gucci, Inditex and M&S (See table below).

Figure 3.2: The *Iridescence* shown at the Russian port of Kozmino on 15 August 2022 and arriving at the Reliance terminal at the Port of Sikka, which is connected to the Jamnagar refinery, on 26 September 2022.

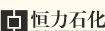
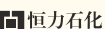
Credit: VT Explorer²¹⁴

Table 3.1: Where do brands stand on suspending operations in Russia and producing polyester from Russian oil

Brand	Status	Links found to Russian oil		
adidas	Suspended sales ¹²¹	✓	Hengli	
ALDI	Removed products from Russia ¹²²	✓	Hengli	
ASDA George	Removed products from Russia ¹²³	✓	Reliance & Hengli	 
asics	Still operational ¹²⁴	✓	Hengli	
ASOS	Suspended sales ¹²⁵	✓	Reliance	
bonprix	Unknown	✗		
boohoo	Suspended sales ¹²⁶	✓	Reliance & Hengli	 
BURBERRY	Suspended sales ¹²⁷	✗		
C&A	Ceased operations in 2017 ¹²⁸	✓	Reliance & Hengli	 
Columbia	Stopped purchases from Russia ¹²⁹	✓	Reliance & Hengli	 
Dressmann	Unknown	✓	Reliance	
ESPRIT	Not operational in Russia ¹³⁰	✓	Reliance & Hengli	 
GAP	Suspended deliveries ¹³¹	✓	Reliance & Hengli	 

Brand	Status	Links found to Russian oil		
GILDAN	Unknown	✓	Reliance	 Reliance
G-STAR RAW	Unknown	✓	Hengli	 恒力石化 HENGLI PETROCHEMICAL
GUCCI	Suspended sales ¹³²	✗		
	Suspended sales ¹³³	✓	Reliance & Hengli	 恒力石化 HENGLI PETROCHEMICAL  Reliance
HUGO BOSS	Suspended sales ¹³⁴	✓	Reliance	 Reliance
INDITEX	Suspended sales ¹³⁵	✓	Hengli	 恒力石化 HENGLI PETROCHEMICAL
 KERING	Suspended sales ¹³⁶	✗		
	Stopped purchases from Russia ¹³⁷	✓	Hengli	 恒力石化 HENGLI PETROCHEMICAL
MANGO	Suspended sales ¹³⁸	✓	Reliance & Hengli	 恒力石化 HENGLI PETROCHEMICAL  Reliance
	Suspended sales ¹³⁹	✓	Hengli	
LIND&X	Unknown	✓	Reliance & Hengli	 恒力石化 HENGLI PETROCHEMICAL  Reliance
 lululemon	Unknown	✗		
MARKS & SPENCER	Suspended sales ¹⁴⁰	✓	Reliance & Hengli	 恒力石化 HENGLI PETROCHEMICAL  Reliance
MONSOON	Unknown	✗		
 Nutmeg	Removed products from Russia ¹⁴¹	✓	Hengli	 恒力石化 HENGLI PETROCHEMICAL

Brand	Status	Links found to Russian oil		
	Not operational in Russia ¹⁴²	✓	Reliance & Hengli	 
next	Suspended sales ¹⁴³	✓	Reliance & Hengli	 
	Suspended sales ¹⁴⁴	✓	Reliance & Hengli	 
	Unknown	✓	Hengli	
patagonia	Unknown	✗		
PRIMARK®	Unknown	✓	Reliance	
	Suspended sales ¹⁴⁵	✓	Hengli	
PVH	Suspended sales ¹⁴⁶	✓	Reliance & Hengli	 
	Suspended sales ¹⁴⁷	✗		
Reformation	Does not operate outside US and UK	✗		
Sainsbury's	Suspended sales ¹⁴⁸	✓	Reliance & Hengli	 
SHEIN	Unknown	✗		
	Unknown	✗		
	Unknown	✓	Reliance & Hengli	 

Brand	Status	Links found to Russian oil		
	Unknown, removed Russian products ¹⁴⁹		Reliance & Hengli	 
 (group including The North Face)	Suspended sales ¹⁵⁰		Reliance & Hengli	 
	Suspended sales ¹⁵¹		Hengli	
	Still operational ¹⁵²		Hengli	
	Suspended sales ¹⁵³		Reliance	
	Unknown		Hengli	
	Suspended sales ¹⁵⁴		Reliance & Hengli	 
	No operations, engaging in efforts to support the Ukrainian response ¹⁵⁵		Reliance	

Ethane

In addition to crude oil, Reliance also imports vast amounts of ethane, a critical precursor chemical in the production of polyester and one of the key chemicals that the company is not currently able to manufacture on its own.¹⁵⁶

Changing Markets has identified a large number of shipments of ethane purchased by Reliance and originating from the US. In the year up to the end of July 2022, Reliance imported more than €829.4 million (\$800 million) worth (landed value) of ethane from the US. Three-quarters of this (\$600 million) was shipped to Reliance by BP Products North America, while Reliance's trading subsidiary, RIL USA,¹⁵⁷ was listed as the shipper of the remainder.¹⁵⁸

In all cases the port of destination was Dahej in the state of Gujarat where RIL has gas cracker facilities to produce ethylene and propylene, which is then used as a raw material in downstream operations of the company.¹⁵⁹ The point of export for most of these shipments is believed to be Morgan Point at the port of Houston. The terminal is owned and operated by Enterprise Product Partners and is the largest ethane export terminal in the US by volume with India and China as Morgan Point's largest export destinations.¹⁶⁰ In 2017 it was reported that *'most of this capacity has been contracted for by Reliance Industries to go to their complex in India.'*¹⁶¹ The ethane is transported between the US and India by dedicated very large ethane carriers that are jointly controlled by Reliance Ethane Holding and Japanese company Mitsui.¹⁶²

Relatively little is known about the origin of the ethane extraction. In the past, the sourcing of ethane by Reliance from the US has been linked to shale gas.¹⁶³ Shale gas is considered an unconventional

fossil fuel and aside from significant greenhouse gas (GHG) emissions that contribute to global warming, impacts associated with hydraulic fracking to capture shale gas include high water use, water contamination, leakage of methane - an especially powerful GHG - as well as noise pollution and damage to the natural environment from drilling sites.¹⁶⁴ While it is not certain that BP produces the ethane shipped to Reliance, it is known that BP operates vast unconventional shale gas production sites in Louisiana and Texas, the state in which the departure port for the shipment that we tracked is located.¹⁶⁵

Figure 3.3: The Ethane Crystal, one of the ethane carriers jointly owned by Reliance and Mitsui

Credit: marinetraffic.com



Box 3.2: Fracked fashion

Production of synthetic materials such as polyester is increasing demand for fossil fuels, not only through its use of oil, increasing coal capacity (see section 4.2), but also through its use of fracked gas.

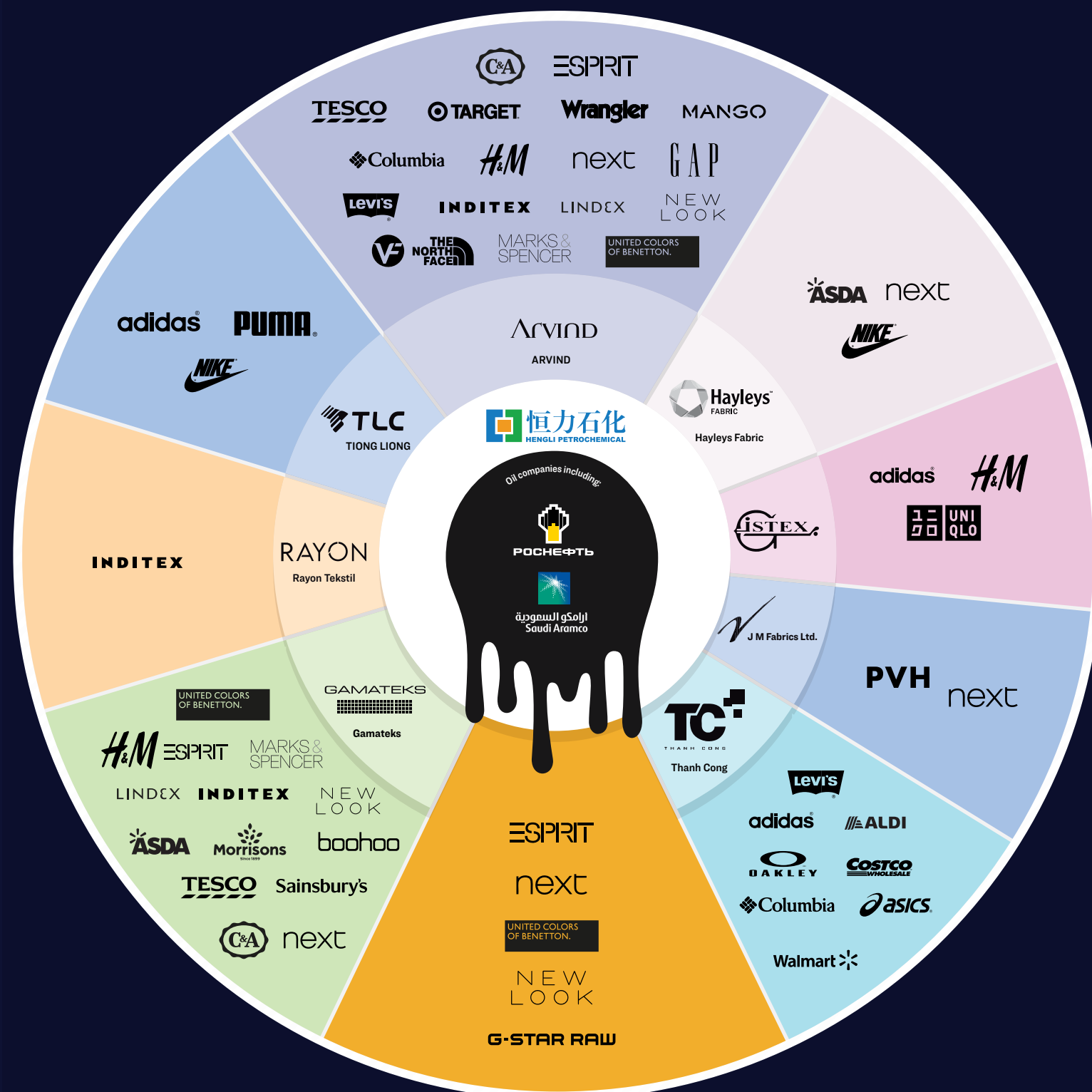
Hydraulic fracturing or 'fracking' is problematic because it is driving higher carbon dioxide emissions, but also methane emissions. Recent studies have linked one-third of the dramatic spike in global methane emissions over the past decade to the dramatic increase in fracking of shale oil and gas reserves in the US and Canada.¹⁶⁶ Furthermore, it causes air pollution and contamination of drinking water due to the toxic chemicals used in hydraulic fracturing.^{167,168}

Despite the ban on fracking by a growing number of countries in the EU and elsewhere, fracked gas, as well as oil, still ends up in the fashion industry through polyester supply chains. This is not only the case with Reliance Industries, which imports vast amounts

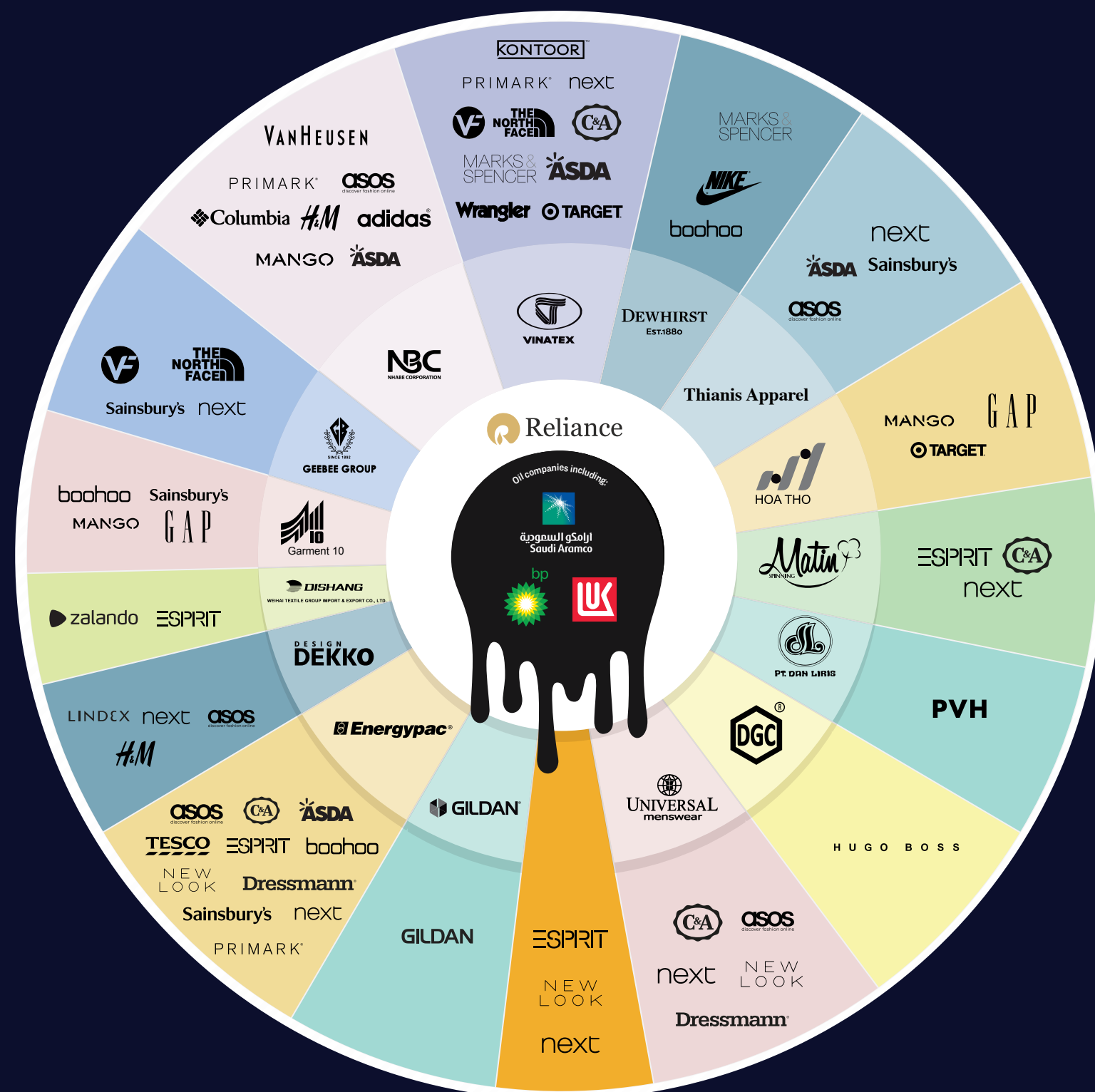




Supply chain links between Hengli Group and major global fashion brands



Supply chain links between Reliance Industries and major global fashion brands



Direct links were found for brands which have published Hengli or Reliance on their supplier lists. Indirect supply links are included for brands sourcing from manufacturers which are supplied in turn by Hengli or Reliance.

of ethane from the US, presumably Texas, where the bulk of US fracking takes place. Stand.earth established links between gas derivatives from Texas and Pennsylvania to Ineos, a major European importer of ethane. Approximately one-third of Ineos' capacity ends up as polyester fibre used by the fashion industry, including polyester made by the Ineos' customer Indorama Ventures, one of the largest producers of polyester fibre in the world. That means that fracked gas and oil winds up in polyester clothing sold by major fashion brands, and in countries banning fracking in the first place.¹⁶⁹

Reliance sells a vast amount of polyester and synthetic based fibres around the world. An analysis of Indian export customs data reveals that in the 12 months between July 2021 and July 2022, Reliance exported around \$900 million worth of polyester-related materials (of which fibre, fabric and yarn accounted for \$523 million) but it is likely that additional exports that were not captured by these data exist.

To identify the global fashion brands that are linked upstream to Reliance Industries through their supply chains, an analysis of 50 brands was carried out. This investigation consisted of comparing the supplier lists published by fashion brands or third parties with garment manufacturers identified through customs data as buyers of synthetic fibre and yarns from Hengli and Reliance, with a focus on the key countries of Bangladesh, India, Turkey and Vietnam.

A small number of brands with the most detailed supplier lists, such as Esprit, New Look and Next, have included Reliance as a raw material supplier in their public lists. For most brands, however, the connections to Reliance are of a more indirect nature, where third-party suppliers of garments to the brands were found sourcing products from Reliance. These companies commonly supply to a number of brands, and it is not known with a high degree of certainty whether the polyester

from Reliance ends up with the specific brands or also originates from other polyester suppliers. Details on the methodology for this investigation are in the Annex.

The graph below illustrates how intertwined the global polyester supply chains are and how widely products from controversial sources, such as Reliance's polyester produced from Russian oil, can taint the supply chains of the global fashion industry. In total, of the 50 companies and company groups included in this research, 24 have been linked directly or indirectly to Reliance's supply chain, many of them through multiple garment manufacturers.



Figure 3.4: DUGARCO's customers listed by the company

Credit: Dugarco¹⁷¹

Note that for non-direct links, due to the lack of companies' supply chain transparency and corporate disclosure, it is not possible to establish a direct chain of custody and ascertain whether polyester produced by Reliance can be found in the brands' specific products. In cases where we have been able to establish that Reliance is supplying a specific manufacturer and that the manufacturer supplies a clothing company, this is indicated to demonstrate the possibility that polyester from controversial sources ends up in these fashion brands' products.

One of the garment manufacturers that, according to customs data, has purchased synthetic fibre from Reliance Industries is Duc Giang Corporation (DUGARCO). DUGARCO is a large Vietnamese manufacturer operating 30 production facilities with a capacity to produce nearly 20 million shirts, pants, suits and other clothing items annually. More than 80% of the production is exported to North America and the EU.¹⁷⁰ The company lists numerous brands as its customers. It is therefore highly likely that the items below are produced from Reliance's polyester, and by extension, Russian oil and other concerning sources of fossil fuels.



Figure 3.5: Examples of products that DUGARCO indicates it produces for The North Face, Hugo Boss and Nautica (from left to right)

Credit: Dugarco¹⁷²



4. Hengli Group



4.1 Overview

The Hengli Group is a relatively young company having been established only in 1994.¹⁷³ Hengli is vertically integrated, focusing on the full production chain in oil refining, petrochemicals, and polyester materials and textiles. With 120,000 employees, Hengli operates one of world's largest PTA plants with an annual production capacity of up to 12 million tons, one of the world's largest functional fibre production bases as well as weaving enterprises, and has also built an 'Enterprise Technology Center' in China.¹⁷⁴ In the polyester materials sector, Hengli Group has an annual polymerisation capacity of 6 million tons. As part of the vertical extension of the Group's industrial chain, Hengli Textile owns more than 40,000 sets of production equipment with a production capacity of over 4 billion metres of synthetic fibre per year. Its production bases are in Suzhou and Suqian in Jiangsu, Luzhou in Sichuan, Guiyang in Guizhou and other places.

Hengli's revenue in 2021 was around \$116 billion making it the 67th largest company on the Fortune Global 500, 21st in Top 500 Chinese Enterprises, third in China's Private Enterprises and sixth in the Top 500 Manufacturing Enterprises in China.¹⁷⁵

Hengli Group has built three major synthetic chemical fibre production bases in Jiangsu Province, namely Suzhou, Nantong and Suqian. Regarding textile production, there are a number of subsidiaries of Hengli Textiles that are active in the textile supply chain. Production bases are located in Suzhou and Suqian in Jiangsu, Luzhou in Sichuan and Guiyang in Guizhou, among others.¹⁷⁶

4.2 Operations

Oil and gas extraction

Hengli is not directly involved in the exploration and production of oil and gas; however, the company owns a massive petrochemical refinery on Changxing Island, Dalian. This facility started production in 2019,¹⁷⁷ and its overall capacity has been reported to be 400,000 BPD.¹⁷⁸ For comparison, this is the daily production figure equivalent to the whole of Australia.



Figure 4.1: Petrochemical refinery at Changxing Island, Dalian

Credit: Hengli Group¹⁷⁹

Hengli estimates that it annually produces 4.5 million tonnes of aromatics - chemicals such as benzene, toluene and xylene, which are raw materials for making dyes and synthetic detergents - 9.92 million tonnes of gas, coal and diesel products, 1.62 million tonnes of chemical light oil, 960,000 tonnes of pure benzene, 540,000 tonnes of lubricating base oil, 500,000 tonnes of sulphur, 850,000 tonnes of polypropylene, 350,000 tonnes of acetic acid and other chemical products.¹⁸⁰ It is as part of this business that the company produces the raw materials for its textile products (such as plastics ingredient, PTA), as well as products that are used for food-grade packaging, the construction, logistics and automotive industries, electronic appliances, optical equipment and other fields. Most of these chemicals are sold in the domestic market.¹⁸¹

Hengli's links to fossil fuels

While Hengli has a history of purchasing oil from Brazil, Iraq and Saudi Arabia,¹⁸² the company has increasingly been using Russian oil to run its refinery. In 2018, Hengli and Russian oil company Rosneft signed an agreement providing cooperation on oil exploration and production as well as trading oil and petrochemical products.¹⁸³

In May 2022, China's crude oil imports from Russia soared 55% from a year earlier to a record level. Meanwhile, Beijing continues to refuse to condemn Russia's invasion of Ukraine.¹⁸⁴ In June 2022 China issued 52.66 million tonnes of crude oil import quotas to non-state refiners, with Hengli receiving the second-largest quota at six million tonnes. Independent refiners, such as Hengli, typically go after cheap cargoes in the spot market as they lack the credit needed for long-term contracts with suppliers and have been known to purchase discounted crude oil from Russia

in recent months.¹⁸⁵ While details of purchasing contracts are not available, it is very likely that Hengli has been purchasing oil from Russia.

It is highly likely that this oil is used in the production of polyester and other synthetic fibres. Hengli's refinery in Dalian plays a crucial part in China's ability to produce its own supply of paraxylene, a petrochemical used to make textile fibres and bottles, which was previously sourced from countries such as Japan and South Korea. Between March 2019 and 2020, China was projected to add 10 million tonnes of paraxylene manufacturing capacity. The new capacity was expected to cut Chinese imports by about 50%. Much of the home-grown Chinese capacity came from Hengli with a plant capable of producing 4.5 million tonnes per year in March 2019.¹⁸⁶

Hengli Group's deep ties to Saudi Aramco Oil - the biggest corporate GHG emitter

Hengli Group, purchases most of its oil via a contract with the state-owned Saudi Arabian petroleum and natural gas company, officially known as Saudi Arabian Oil Company (Saudi Aramco). In 2019, Hengli's Saudi oil imports averaged around 4-6 million oil barrels per month and was expected to increase to 8 million barrels as they opened a new refinery in north-eastern China.¹⁸⁷ It was reported that Hengli signed on to buy 130,000 BPD of crude from Saudi Aramco, a deal that started in the second half of 2018.¹⁸⁸

Saudi Aramco is currently ranked as the world's most profitable company, with a revenue of \$400.4 billion.¹⁸⁹ In May 2022, due to soaring commodity prices and large profits at energy companies, Saudi Aramco became the world's largest company by market cap, toppling Apple Inc.¹⁹⁰ The Saudi Arabian government owns 98.5% of Aramco and retains the world's second-largest proven crude oil reserves, at approximately 270 billion barrels (43 billion cubic metres). These figures position the state-owned company as having far more oil and gas reserves than BP,

Chevron, Exxon, Shell and Total combined, enough to burn until 2077.¹⁹¹ Aramco has no intention of reducing its production; on the contrary, it is planning to raise its production capacity from 12 million to 13 million barrels of oil per day by 2024. It even has further plans to boost production at three key oilfields, known as Zuluf, Marjan and Berri, by 2025 and 2026.¹⁹²



Studies have shown that Saudi Aramco is also the world's biggest corporate GHG emitter.¹⁹³ Back in 2017, The Carbon Majors report revealed that a relatively small number of fossil fuel producers and their investors have been responsible for 70% of GHG emissions since 1988.¹⁹⁴ The report also revealed that over half of global industrial emissions since the year the Intergovernmental Panel on Climate Change (IPCC) was established had been traced to just 25 corporate and state-owned enti-

ties.¹⁹⁵ Saudi Aramco ranked first among the Top 50 fossil fuel companies that were responsible for half of the global industrial GHG emissions.

Later in 2020, the Climate Accountability Institute released a new data set quantifying how much each of the largest oil, natural gas and coal companies had contributed to the climate crisis since 1965. Leading the ranking was state-owned Saudi Aramco accounting for 4.33% of global fossil fuel emissions, equivalent to 61,143 MtCO₂e.¹⁹⁶

In a recent investigation by Client Earth, Saudi Aramco has been accused of greenwashing its way through a series of voluntary initiatives, pledges and global treaties.¹⁹⁷ For example, Aramco is a member of the Oil and Gas Climate Initiative, a group of oil majors who have pledged to contribute a +\$1 billion fund to develop

technologies that could help lower emissions in the sector. Despite these well-publicised series of commitments, Saudi Aramco aimed to continue to expand fossil fuel exploration and evaluation assets of \$5.6 billion in 2020. The expanding business with Hengli Industries is yet another example that Aramco has no plans to reduce oil and gas production by 2030, the date by which IPCC scenarios suggest that emissions from fossil fuels need to be substantially reduced.¹⁹⁸

Investments in polyester production from coal

It has also been reported that Hengli has invested in a \$20 billion project to extract coal for conversion into plastics for use as polyester yarn and for packaging and plastic bottles. Coal is not a typical raw material for polyester and Hengli's plan will be the world's first of its kind in the China-dominated coal-to-chemical sector,



where investment so far has totalled \$85 billion according to the China Petroleum and Chemical Industry Federation.¹⁹⁹

The project, which Hengli aims to have running by the end of 2025 in coal-rich Shaanxi province, fits into Beijing's enduring commitment to coal and will add Hengli to a roster of Chinese companies, including coal miner Shenhua Group and oil refiner Sinopec, investing heavily in the coal-to-chemicals business. Officials from Yulin city in Shaanxi province, where Hengli plans to base its coal-to-polyester operations, approached the company first with the idea of setting up a plant there.²⁰⁰

The current progress of the project is not known but no reports have been found to indicate that it has been cancelled. In November 2021 it was reported that Hengli's coal-fired power plant was going through the permit process, with project construction likely to commence in 2023 and expected to enter into commercial operation in 2025.²⁰¹ That article, however, did not mention the polyester yarn component. A January 2022 report by the International Centre for Sustainable Carbon said that the project would convert 20 million tonnes of coal to 9 million tonnes of polyester via an ethylene glycol intermediary. It includes mining operations and chemical facilities and aims to be operational by 2025.²⁰² Environmental considerations aside, given that many fashion brands that have commitments to phase out coal reliance,²⁰³ and yet source polyester from Hengli's operations, this could prove problematic.

A threat on the horizon: Avoiding the risk of coal-based clothes

Despite the fashion industry's rhetoric about decarbonisation, our survey analysis conducted in the fall of 2022 highlights that many prominent global brands have not yet formed a coherent stance on sourcing from suppliers that use coal to produce synthetics such as polyester or have plans to do so in the future. This is highly concerning given that our investigation found that at least 32 clothing companies are at risk of producing clothing from coal in the near future (see table 3.1).

Less than half of the brands (45%) that engaged with us outright said they would not source from a supplier that produces polyester from coal. This includes nine brands and retailers that were found sourcing from Hengli Group, a polyester producer with plans afoot to produce polyester from coal (see Figure 4.2). These brands are Adidas, Asda, C&A, Esprit, G-Star RAW, H&M, Inditex, Levi Strauss & Co. and PVH. While C&A indicated that they would not source polyester from coal they added:

'At this point in time, it is difficult for us to guarantee that that we do not have any producers manufacturing synthetics coming from coal. Once we have been aware of this, we will start our investigation upstream supply chain to understand the current situation of our producers and be able to report accordingly.' G-Star RAW answered both yes and no to reflect its current status of using coal versus its long-term ambitions to phase it out, without a set deadline.

There were a handful of brands that openly said yes, they would source from a supplier that produces polyester from coal or have plans to do so in the future. This includes Lindex and Tesco, which are both linked to Hengli Group and according to their answers, might continue to rely on coal. This contradicts these companies' climate commitments; Lindex has a goal of being climate positive well before 2050, while Tesco has a net zero commitment by 2050.

A third (9 of 31) of all companies who completed the survey did not answer this question with a direct response, skirting around the issue. These brands were Boohoo, Burberry, Morrisons, Next, Puma, Sainsbury’s, Uniqlo (Retailing Group), United Colours of Benetton (Benetton Group) and Zalando. Additional 14 clothing companies were not included in the survey, but were linked to Hengli’s supply chain.

The answers to our survey illustrate that decarbonisation of supply chains and desire to phase out coal is currently focused more on the use of coal as an energy source either in supply chain operations or in the primary tiers of the supply chain rather than the threat that coal might be used as a raw material for fibre production. It seems that brands do not seem to be aware of Hengli’s ongoing investments in coal polyester.

Adidas responded that they are eliminating the use of coal-fired boilers at all direct supplier facilities at Tier 1 and Tier 2 from 2022 onwards, as well as existing onsite coal-fired equipment at all direct suppliers at Tier 1 and Tier 2 level by 2025.

Similarly, H&M Group have committed that ‘From January 1, 2022, we will not on-board any suppliers or supplier factories into our supply chain if they have on-site coal boilers in their factories – as part of a longer-term aim to phase out coal from our supply chain.’ Levi Strauss & Co. also acknowledged that to achieve supply chain and sustainability goals, they must work in close partnership with suppliers to reduce the use of coal, and with financial institutions to provide the capital for transitioning to renewable forms of energy.

The influence of the United Nations Framework Convention on Climate Change Fashion Industry Charter for Climate Action seems to have guided the response of some brands

to this question. This is because at COP26, held in November 2021, it committed signatories to phase out coal from Tier 1 and Tier 2 suppliers by 2030.²⁰⁴ Reformation upheld this by stating ‘Suppliers must set science-based aligned GHG reduction targets by the end of 2025 or adopt a 50% absolute target by 2030 and net zero by 2050. All Suppliers must phase out all coal use by 2030 and commit to no new coal power by January 2023.’

Interestingly, two responses cited the use of the Higg Facility Environmental Module, created by the Sustainable Apparel Coalition as a tool to help them ascertain if the suppliers they engage with use coal as a power source. These brands were Next and Tesco. For brands that failed to answer our enquiry into coal, their justification revolved around still being in the process of mapping the supply chain or upholding company policies that do not allow them to disclose such information.

Puma told us outright that ‘We trace our materials. However, for polyester, we do not trace to the origin of the monomers, so we cannot answer this question.’ Given that they shared with us that they used 66,248 mt of synthetics (35% of total annual fibre usage) over the last year, and the fact that our investigation managed to link them to Hengli Group, this brand should be vigilant that Hengli’s investments in coal to polyester do not taint their supply chain in the future.

Organisations such as Sainsbury’s who avoided the question, merely stated ‘We would prefer that an alternate source of power were used.’ With no clear indication as to how they would go about enforcing this, it can be interpreted as a poor response given the organisation has committed to reducing absolute Scope 3 GHG emissions by 30% by 2030.

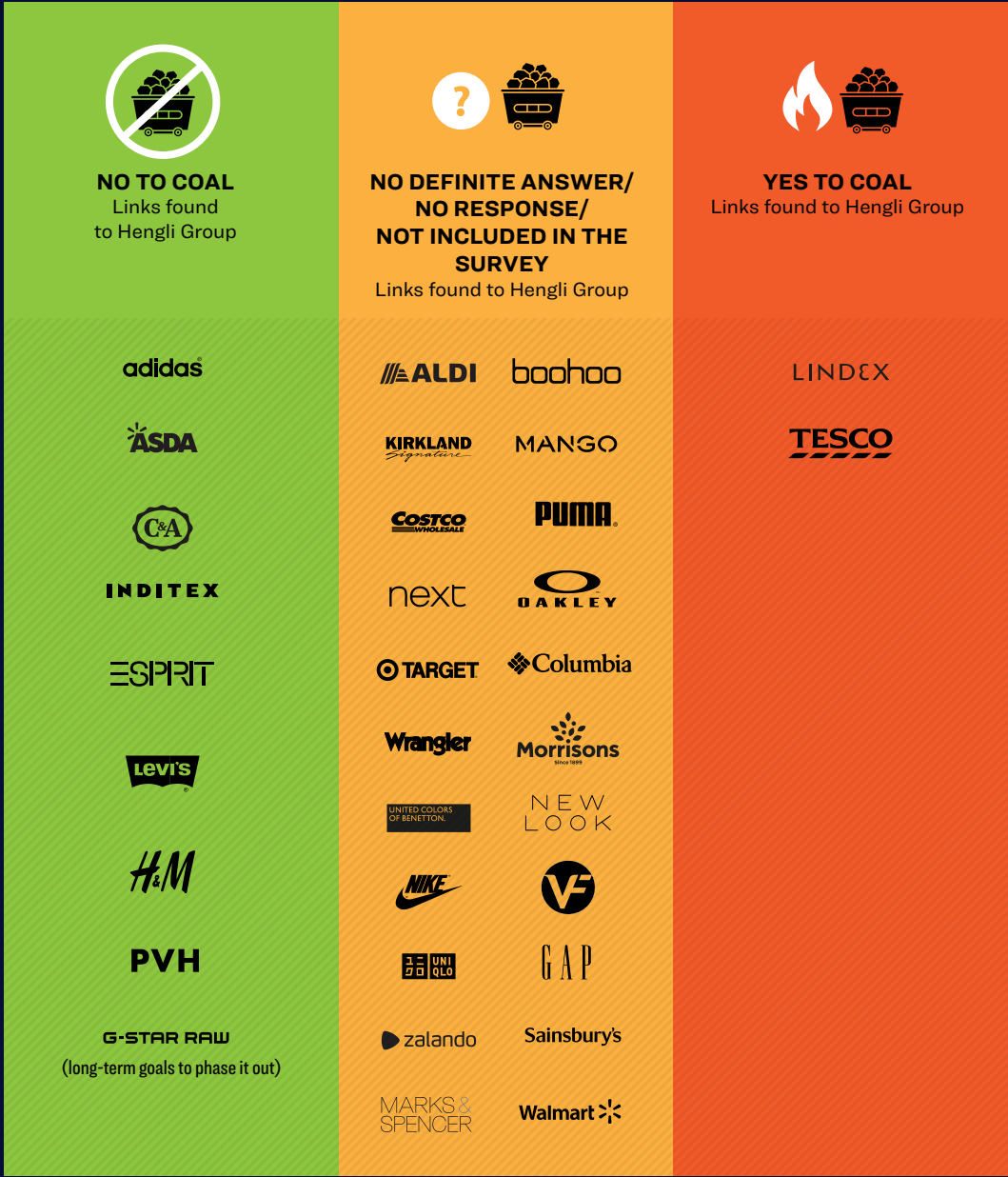


Figure 4.2: Brands and retailers at risk of sourcing polyester made from coal in the near future

As illustrated above, given significant investments into coal-to-fibre technology, phase-out of synthetic fibres will need to become a key element of any legitimate climate and coal phase-out commitments by clothing companies.

Hengli's links to fashion companies

Using a combination of customs data and publicly available sources, Changing Markets found that a significant number of global brands operate within the wider Hengli polyester supply chain. This means that these companies are at high risk of using polyester produced from Russian oil, or in the future, polyester produced from coal, thereby undermining their own climate commitments.

While a small number of fashion brands, including Benetton, Esprit, G-Star RAW, New Look and Next, provide more detailed public disclosure than others and include Hengli as one of their raw material suppliers, numerous other brands are linked to Hengli by purchasing garments from suppliers that in turn receive polyester-related products from Hengli.



Figure 4.3: Partners and clients listed by TCG
Credit: Thanh Cong Group (2022) Partners & clients. [ONLINE] Available at: <https://www.thanhcong.com.vn/partners-clients/>

Of the 50 companies and company groups included in this research, 30 have been linked directly or indirectly to the Hengli supply chain.

Supply chain example

One example of how polyester of controversial origin enters the global supply chain and is used in the production of garments, and ultimately sold by major brands around the world, is illustrated by Vietnamese garment manufacturer Thanh Cong Textile (TCG).

TCG is among the 500 largest companies in Vietnam²⁰⁵ and, aside from the garment industry, the company is also active in the production and trade of wooden furniture, real estate, medical services and construction, as well as travel services through subsidiaries and affiliated com-

panies.²⁰⁶
The garment and textile operations generated around \$150 million in revenue in 2021. Of this, 73% comes from garment production, 15% from fabrics and 10% from yarns.²⁰⁷ TCG reports that 87% of its production is destined for the foreign market including the US (24% of total production), Japan (15%), South Korea (24%), China (6%) and Europe (4%).²⁰⁸

Both customs data and a source inside TCG confirmed that Hengli is an important supplier of polyester yarn, which is used to manufacture garments for a number of brands.²⁰⁹ TCG lists many of the brands it works with or has worked with.²¹⁰

Adidas is one of the clients listed. More specifically, polyester-based products made by TCG include the Adidas Core Camo Hoodie for boys and the Tiro 19 pants. In addition, TCG indicates that it also produces the 77% polyester-based hoodie for Oakley that is still for sale. Due to the lack of transparency and traceability within the industry it cannot be said with certainty that these products contain polyester specifically from Hengli or polyester made from Russian oil, but there is a high likelihood that this is the case.

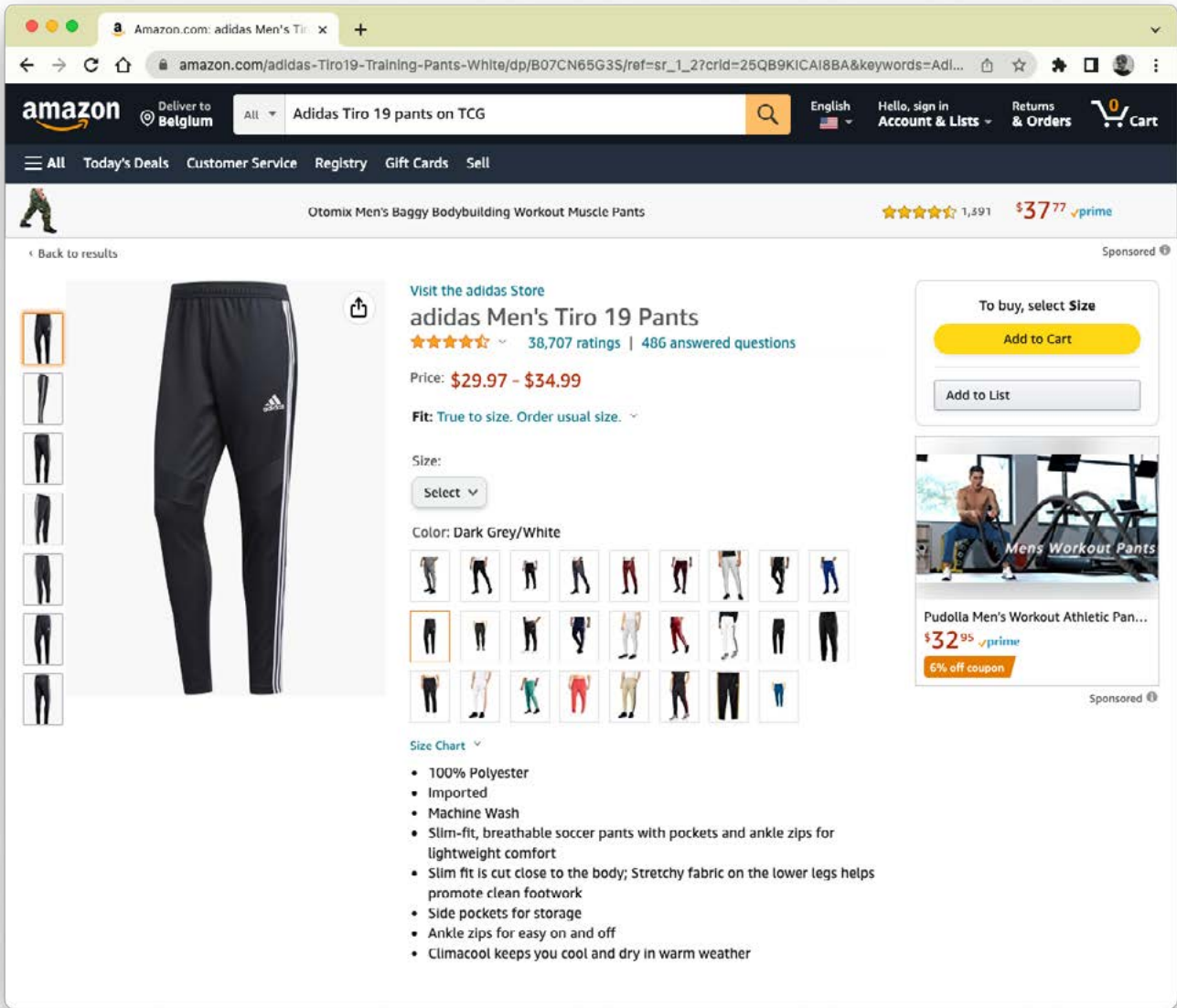


Figure 4.4: Adidas Tiro 19 pants on TCG website and Amazon

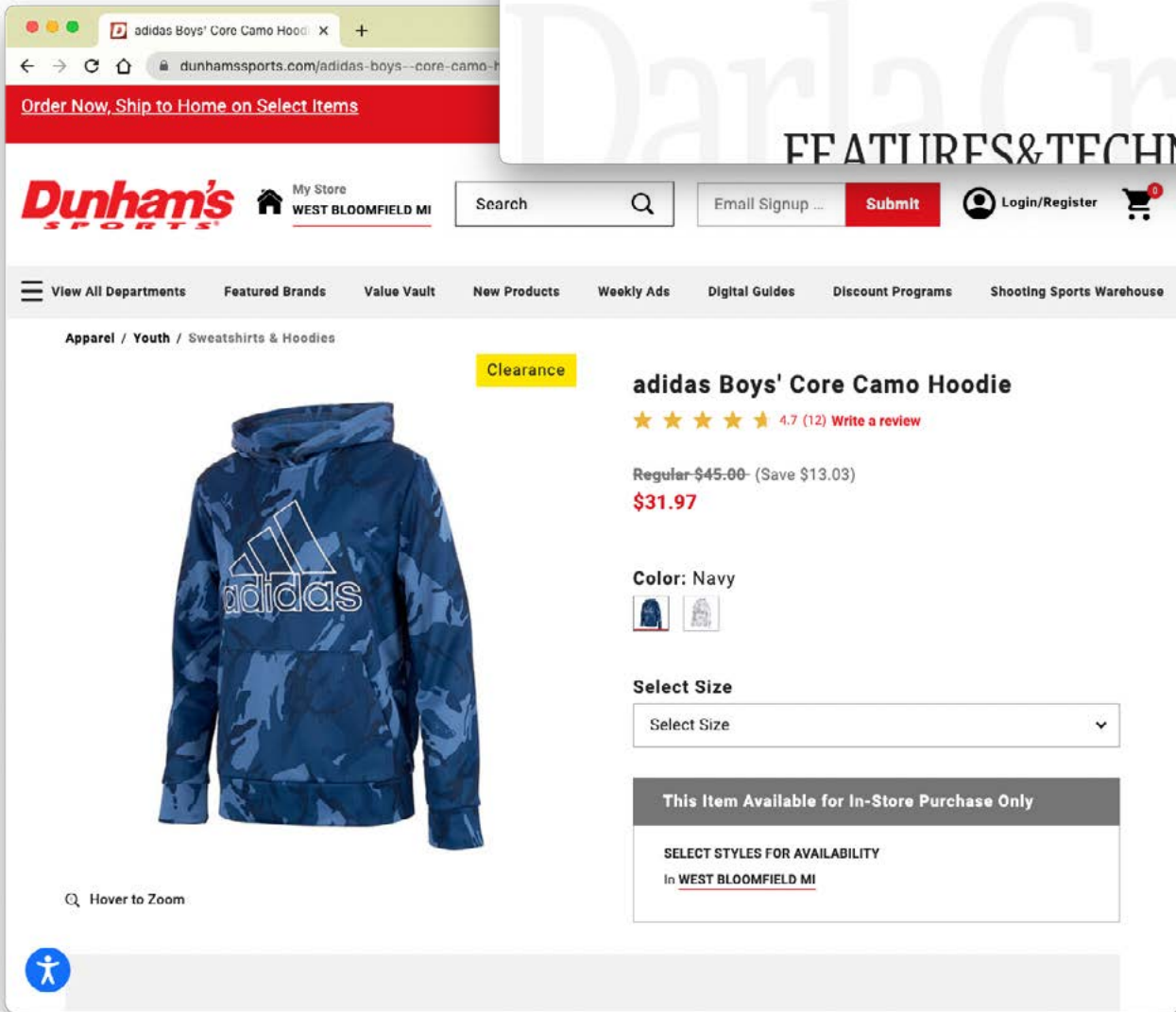


Figure 4.5: Adidas Core Camo Hoodie on TCG website and Durham's stores in the US

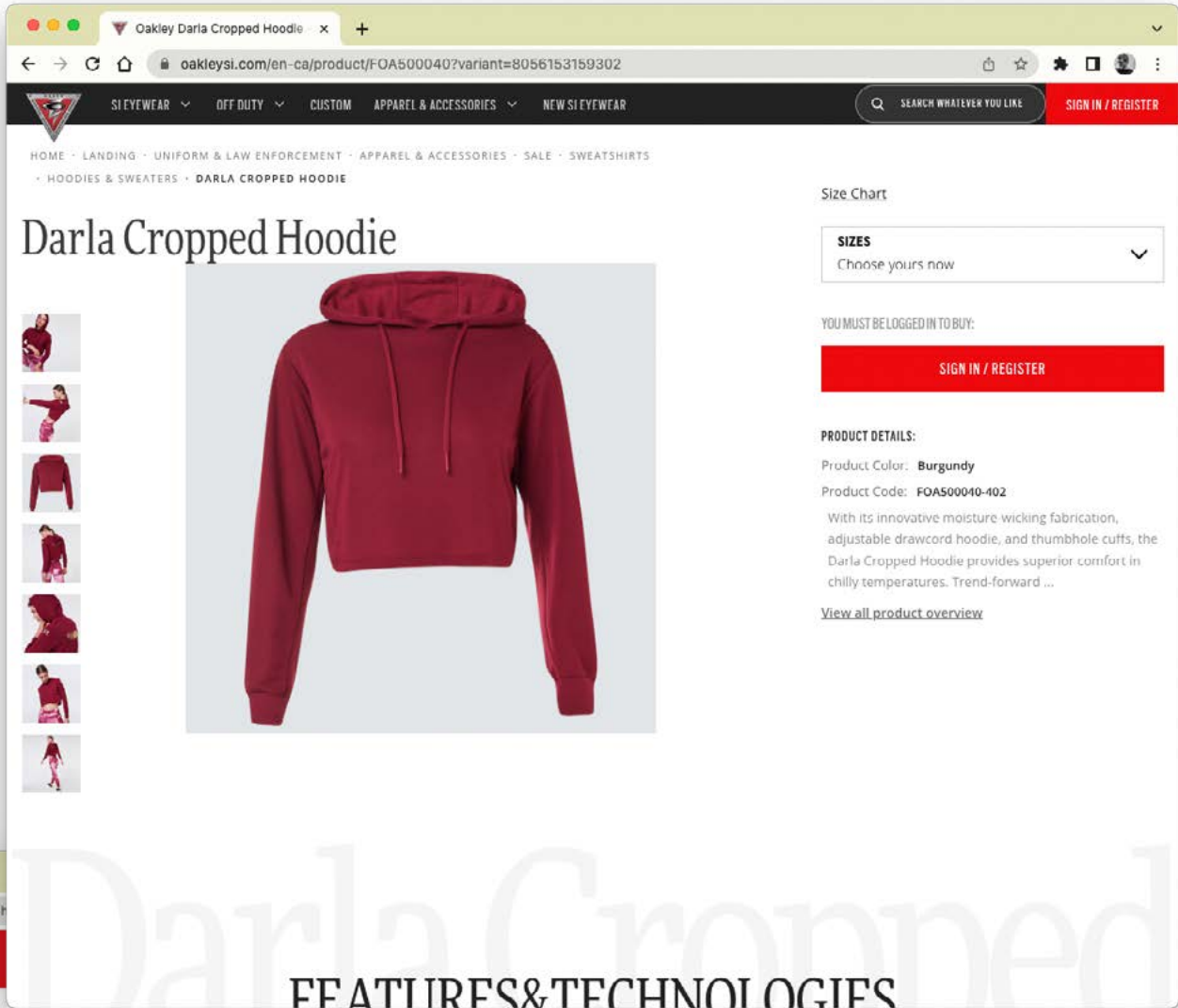


Figure 4.6: Oakley Darla Cropped Hoodie on TCG and Oakley websites

5. Conclusion and recommendations

5.1 Conclusion

This report and accompanying investigation have sought to highlight how intrinsically linked fashion is to fossil fuel extraction. This report clearly lays out the real-world cost of this dependence. In the year that Russia mounted a full-scale invasion of Ukraine, a war that has cost significant loss of lives to date, the global economy's dependence on Russian fossil fuels has become stark. What this report reveals is that, while sanctions by governments and commitments by brands to cease operations in Russia, the global supply chains of the same companies are still tainted by Russian fossil fuels. As countries around the world ban Russian oil and gas, polyester producers are cashing in on it, taking advantage of high supply of discounted Russian fossil fuels to vastly increase their imports and even using the profits to invest in new polyester production capacity.^{211,212} Brands buying from Reliance Industries in India and Hengli Group in China

are helping to prop up the economy of a warmongering state, and by extension, customers of these brands are inadvertently doing the same.

Our findings also raise important questions about transparency and disclosure from fashion brands. While two years of outreach to brands and interrogation about their suppliers has revealed little information about their fibre suppliers (so-called Tier 3); through customs data, supplier lists, shipment tracking and desk-based research, we were able to clarify what brands have been unwilling or unable to tell us about regarding their links to fossil fuel companies.

This research should also raise serious concerns about brands' links to highly extractive, climate-polluting oil and gas majors. It stands as one of fashion's greatest paradoxes that as other industries attempt to decarbonise, the fashion industry is on a trajectory to increase its use of synthetic fibres. The fashion industry is one of the worst culprits for greenwashing, falling over themselves to tell us how ambitious their commitments are, but in reality, they are on an upward trajectory of synthetics usage and these synthetics are getting dirtier. Many brands still lack concrete and specific time-bound emissions reduction commitments, let alone courses of action to phase out reliance on fossil fuel-derived materials. Not only is tainted Russian oil finding its way into our clothes, but unconventional fossil fuels such as fracked US gas are highly likely to be used, and polyester from coal will soon be a regrettable reality, despite fashion's outward commitment to move away from this dirtiest of fossil fuels. Therefore, phase-out of synthetic fibres will need to be a key element of any credible climate and coal phase-out commitments by clothing companies.

Fast fashion is fossil fashion, and our research to date has shown the undeniable correlation between the rise of cheap synthetics and the fact that we are making and buying more clothes, wearing them less and throwing away more than ever before. The fashion industry's fossil fuel addiction is already a major contributor

to the climate emergency, which is now an unquestionable reality for most. Now the evidence is also that such reliance is fuelling a war in the heart of Europe. The rationale for phasing out fossil fuels has never been clearer.

5.2 Recommendations

5.2.1. Brands and retailers

- Move away from the fossil-fashion business model. Companies should establish concrete, measurable and time-bound targets to reduce the use of synthetic materials and move away from the unsustainable fast-fashion model, prioritise phasing out of synthetic fibres from children's clothing and collections for new mothers, as there is emerging scientific evidence that young children's health is the most vulnerable to microfibre pollution. Changing Markets Foundation calls for a complete phase-out of synthetic fibre use, with the following milestones: A 20% reduction set to a 2021 baseline in the use of fossil fuels in materials by 2025 and a 50% reduction by 2030.
- Brands should start immediately by cutting off suppliers that source Russian oil, or with plans afoot to produce synthetics from coal. It is disingenuous for brands move out of Russia but keep contributing to the Russian economy through suppliers linked to Russian oil.
- Brands must provide full transparency about the factories from which they source textiles and communicate these clearly on their website. This should include all stages in the supply chain, making it possible to identify raw materials suppliers and not just Tier 1 and Tier 2 factories.

- Commit to ambitious and comprehensive climate targets: Set ambitious commitments to rapidly move the supply chain away from coal and other fossil fuels by 2030, to achieve the minimum 55% reduction in GHG emissions that scientists warn is needed to stay within a 1.5-degree pathway. These should cover all supply chain emissions, including factories and mills, transportation, raw material cultivation, as well as transitioning away from fossil fuel-based fabrics and end-of-life disposal.
- Invest in true circularity: This should include higher usage of garments, longer warranties, offering repairs to customers and promoting reuse. Instead of promoting downcycled materials produced from PET bottles or ocean plastic, invest in viable and environmentally benign fibre-to-fibre recycling technologies. Ensure, too, that any toxic chemicals are eliminated in the design process, as these might get recycled back into new clothes, harming the health of consumers.

5.2.2. Governments and policymakers

- To discourage the continued reliance of the fashion industry on fossil fuel-derived fibres and curb the fast-fashion model, policymakers should introduce a tax on virgin plastic materials.
- So that regrettable substitution with plastic bottles as a feedstock for recycled polyester is not incentivised, for any recycled content mandates for fibre, policymakers should ensure that brands are encouraged to use fibre-to-fibre recycled material.
- Set up an EPR scheme for different types of textiles (for example clothing, carpets and mattresses), in which producers are responsible for the management and cost of end-of-life treatments of the products they place on the market.

- Adopt mandatory due-diligence legislation, according to which companies are legally required to identify, prevent, mitigate, track and account for environmental, human rights and governance risks and impacts. Due diligence should also mandate high levels of transparency, as companies are often able to hide human-rights violations and pollution scandals behind opaque supply chains and via third-party outsourcing in their supply chains.
- Prevent companies from making unsubstantiated green claims, including around the 'recyclability' of their products, their use of recycled polyester from plastic bottles and the share of recycled polyester in their products. Preferably, an independent body should have to pre-approve any claim before it can be made.

5.2.3. Consumers

- Raise awareness of the problems with fast fashion, and in particular, the links between brands and fossil fuel extraction. Use your voice - for example, through social media or signing petitions - to highlight issues such as greenwashing, exploitative practices, environmental harm and unsustainable consumption.
- Refrain from compulsive shopping and buy only what you really need, shop second-hand and buy for maximum durability, and seek to repair, reuse and swap items where possible. Avoid buying synthetics, particularly given the health hazards associated with the release of microplastics.
- Buy only from brands that have made clear commitments to transparency in their supply chains, to sustainable sourcing and production of all their materials and garments, and that have strong climate commitments, including a clear plan to phase out their dependence on fossil fuel-based fibres.

6. Annex: Supply chain investigation methodology

To identify the imports of raw materials and the exports for polyester-related products by Reliance Industries and Hengli Group, customs data from various countries was used.

The timeframe of analysis for customs data covered the period of 1 August 2021 to 31 July 2022. To link brands with garment manufacturers in production countries, our research primarily investigated the publicly available supplier lists of brands which were then compared with exports from customs data. In cases where no supplier lists were found, the Open Apparel Registry (OAR) was consulted.

As a third avenue of research, the websites of the garment manufacturers identified were used to match related brands. Overall, 50 brands and parent companies of brands were included in the research. Supplier lists were mainly identified during the period of 30 August to 6 September 2022.

To link Russian oil shipments with Reliance Industries, ship-tracking applications using the Automatic Identification System (AIS) were consulted

In addition, a small number of confidential sources within specific companies in the supply chain were consulted to further confirm supply chain links.

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