Powering change: Our energy use 2024

At H&M Group, we are dedicated to reducing our climate impact through efficient energy use and shifting to renewable energy sources.

This document explains how energy is used in two key areas of our business, **our operations** and **our garment supply chain.** It outlines our targets to **phase out onsite** coal and source renewable electricity. We also present our view on **driving policy change** for renewable energy access and renewable electricity procurement and highlight key policy and legislative changes we believe are essential to reach our climate and energy targets.

Energy use across our value chain

Energy is used in all phases of our product lifecycle. It powers raw material production, manufacturing processes and transport. It also runs our offices, warehouses and stores. Finally, consumers use energy when they wash, dry and iron their clothes.

This energy comes in many forms. For example, fuels like coal or diesel power steam production and vehicles, while electricity keeps machinery running, lights up stores and powers cash-registers.

How do we measure energy?

When measuring and reporting energy use, we distinguish between **primary energy** - the energy content in fuels - and **final energy,** which is the energy that drives processes and machinery, for example at supplier production sites.

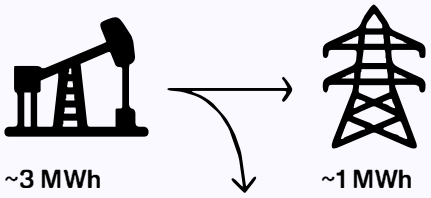
Electricity and offsite purchased steam are measured as final energy. For example, an electricity invoice shows the amount of energy used, making it easy for suppliers to report this data in a comparable way.

Fuels, however, are usually bought by volume (litres, cubic metres) or weight (kilograms, tonnes). Their primary energy content is consistent—a cubic metre of natural gas always contains (pretty much) the same amount of energy.

The amount of final energy generated from each unit of primary energy depends on how efficiently boilers and other equipment convert fuel into steam or electricity. Since conversion rates vary across technology and equipment, there's no fixed way to translate primary energy into final energy.

In our reporting we use a mix of primary and final energy units, stating clearly how each one is used.

Example
Generating electricity for producing garments from fossil gas



Losses from transforming fuel into electricity
Losses from transmission and distribution

Read more about the different types of energy and measuring them, for example here:
Primary, secondary, final, and useful energy: Why are there different ways of measuring energy? - Our World in Data

Energy use in our operations

Across our operations we use energy to power stores, warehouses, offices and company cars.

Our targets

Electricity accounts for about 90 percent of the energy used in our operations. Fuels for heating, back-up generators, cars and district heating make up less than 10 percent. To have the greatest impact, we focus on using less electricity and procuring renewable electricity.

- By 2030, source 100 percent renewable electricity in our own operations, including at least 50 percent from power purchase agreements with new renewable electricity generation.
- By 2030, achieve a 36 percent reduction in electricity intensity in our stores from a 2016 baseline.[1]

As well as increasing the share of renewable electricity, we are committed to procuring it in more impactful ways. We are entering power purchase agreements (PPA) with renewable energy developers to add new generation capacity to electrical grids where we operate. Our renewable electricity target currently follows annual matching, meaning we match our total electricity use with clean energy production over a year. However, we are setting up pilot projects to test 24/7 matching, meaning we will test matching our electricity use with clean energy production every hour of the day.

[1] We updated this target when we reached our 2030 target in 2023 and have increased our ambition to reduce electricity intensity in our stores.

Progress

Energy consumption and mix in our operations

	2024	2023	2022	2019 (Baseline)
Share of renewable electricity in own operations, %	96	94	92	96
Share of electricity from power purchase agreements with new renewable electricity generation	20	10	–	–
Total energy consumption in own operations (in Mwh)	1,157,665	1,208,450	1,383,746	1,816,827
– District heating	22,346	22,704	25,018	52,005
– Electricity	1,065,678	1,112,659	1,273,118	1,660,055
– Building diesel, natural gas, oil and others[2]	69,642	73,087	85,610	104,767
Total energy consumption in own operations from non-renewable sources (in Mwh)	139,874	167,430	212,478	223,174
Share of total energy consumption in own operations from non-renewable sources, %	12	14	15	12
Total energy consumption in own operations from renewable sources (in Mwh)	1,017,791	1,041,020	1,171,268	1,593,653
Share of total energy consumption in own operations from renewable sources, %	88	86	85	88
Change in electricity intensity (in kWh/m² per opening hour compared with 2016 baseline), %	–32	–29	-22	-18

2. Energy data related to building diesel, natural gas, oil, and others includes energy data for company cars and has been retroactively adjusted for previous years.

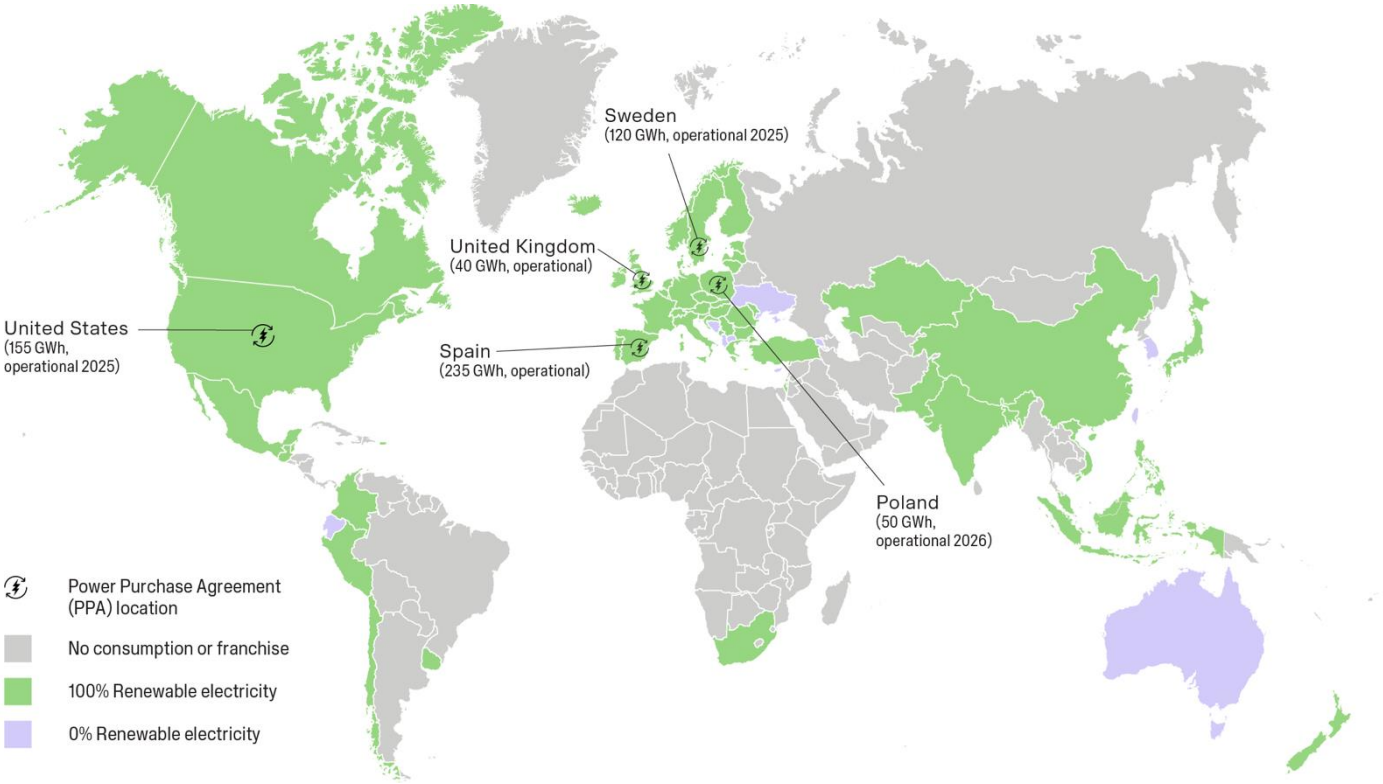
Electricity data is in final energy, while fuel is in primary energy.

In 2024, we sourced renewable electricity equal to 96 percent of our total electricity use in our operations. In Albania, Georgia, North Macedonia, Bosnia and Herzegovina, Ukraine, South Korea and Cyprus, there are no RE100-approved certification systems in place, which means it is not possible to source renewable electricity in a credible way. In Australia, Singapore, and Taiwan, the cost and access to renewable electricity certificates are prohibitive. Ecuador is a new market and will be added in future years.

When we buy standalone energy attribute certificates (EACs), we prioritise wind and solar, which covered more than 99 percent of the renewable electricity in 2023. All our EAC purchases meet RE100 technical criteria.

By the end of 2024 we signed ten PPAs with solar parks in the UK (1), Spain (3), the US (1), Poland (1) and Sweden (4). The total capacity secured is 380 MW, which is expected to generate 600 GWh of renewable electricity annually when fully operational. At the end of 2024, five PPAs were operational and covered 20 percent of our total electricity use, up from 10 percent in 2023.

Electricity and renewables across our operations



Reaching our targets

In 2023, we achieved a 29 percent reduction in electricity intensity in our stores from our 2016 baseline, exceeding our goal of 25 percent by 2030. This was mainly driven by a rollout of LED lighting, which reached 97 percent of stores in 2024. Therefore, we set a new target to achieve a 36 percent reduction by 2030. We will continue expanding LEDs, upgrading our heating, ventilation and air conditioning systems (HVAC) and installing energy monitoring systems in all stores.

By 2030, we aim to close the gap on our 100 percent renewable electricity target by procuring renewable electricity in the countries where we do not already do so. Barriers include limited access to reliable renewables and, in some cases, prohibitive costs.

At the same time, we are addressing the small amount of fossil fuels still used in our operations with the ambition of setting a target to completely eliminate them from our operations.

Energy use in garment production

The different stages of garment production are by far the largest contributor to our energy consumption. Most energy use occurs during fabric production (tier 2 and 3), where raw materials are processed into finished fabric through spinning, weaving, knitting, dyeing and other energy intensive steps. These processes rely heavily on thermal energy, with steam used to heat water or dry yarns and fabrics between production steps. Electricity is also used to run machinery, ventilation systems, lighting and other supporting functions.

Garment manufacturing, known as tier 1, generally refers to cutting and sewing final products, but can also include processes such as washing, ironing and printing. Most of these processes are electrified and powered by the national electricity grid. However, captive electricity production, such as generating electricity onsite using fossil gas, is common across all tiers, especially in regions where electricity grids do not have the capacity to provide a stable supply.

We have been collecting energy data from suppliers for over ten years, steadily extending the traceability further into our supply chain. We have reliable data for almost all our tier 1 and 2 supplier facilities and have recently introduced part of tier 3 into our energy reporting. For the remaining supplier facilities, where we do not currently have full traceability (27 percent of energy in tier 1-3), we use estimated consumption based on expected energy consumption for the relevant processes. Since most tier 3 processes use electricity, we assume that yarn production is electricity-powered, giving a conservative estimate of emissions. Work is ongoing to collect actual data for all production processes, and we expect to have most tier 3 energy data by the end of 2025.

All energy data in the table below refers to our share of supplier factories' energy use, as they manufacture for other brands as well.

In garment production, about 62 percent of the energy comes from fuels, 11 percent from electricity and the remaining 27 percent is currently unknown and estimated as electricity.

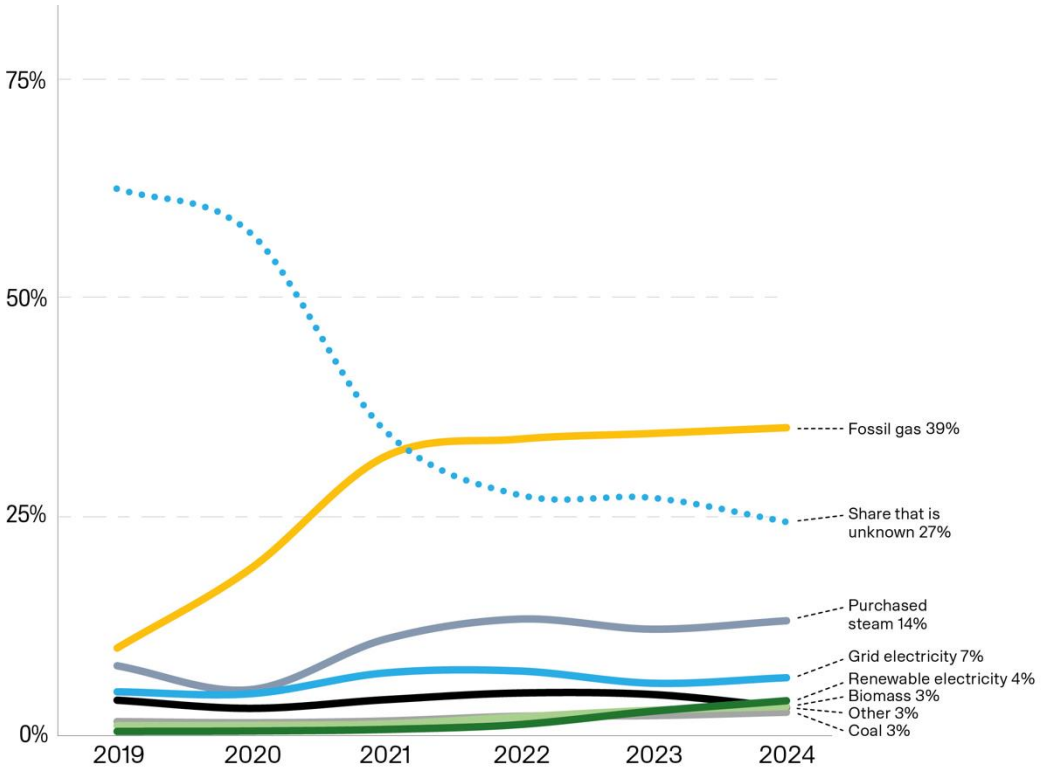
Total energy consumption in 2024 by all suppliers in garment production supply chain (tier 1, 2 and 3)

Production market	Total energy consumption (mwh)	Of which are fuels (mwh)	%	Of which is electricity	%	Of which is unknown, and therefore estimated	%
Bangladesh	**4,140,975**	3,239,135	78%	190,296	5%	711,545	17%
Mainland China	**3,859,317**	1,854,431	48%	604,485	16%	1,400,401	36%
India	**492,033**	271,187	55%	83,445	17%	137,400	28%
Pakistan	**468,558**	357,910	76%	10,351	2%	100,297	21%
Türkiye	**450,563**	240,742	53%	58,344	13%	151,477	34%
Indonesia	**340,259**	180,085	53%	90,627	27%	69,547	20%
Vietnam	**153,970**	72,942	47%	45,340	29%	35,689	23%
Myanmar	**93,720**	67,649	72%	14,135	15%	11,936	13%
Cambodia	**10,906**	4,212	39%	6,036	55%	658	6%
Others	**113,914**	5,123	4%	22,286	20%	86,505	76%
TOTAL	**10,124,215**	**6,293,416**	**62%**	**1,125,343**	**11%**	**2,705,456**	**27%**

Electricity data is in final energy, while fuel is in primary energy. Others include Italy, Taiwan region and Portugal, amongst many smaller production markets.

The dyeing and finishing processes, which most often take place in tier 2, have the highest energy demand. Spinning, mostly in tier 3, and knitting and weaving, usually tier 2 or 3, use most of the remaining energy. The cutting and sewing processes in tier 1 have relatively low energy use. Mainland China and Bangladesh, where the majority of energy use occurs, house all these processing stages, and facilities are represented across tiers and as verticals (i.e. having multiple process steps in the same facility).

Energy source trends in garment production supply chain (tier 1, 2 and 3)



Electricity data is in final energy, while fuel is in primary energy.

Thanks to increased traceability, we can now track each energy source more accurately and “unknown energy” dropped to about 27 percent in 2024. Progress in phasing out coal and increasing renewable energy use is also clear, with both renewable electricity and biomass overtaking coal use in 2024.

Our targets

We have set the following near-term targets to address energy use in our supply chain:

— By 2030, source 100 percent renewable electricity for our garment production supply chain, from spinning to finished product (tiers 1-3).

— By 2026, phase out onsite coal from our garment supply chain (tiers 1-3).

To reach our long-term climate targets, we will continue to evaluate and adopt additional supporting targets. In the near-term, phasing out coal - the dirtiest fuel - while increasing the share of renewable electricity will drive much of the change we need.

In addition to shifting to cleaner energy sources, improving energy efficiency is key. It not only lowers emissions but also reduces operating costs for our suppliers.

To fully understand energy use in garment production, we need to look at fuels and electricity separately – starting with fuels.

Progress on fuel use

Some of the most energy intensive processes rely on steam or thermal energy, which is typically produced by burning fossil fuels onsite, such as coal or fossil gas. In some countries, especially Mainland China, steam can also be purchased from external sources. This thermal energy is crucial for heating water and other substances used in manufacturing processes, including treating yarns, dyeing, finishing, printing and drying fabrics. Fuels are also used to generate electricity onsite to power factories.

Table on page 4 shows that fuels account for the largest share of energy consumption. Table below breaks down fuel use by source across our production markets.

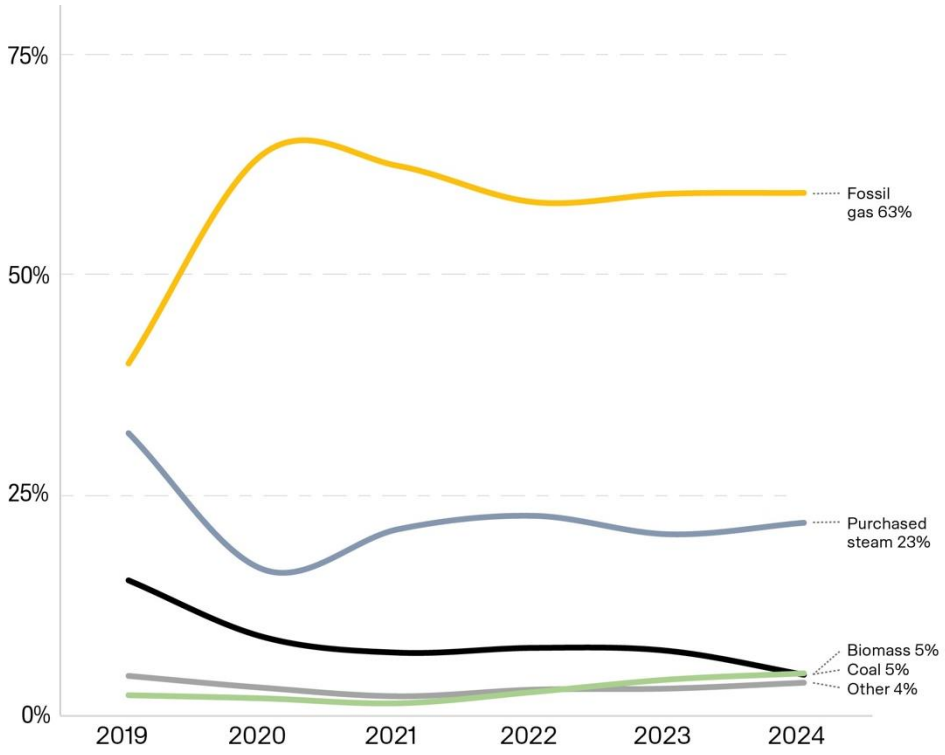
Total fuel consumption in 2024 by all suppliers in garment production supply chain (tier 1, 2 and 3).

Production market	Total fuel energy consumption (MWh)	Purchased steam (MWh)	%	Fossil gas - LNG, CNG (MWh)	%	Coal (MWh)	%	Renewable fuels (MWh)	%	Other fuels (including Diesel, LPG, etc.) (MWh)	%
Bangladesh	3,239,135	177	0%	3,014,766	93%	-	0%	26,026	1%	198,166	6%
Mainland China	1,854,431	1,433,538	77%	403,023	22%	168	0%	7,672	0%	10,030	1%
Pakistan	357,910	13,597	4%	304,008	85%	4	0%	35,586	10%	4,715	1%
India	271,187	0	0%	7,512	3%	123,686	46%	131,233	48%	8,756	3%
Türkiye	240,742	7,227	3%	172,619	72%	45,590	19%	9,633	4%	5,673	2%
Indonesia	180,085	-	0%	570	0%	134,593	75%	38,267	21%	6,654	4%
Vietnam	72,942	589	1%	-	0%	9,090	12%	60,609	83%	2,653	4%
Myanmar	67,649	-	0%	33,363	49%	1,563	2%	13,579	20%	19,144	28%
Cambodia	4,212	382	9%	-	0%	-	0%	2,801	66%	1,030	24%
Others	5,123	1,178	23%	3,644	71%	-	0%	21	0%	281	5%
Total	**6,293,416**	**1,456,688**	**23%**	**3,939,505**	**63%**	**314,695**	**5%**	**325,428**	**5%**	**257,101**	**4%**

Purchased steam is in final energy, while the other fuels are in primary energy.

As the table above illustrates, fuel sources vary across key production markets and are dependent on the characteristics of each country’s energy system. For example, Bangladesh relies heavily on fossil gas, while India uses a mix of coal and renewable fuels, such as biomass. These differences reflect the near-term challenges we face in sourcing alternatives to fossil fuels.

Fuel source trends in garment production supply chain (tier 1, 2 and 3).



Fossil gas remains the dominant fuel in our supply chain, especially in Bangladesh, Mainland China, Türkiye and other smaller production markets. Suppliers rely on it for generating both steam and electricity. In Mainland China, a large share of energy comes from purchased steam produced at centralised facilities, typically powered by coal (about three quarters) and fossil gas. Fossil gas shortages in Bangladesh in recent years have led to a rise in the use of diesel as a backup, leading to an increase in the share of "Other" fuels in 2021-2024.

Phasing out onsite coal

Coal use in our supply chain continues to decrease. In 2024, the number of garment supplier factories in tier 1 and 2 reporting the use of onsite coal decreased by 19 units to 27, a significant decrease from 118 in 2022. This progress is driven by our active efforts to phase out onsite coal, changes to our supplier base, local legislation and supporting our suppliers to electrify steam production.

In 2024, we added tier 3 suppliers to our energy reporting for the first time. With this increased traceability, we identified a further 12 facilities using coal mostly in India and Mainland China, bringing the total across tiers 1- 3 to 39. These facilities will now be included in our target to phase out onsite coal entirely from all garment supplier facilities, across tiers 1-3. As we have extended our traceability and data scope, few suppliers remain unknown, so we do not anticipate finding many more units using onsite coal.

Reaching our targets

Energy efficiency

Reducing demand for energy in general, and fuels in particular, is key to achieve our targets. It will directly lower emissions and decrease our suppliers' operating costs, speeding up the energy transition. Our in-house team of energy experts offers suppliers free energy audits to identify potential efficiency improvements. Our most recent energy efficiency programme, which was launched in 2021, has initiated 1,027 projects. Suppliers are currently or have already implemented these projects, which are expected to reduce emissions by 350,000 tonnes CO2e annually.

In these projects, waste heat recovery, especially from dyeing and finishing processes (mostly in tier 2), in India, Bangladesh, Vietnam and Mainland China, show the most potential to reduce energy use and, therefore, emissions. Replacing machinery and equipment across different production processes also offers significant reductions in Türkiye, Vietnam and Bangladesh. In addition, there is a wide range of activities around optimising processes, motors, utilities and improved control systems that, together, can contribute meaningfully to reduced energy use.

Electrification

In the longer term, electrification combined with sourcing renewable electricity is key to reaching our climate targets. Electrifying fossil fuel-driven processes and steam generation will be our priority.

However, replacing fossil fuels with electricity comes with challenges. The cost of conversion can be high and, if not paired with renewable electricity, it might result in no reduction, or even an increase in emissions. While in some regions, unreliable infrastructure makes it problematic to rely on grid electricity. Innovative energy solutions and storage are emerging but are not yet mature or cost-effective enough for widespread use in our industry. Additionally, fossil fuel subsidies can make transitioning to renewable energy appear overly expensive.

Developments in reliable grid electricity, affordable renewable energy generation and PPAs are key enablers for alternative electrification solutions.

Biomass

Electrification is not always possible. Some processes demand heat or pressure that electricity cannot deliver, for example singing (burning protruding fibres) or co-generating electricity with steam. Some factories are located in areas where renewable electricity is not available. In these cases, biomass from fast decaying organic residues, primarily from agriculture, could serve as a transitional energy source.

However, as many types of biomass can have negative impacts, such as implications for land use and biodiversity, they should be carefully considered.

As the sustainability risks associated with different biomass feedstocks vary, we are guiding our suppliers to select biomass with the lowest risk of adverse impact. Guidelines and a risk assessment tool are available from ISC. Based on these guidelines we have developed minimum requirements that define which types of fuels are acceptable. We monitor this through minimum requirement audits at all supplier facilities at least once a year. Energy and fuel use reported by suppliers is also third party verified, showing what fuels are being used. In 2024 a little over half of biomass used came from agricultural residues, such as rice husks and cotton stalks. One third from wood processing residues, plantation wood (such as cashew nut trees or acacia), or other plantation residues such as nut shells. The remaining 16 percent came from a mix of biomass types meeting our minimum requirements.

Progress on electricity use

Electricity is used across our garment supply chain for running machinery, powering lighting and air-conditioning, and in some cases generating steam for production processes.

Electricity can come from both renewable and non-renewable sources. Traditionally, non-renewable sources, such as coal and fossil gas, have been the primary means of electricity generation, but they are finite and contribute significantly to greenhouse gas emissions. In regions where the electricity infrastructure is unreliable or lacks capacity, suppliers rely on generating electricity onsite, often using fossil fuels.

Therefore, shifting to renewable electricity sources, such as solar or wind, is essential to meet our climate targets.

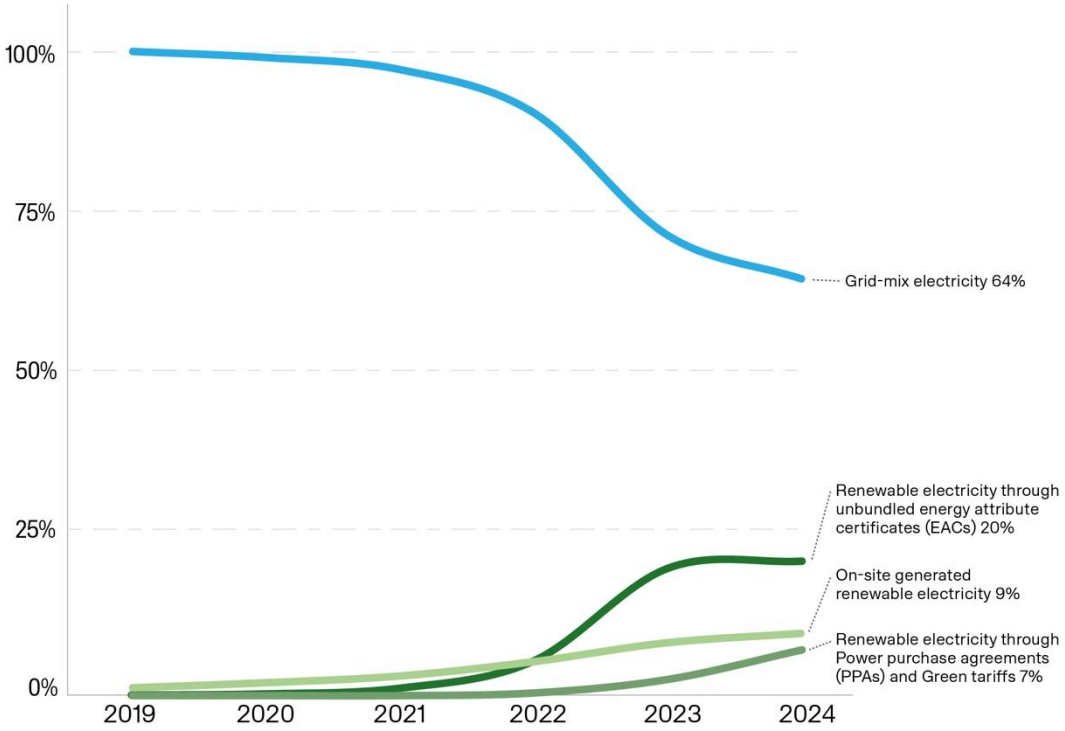
Currently, about 36 percent of electricity used in our garment production supply chain comes from renewable sources, marking significant progress towards our goal of 100 percent by 2030 even though there is still a long journey ahead.

Total electricity use in 2024 by all suppliers in garment production supply chain (tier 1, 2 and 3).

Production market	Total electricity consumption (MWh)	Grid-mix electricity (MWh)	%	Renewable-electricity through unbundled energy attribute certificates (EACs) (MWh)	%	Renewable electricity through Power purchase agreements (PPAs) and Green tariffs (MWh)	%	On-site generated renewable electricity (MWh)	%
Mainland China	604,485	317,174	52%	174,589	29%	62,340	10%	50,381	8%
Bangladesh	190,296	163,009	86%	18,033	9%	-	0%	9,253	5%
Indonesia	90,627	84,605	93%	5,659	6%	-	0%	363	0%
India	83,445	42,927	51%	5,137	6%	10,608	13%	24,774	30%
Türkiye	58,344	34,060	58%	16,289	28%	-	0%	7,995	14%
Vietnam	45,340	33,544	74%	7,680	17%	-	0%	4,115	9%
Myanmar	14,135	14,135		-	0%	-	0%	-	0%
Pakistan	10,351	7,580	73%	129	1%	-	0%	2,642	26%
Cambodia	6,036	3,720	62%	1,530	25%	-	0%	785	13%
Others	22,286	19,061	86%	88	0%	1,235	6%	1,902	9%
Total	**1,125,343**	**719,815**	**64%**	**229,134**	**20%**	**74,183**	**7%**	**102,211**	**9%**

This does not include unknown energy consumption assumed to be electricity.

Electricity source trends in garment production supply chain (tier 1, 2 and 3).



Reaching our targets

Increasingly, we expect our suppliers to source renewable electricity. To help, we provide guidance on how to procure renewable electricity and what sources to prioritise, while our energy expert teams provide energy efficiency advice. Alongside this technical support, we also offer financial assistance. For example, we support our suppliers to make significant energy efficiency improvements, install onsite solar installations or introduce waterless dyeing processes.

We support suppliers with financing for onsite generation of renewable electricity through our Green Fashion Initiative – see some examples here. These installations provide a small share of the facilities energy needs, so are a good complement to fuels and grid-based electricity.

We will continue to strengthen our requirements and support mechanisms to ensure suppliers procure renewable electricity wherever possible.

Overcoming the challenges of expanding renewable electricity use

Renewable energy sources like solar and wind are intermittent and demand advanced grid systems to balance supply and demand. However, many of our sourcing regions still rely on outdated infrastructure that can't support the flexible, resilient grid needed.

Building renewable energy facilities is also costly. For many regions, the high initial costs and difficulties securing financing are major hurdles. Fossil fuel subsidies can also slow the pace of the energy transition and make renewable options appear more costly in comparison.

Supportive government policies and incentives are essential for the growth of renewable energy. However, ineffective regulatory frameworks can create obstacles for new projects.

Each of these challenges needs specific solutions, from policy reform and technological innovation to industry-wide collaboration.

Driving policy change for renewable energy access

Through our policy work, we have identified several industry-wide challenges in electricity and electrification. These vary greatly by country, depending on government priorities and legislation.

Increasing availability of renewables

In some cases, political commitments towards renewable energy are either not in line with best international practices or not backed up with clear plans, targets or nationally determined contributions (NDC). A government's decision to introduce more renewable electricity to the grid is a key first step in changing national energy markets.

Our Public Affairs team works across several countries, pushing for ambitious and clear renewable energy investment strategies. In some situations, we jointly advocate for industry-wide commitments with other relevant stakeholders, especially where the textile and footwear industry play a significant role in the economy, such as in Vietnam and Bangladesh.

Energy market reforms

Much of our advocacy work is directed towards overcoming the many legal barriers to making energy markets open to corporate PPAs that are financially viable. In heavily regulated power markets, private sector involvement is often limited. State-controlled power distribution and pricing slow down progress. In these cases, reforms are vital. This can take time and effort, but it is possible. For example, the government in India introduced open access rules, enabling corporate PPAs, which has benefitted many of our suppliers. We continue to push for eliminating regulatory barriers at state level.

Green tariffs

In other countries, any renewable electricity generated must be sold to a single buyer, typically a state-owned entity, preventing private companies from signing a corporate PPA. In these cases, our Public Affairs team focuses on green tariff mechanisms.

In Indonesia, we worked with World Resources Institute Indonesia and other stakeholders to encourage new renewable energy procurement mechanisms, such as green tariffs. These are now available through the state-owned energy company PLN and we are working with our suppliers to secure their implementation.

Reducing costs of power wheeling

Another challenge is the cost and complexity of power wheeling, the process of moving electricity through a shared grid, which makes offsite PPAs unworkable. We advocate for lower wheeling costs to help private companies negotiate PPAs.

This is a key point of our work in several countries. In Vietnam, the government is working on regulations for direct power purchase agreements (DPPA). While in Bangladesh, the government is currently setting wheeling charges for the upcoming PPA policy to help private companies access renewables.

PPA friendly legislation

When market barriers are resolved or there is an openness to resolve them, we advocate for PPA friendly legislation. Every market needs a tailored approach, so we work with international and local stakeholders to advise governments on the best policy options.

For example, in Bangladesh we have worked with USAID and continue to work with IFC to support the government to develop a PPA framework that allows private companies to negotiate directly. This process is under stakeholder consultation with the government authorities.

Pilot PPAs

Once legislation is available or under way, we help suppliers and energy developers test and implement pilot PPAs, as we did in Türkiye where some of our suppliers signed the first PPA for the textile industry in 2024. We are also working on pilots in Vietnam and Bangladesh.

Improving energy attribute certificates

We want to improve how renewable energy certificates are issued, tracked and certified. We believe bundled certificates linked to PPAs or green tariffs have the most potential to drive an increase of renewable electricity in the grid.

At the same time, we recognise that unbundled EACs can offer more flexibility for businesses. In Mainland China, where green tariff contracts are available and PPAs are becoming more likely, we worked with authorities and international stakeholders to streamline the national Green Electricity Certificate system GEC.

Reliable infrastructure

Finally, every market needs a strong, well-connected grid that can manage the upload of renewable electricity. A lack of infrastructure can slow down PPA adoption and reduce impact. Infrastructure upgrades require major investment, so we engage with international donors, aid agencies and the European Union to push for funding. This includes backing JETP programs negotiated with Vietnam and Indonesia, and supporting targeted cooperation agreements.

See some highlights from our advocacy work in 2024 in our annual report.